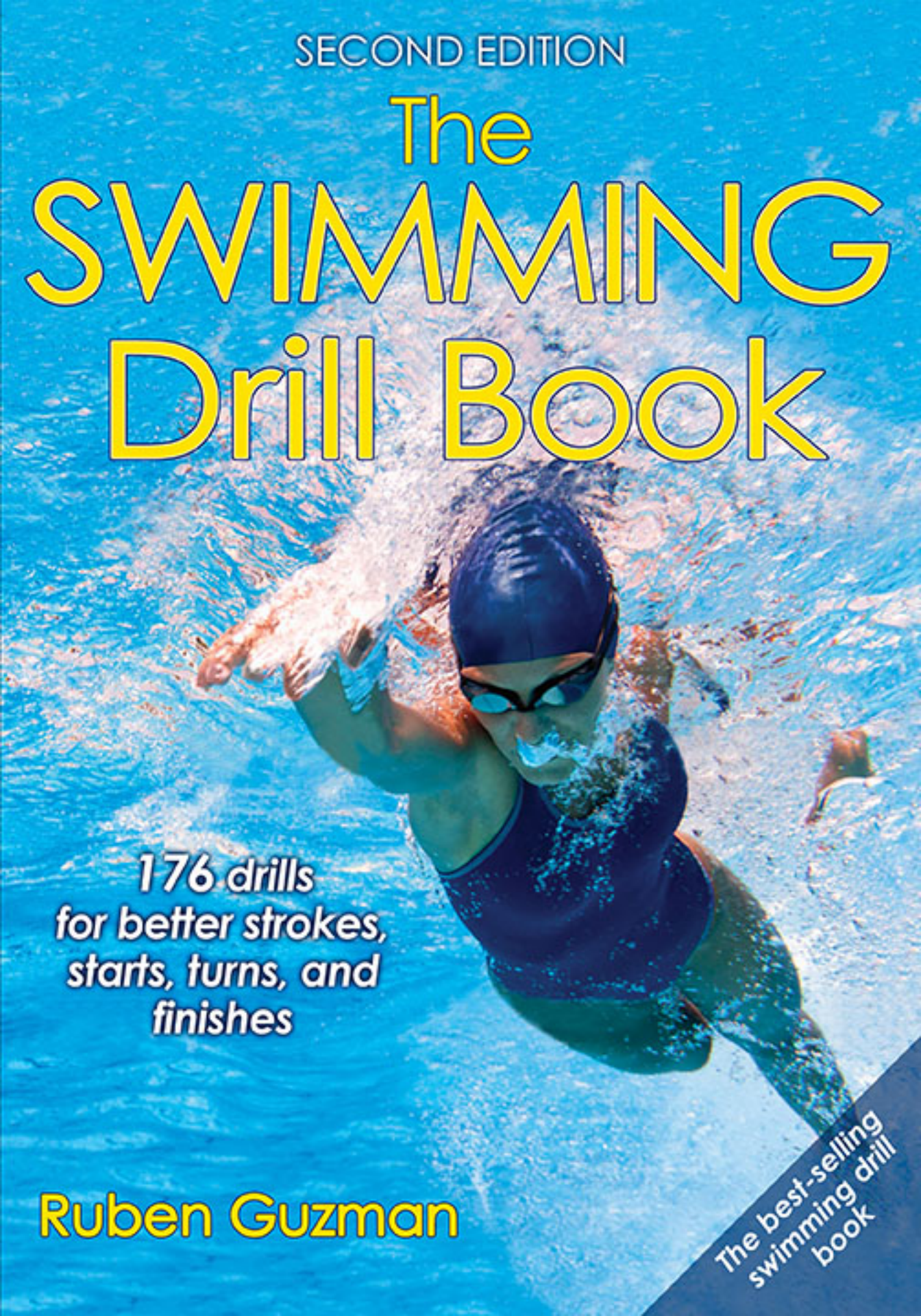


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for better strokes,
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SECOND EDITION

RUBEN GUZMAN



HUMAN KINETICS

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Drill Finder

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Drill #	Drill	Stroke	Wet or dry	Action	Goal	Page #
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Drill #	Drill	Stroke	Wet or dry	Action	Goal	Page #
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113	Dive from the blocks	Freestyle, breaststroke, butterfly	Wet	Starts	Mechanics	242
114	Dive from the blocks plus noodle	Freestyle, breaststroke, butterfly	Wet	Starts	Mechanics	244
115	Streamline diving	Freestyle, breaststroke, butterfly	Wet	Starts	Mechanics	246
116	Butterfly start	Butterfly	Wet	Starts	Mechanics, timing, body position	248
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124	Jump and somersault	Backstroke, freestyle	Wet	Turns	Mechanics	266
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141	Breaststroke pullout	Breaststroke	Wet	Turns	Mechanics, timing	302
142	Breaststroke turn	Breaststroke	Wet	Turns	Mechanics, timing	304
143	Butterfly finish	Butterfly	Wet	Finish	Mechanics, timing	306
144	Butterfly breakout drill	Butterfly	Wet	Turns	Mechanics, timing	308
145	Butterfly turn	Butterfly	Wet	Turns	Mechanics, timing	310
146	Fly to back turn	Butterfly, backstroke	Wet	Turns	Mechanics, timing	312
147	Backstroke to breaststroke turn	Backstroke, breaststroke	Wet	Turns	Mechanics, timing	314
148	Advanced backstroke to breaststroke turn, back flip	Backstroke, breaststroke	Wet	Turns	Mechanics, timing	316
149	Advanced backstroke to breaststroke turn, crossover	Backstroke, breaststroke	Wet	Turns	Mechanics, timing	318
150	Breaststroke to freestyle turn	Breaststroke, freestyle	Wet	Turns	Mechanics, timing	320
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152	Dry-land swimming	All	Dry	Strength training	Strength	326
153	Squat	All	Dry	Strength training	Strength	327
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156	Elastic band kick	All	Dry	Strength training	Strength	330
157	Ankle flex	All	Dry	Strength training	Strength	331
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Drill #	Drill	Stroke	Wet or dry	Action	Goal	Page #
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165	Seated row	All	Dry	Strength training	Strength	339
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Foreword

A special note for coaches from Coach Kirk Johansen.

A few years ago, I attended a coaching conference where one of the speakers was the late, great Cecil Colwin, the legendary swim coach from Canada who wrote *Swimming Into The 21st Century*. One of the points that Cecil made is that we, as coaches, need to strive to reach a level of “intuitive coaching.” He described this kind of coaching as having such a solid foundation of stroke technique drills and teaching skills that we can adjust each individual swimmer’s stroke technique to help him or her become more efficient and effective. Only by having a strong foundation in the fundamentals can we then “make things up” and be creative enough to modify a swimmer’s stroke so that she or he achieves a personal best performance.

I have been a coach and teacher for many years, and I have learned that we as coaches are always teaching. For us to evolve as teachers, we need to learn and grow constantly. We always have to practice teaching the fundamentals that are presented in this book. And then, with practice and repetition, as with anything else, we can take these fundamental drills and stretch them to fit the needs of our swimmers. This is the art of coaching—intuitive coaching.

It’s no accident that Cecil Colwin endorsed the first edition of this book. My invitation to coaches at any level is to use this book as I have—to master the teaching of these drills as appropriate for your group of swimmers. Then, observe your swimmers carefully and be prepared to change. Be open to making continual adjustments in how you teach. Remember, the swimmers are merely a reflection of your teaching and coaching. Don’t be afraid to be different and to experiment. That approach is precisely how this book came together—because Ruben is an innovator and has observed and experimented with teaching his swimmers for many years. Having known Ruben for over 25 years, I have seen that his teams were clearly well coached. His swimmers had excellent stroke technique and executed their races with precision. This book will help you do the same with your swimmers.

Most important, have fun!

Kirk Johansen
General Chair
Sierra Nevada Swimming
Sacramento, California

Preface

In the past several years, since the writing of *Swimming Drills for Every Stroke*, exciting new developments have occurred in the understanding of how the body can move more efficiently and fluidly through the water. Research continues to show that the most significant factors in improved performance are technical—efficiency of strokes, starts, and turns—rather than physical conditioning. *The Swimming Drill Book* incorporates those developments into a refined series of drills that have produced excellent results. In addition, the language of communicating these new concepts and skills to both age-group and senior-level swimmers has been fine-tuned so that swimmers get it almost right away.

The book begins with a chapter on body position and buoyancy. Most of these concepts were derived from Dr. Bill Boomer, the U.S. Olympic swimming team guru. By simplifying the drills and developing a specific sequence of practicing the drills in daily workouts, swimmers have improved in efficiency from 25 to 40 percent.

A chapter on breathing and kicking and one on sculling will prepare swimmers for the chapters on the individual strokes. A new concept in the book concerns the body angle while swimming backstroke and freestyle. By using the sciences of physics and kinesiology, I have tested stroke efficiency to show that the optimal level of rotation is not 90 degrees, a popular notion, but approximately 45 degrees. The physics of the human body and its buoyancy are analogous to that of a sailboat, prompting the concept of the “sailboat angle” of rotation. From the kinesiological perspective, this concept is consistent with producing maximum muscular power throughout the entire stroke cycle.

Improving in the pool isn’t only about body position, breathing and kicking, and the strokes. Quick starts, turns, and finishes are also important to the success of the swimmer. Three chapters provide an array of drills for every type of start, turn, and finish. Additionally, the new final chapter incorporates strength training drills done outside of the pool to enhance swimmers’ performance. This training complements work done in the pool and enables athletes and coaches to work on improving fitness along with swimming skills.

Coaches and swimmers at all levels can use this book to increase practice effectiveness, improve competitive times, and enhance fitness.

Introduction

Swimming requires a combination of physical strength and technical finesse. Because water is foreign to humans, the technical aspects of moving through it become critical at the competitive level. Most swimmers who participate in the sport are relatively inexperienced in proper technique. For them, progress is dramatic when their technique improves. But even for the most experienced swimmer, small technical improvements can make the difference between qualifying and not qualifying for nationals or Olympic trials.

This book covers the fundamentals needed for competitive swimming. All the essential drills are presented to ensure that a swimmer is competent in the basics of competitive swimming. Mastering the basics builds the foundation of future development and refinement.

Swimmers need to have a planned approach to developing good technique that is simple to learn, proven, and tested. Swimmers who use this book will benefit by learning effective ways to practice the skills of swimming. They will perform better and swim faster in competition. They are more likely to stay interested in swimming and will therefore enjoy the sport more.

Coaches need to have a well-planned, comprehensive curriculum. They also need a system that is flexible and can be adapted to a variety of situations. This book will help coaches by providing an organized approach to stroke instruction. By using this system, they can communicate the course outline more effectively in advance, thereby gaining support from swimmers and parents. After a coach becomes skilled in using these drills, he or she can easily detect and correct stroke deficiencies, helping the athletes become faster and better swimmers.

Let's say you have 16 weeks to prepare for a major competition. A good way to organize instruction is to divide drill training into three sections. Spend the first 9 weeks teaching the drills presented in this book in chapters 1 through 7 and 9 in sequential order. Cover one chapter per week. Next, over the following 4 weeks, repeat the drills in chapters 3 through 6 to polish and correct technique. To warm up, spend 3 weeks focusing on starts, turns, and finishes (chapters 9 through 11), along with brushing up any major stroke deficiencies.

After you have your overall 16-week plan in place, organize each week like this:

Day 1: Introduce the first two or three drills and practice them.

Day 2: Review the drills learned the previous day and then introduce three or four more and practice them.

Day 3: Review all the drills previously learned and introduce the final set of drills and practice them.

Day 4 and 5: Review all key drills in a progression.

Do your normal warm-up routine, but include at least one key drill learned the previous day. After you have covered the entire system, a key drill from each stroke can become part of the warm-up. Each week, change the key drill. Your swimmers should memorize the key drills and preform them weekly.

To introduce and teach each drill, follow these steps:

- **Explain:** Provide a complete description of how the drill is performed.
- **Demonstrate:** Show how the drill is performed by using the diagrams or demonstrate the drill yourself. (With younger swimmers, a helpful approach is to use a swimmer of the same age who is proficient in the drill to demonstrate.)
- **Correct:** Have swimmers perform the drill after your initial explanation and demonstration. Point out what they have done correctly. Next, focus on one point at a time. Correct any errors until the swimmers do the drill properly.
- **Repeat:** After the swimmers can perform the drill correctly, have them repeat it until the drill becomes a habit. Make sure that the swimmers do not develop improper techniques.

Running practices that focus on stroke technique requires a commitment to improve. Many coaches rarely focus on technique during their practices because they believe it can take away from “training.” But when a swimmer has developed bad habits of poor stroke technique, improving those deficiencies can be very difficult. Slowing down and giving the swimmers an opportunity to practice these drills through repetition and correction will vastly improve their efficiency. In my practices, we dedicate part of the warm-up and at least one set strictly to drill work. We are constantly practicing and reinforcing the skills in this book to continue our efforts to improve. I try to correct stroke deficiencies quickly to prevent my swimmers from developing any bad habits.

Coaches, your job is not an easy one, and the rewards come all too slowly. I hope that this material makes your job easier and more enjoyable.

Swimmers, my hope is that you enjoy performing these drills. You likely have much to learn about swimming. Learn it a little at a time. I hope that this book helps you master all the important skills and helps you swim easier and faster.

Body Position and Buoyancy

Water is not a natural environment for humans. To move through the water, you must learn to relax and allow the water to support your natural buoyancy—that is, your ability to float. Positioning the body for maximum buoyancy with minimum effort is fundamental to swimming faster.

One of the keys to improving body position and buoyancy is understanding that head position often dictates the ease with which the rest of the body moves through the water. Because of the dense weight of the head, slight changes in its position can significantly alter the position of the trunk and legs. If the head is too high, there is increased drag through the torso and the kick is much less effective. If the head is too low, drag increases as well. The goal is to create a connected body line from the head through the spine.

The drills in this chapter will

- enable you to feel how your body is positioned in the water,
- improve your ability to relax and allow your body to be supported by the water,
- improve your ability to move through the water with less effort, and
- improve your efficiency in swimming all the strokes.

You can improve your strokes almost instantly by learning how to relax and control your body position. Although these drills are simple, they provide a transformational foundation for how you experience your body in the water and for improved performance. Even experienced swimmers gain tremendous improvement in their efficiency by practicing these drills. In my experience coaching swimmers in my stroke clinics, these drills alone can improve efficiency (measured by strokes per lap) by 25 to 40 percent on average. Whether you are a beginner or an international-level swimmer, these drills are fundamental to your success.

1 HEAD AND BODY POSITION

Purpose

To help you experience the different sections of your body and to learn the importance of head position.

Procedure

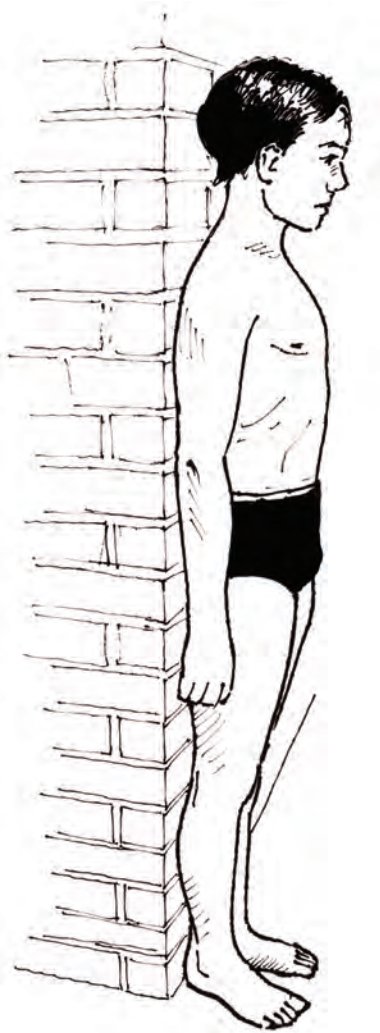
1. Stand on deck with your back to a wall that is taller than you.
2. Place your heels against the wall.
3. Push your hips against the wall.
4. Tuck your chin in and place your shoulder blades against the wall.
5. Gently move your head back until it is touching the wall. You should now have four contact points: heels, hips, shoulder blades, and back of head.
6. Take a small step away from the wall and try to maintain the same posture.
7. Step back against the wall to see whether you were successful.

Focus Points

- This posture will likely feel different from your normal standing posture. That's okay. Just feel how your body is lined up when these four contact points are touching the wall.
- Start with your heels and then move up to your hips, shoulder blades, and head.

Tips

- Practice standing or sitting with your ribs stretched upward. This will help you maintain good posture in and out of the water.
- Have a buddy correct you if you slouch.
- Try to create a straight line from the top of your head, through your spine, and down to your hips.



2 CANNONBALL FLOAT

Purpose

To give you a sense of how your body floats naturally so that you can feel the center of your buoyancy. This is the first key drill in the buoyancy series

Procedure

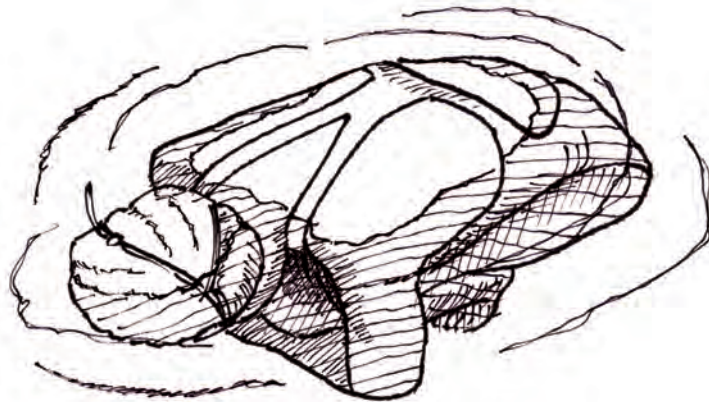
1. Position yourself in the middle of a lane.
2. Take a deep breath and hold it.
3. Bend at the hips and knees and grab around your ankles.
4. Round your back and tuck in your chin.
5. Allow your body to float naturally.
6. Hold this position until you need to breathe.

Focus Points

- Be sure to take a deep breath and hold it.
- Keep your chin tucked in tight.
- Notice which part of your back is floating highest at the surface

Tips

- Try to keep your back at the surface as you draw your legs in underneath you.
- Stay in the middle of the lane so that you don't run into the lane rope.



3 DEAD SWIMMER'S FLOAT

Purpose

To experience the natural buoyancy of your body while your arms and legs are completely relaxed. This is the second key drill in the buoyancy series.

Procedure

1. Position yourself in the middle of a lane.
2. Take a deep breath and hold it.
3. Round your back and tuck in your chin.
4. Completely relax your arms and legs. They should be completely limp.
5. Hold this position until you need to breathe.
6. Notice your natural head position while floating

Focus Points

- Be sure to take a deep breath and hold it.
- Keep your chin tucked in tight.
- Let your elbows and knees bend naturally; stay relaxed.
- Notice which part of your back is floating highest at the surface
- You should feel your head fall in line with your spine.

Tips

- Have your coach check your arms and legs to verify that they are relaxed.
- If you are practicing this at home or on your own, tell someone what you are doing so they don't think that you have drowned!



4 STANDING STREAMLINE

Purpose

To introduce the streamline arm position. This skill is the most important one to master in competitive swimming. Every stroke in competitive swimming begins with streamline. This drill sets up the succeeding drills in the buoyancy series.

Procedure

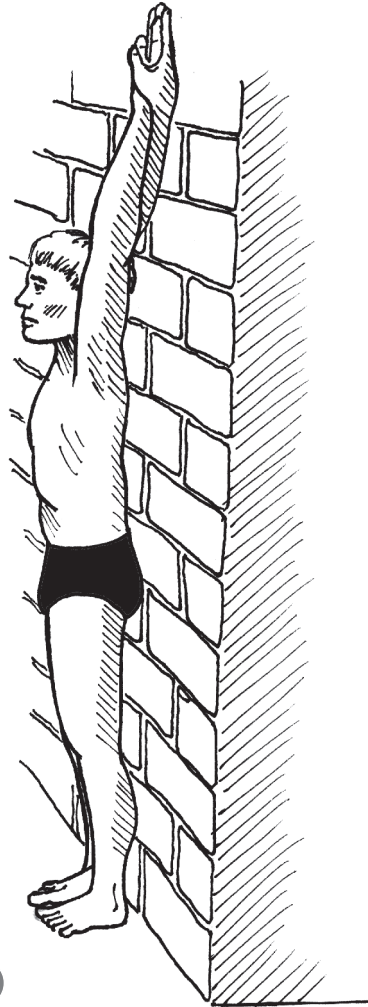
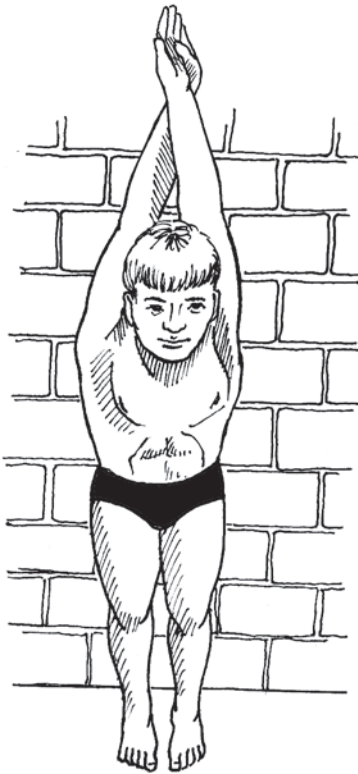
1. Stand with your back against a wall.
2. Place your heels, hips, and shoulder blades against the wall as in the Head and Body Position drill.
3. Allow your head to bend forward and bring your chin down.
4. With your arms out in front of you, place one hand directly over the other with your fingers together. Line up your middle fingers. Whichever hand will begin the first stroke should be on the bottom.
5. Wrap the thumb of the top hand around the bottom hand to lock your hands so that you cannot pull them apart (*a*).
6. Straighten your arms overhead so that your elbows are straight and your hands are against the wall. Your elbows should be as close together as possible.
7. Bring your head back to rest against your arms. Now you are in a streamline (*b*).

Focus Points

- Hold your hands correctly—one hand over the other.
- Reach up and back so that your elbows are completely straight.
- Your head should be in front of your arms.
- You should feel four contact points against the wall: hands, shoulders, hips, and heels.

Tips

- Have your coach work with you to ensure that you can do this standing away from the wall.
- Practice in front of a mirror to check your streamline position.



5 STREAMLINE FLOAT

Purpose

To learn how to stretch your body into the streamline position and reach maximum buoyancy, thereby allowing the water to support your body. This is by far the most difficult exercise for many swimmers, and achieving it may require extensive practice and body control. This is the third key drill in the buoyancy series.

Procedure

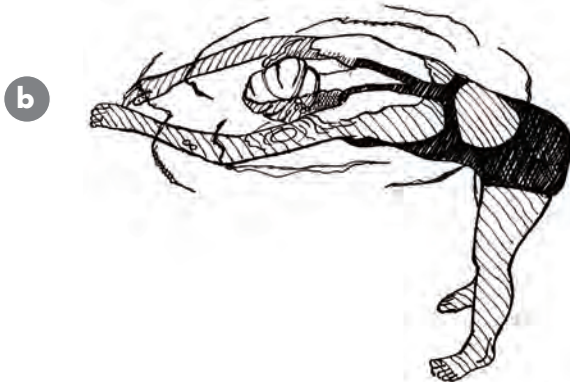
1. Position yourself in the middle of a lane.
2. Take a deep breath and hold it.
3. Move into the dead swimmer's float position (*a*).
4. Gradually extend your arms into the streamline position (*b*).
5. Gradually extend your legs and point your toes (*c*).
6. Give your body time to rise up to the surface.
7. Your goal is to have all four buoyancy points at the surface: hands, shoulders, hips, and heels (*d*).

Focus Points

- Keep your chin tucked in.
- Do not force this or try to kick your way up. Let the water support your body.
- Tighten your back and hips if your legs are sinking.
- Keep your toes pointed while you extend into the streamline position.

Tips

- Have your coach place a kickboard over your hips and heels so that you can feel when you have pushed them to the surface.
- Partner up with a buddy so that you can check each other.



6 GLIDING IN STREAMLINE

Purpose

To develop control of buoyancy and body position while holding the streamline position. This is the fourth key drill in the buoyancy series.

Procedure

1. Position your body at the end of the lane and face away from the wall with your hands holding on to the gutter and your feet up and ready to push off.
2. Take a deep breath and hold it.
3. Push off from the wall in a streamline at the surface.
4. Slide as far down the lane as possible.
5. Stop when your body is no longer moving or when you need to breathe.

Focus Points

- Push off right at the surface and not below it.
- Be sure that your head is tucked in underneath your arms.
- Keep your four buoyancy points at the surface: hands, shoulders, hips, and heels.
- Point your toes as you move through the water.
- Try to stay in the middle of the lane.

Tips

- In a group setting, combine swimmers from two lanes. Use one lane for sliding and the other lane for returning.
- On the way back, count the number of colored sections of the lane rope as a measure of your distance (count the number of sections past the flags). The farther you go, the better!



7 GLIDING IN STREAMLINE ON BACK

Purpose

To develop control of buoyancy and body position while holding the streamline position on your back. This is the fifth key drill in the buoyancy series

Procedure

1. Position your body at the end of the lane and face the wall with your hands holding on to the gutter and your feet up and ready to push off (*a*).
2. Take a deep breath and hold it.
3. Push off from the wall in a streamline at the surface.
4. Slide as far down the lane as possible (*b*).
5. Stop when your body is no longer moving.

Focus Points

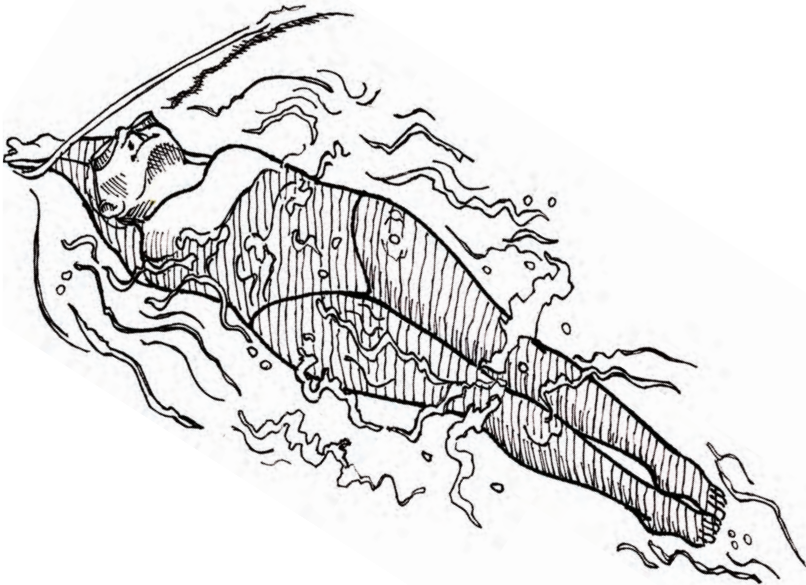
- Push off right at the surface and not below it.
- Be sure your head is tucked in against your arms, your face is above the surface, and your ears are below the surface.
- Keep your main buoyancy point (the bottom of your rib cage) at the surface.
- Point your toes as you move through the water.
- Try to stay in the middle of the lane.

Tips

- In a group setting, combine swimmers from two lanes. Use one lane for sliding and the other lane for returning.
- On the way back, count the number of colored sections of the lane rope to measure your distance. The farther you go, the better!



a



b

8 PENCIL FLOAT

Purpose

To develop control of buoyancy and vertical body position. This is an advanced buoyancy drill.

Procedure

1. Position your body vertically in the middle of the lane.
2. Take a deep breath and hold it.
3. Straighten your body and place your hands at your sides (*a*).
4. Allow your body to move naturally down and up (*b*).
5. Tilt your head back as you come up so that you can breathe quickly (*c*).
6. Continue to breathe and float for at least 30 seconds

Focus Points

- Take quick breaths.
- Point your toes.
- Try to keep your feet directly underneath you and stay in one place.

Tip

Position yourself over a particular spot in the pool and see whether you can stay directly over it.



9 PENCIL DROP

Purpose

To develop a sense of when negative buoyancy occurs while holding a vertical position. This is an advanced buoyancy drill.

Procedure

1. Position your body vertically in the middle of the lane.
2. Take a deep breath and hold it.
3. Straighten your body and place your hands at your sides (*a*).
4. Start to let your air out in a steady exhale until you begin to sink (*b*).
5. Allow your body to sink to the bottom (*c*).
6. Push off to return to the surface and then repeat the drill.

Focus Points

- Let your air out smoothly.
- You might need to let out very little air or quite a bit of air.
- Try to keep your feet directly underneath you and stay in one place.

Tips

- Position yourself over a particular spot in the pool and see whether you can stay directly over it.
- Partner up with a buddy and pay attention to how you differ.



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Breathing and Kicking

After your body position is adjusted for maximum buoyancy, you need to build the foundation for breathing and kicking. Proper mechanics of breathing and kicking might be the simplest skills to perform in swimming, but they are often overlooked. Proper breathing and kicking are critical for feeling comfortable in the water, maintaining good body position, and moving quickly and efficiently through the water.

The lungs and muscles of the rib cage are designed to bring oxygen efficiently to the blood stream and subsequently to the rest of the body. For years, many people have been taught to hold their breath or to limit their breathing while swimming. This practice can cause physiological problems including oxygen deprivation, muscle spasms, lactic acid buildup, and loss of consciousness. Learn how to exert conscious control over your breathing while swimming to enhance oxygen transfer and swim more effectively.

Work in the science of swimming, especially that of Dr. Marty Hull, has led to the development of many training devices designed to enhance kicking. Even if you use these devices, you need to develop excellent kicking propulsion while maintaining proper body position.

A fast and efficient swimmer kicks through the water with the body in a streamline—a stretched position—and performs comfortable and relaxed breathing. Holding the breath wastes energy.

The drills in this chapter will help you kick in a streamline position with proper breathing. Swimming with less drag and less friction saves energy and time. Improved kicking and breathing mechanics can often lead to dramatic results. This chapter is the next layer in the foundation for excellent swimming technique.

10 OVER AND UNDER BREATHING

Purpose

To ensure correct breathing. Your breathing should be relaxed; holding your breath wastes energy.

Procedure

1. Face the wall and hold on to the gutter with both hands. Position your feet against the wall or on the bottom (*a*).
2. Tilt your head up and down from just above the surface of the water to just below the surface (*b*).
3. As soon as your mouth and nose go below the surface, breathe out and hum as you blow steady bubbles. This action will ensure a constant exhale while you are underwater. Breathe in only when your mouth is above the surface.
4. Breathe slowly and stay relaxed. Repeat the motion at least 20 times in a row.

Focus Points

- Do not continue to breathe out when you lift your head up. If someone can hear you breathing out or if you spray water out of your mouth, then you need to concentrate on breathing out only underwater and breathing in only above water.
- Breathe in through your mouth and out through your nose.
- Remember to hum as you blow bubbles!

Tips

- Place a lit candle (real or imaginary) in front of you above the surface. Don't blow out the candle!
- Try to hum as long as you can. When you can no longer hum while blowing bubbles (hum bubbles), you are ready to breathe again.



a



b

11 FLUTTER KICK DECK DRILL

Purpose

To help you see and feel how to do the flutter kick

Procedure

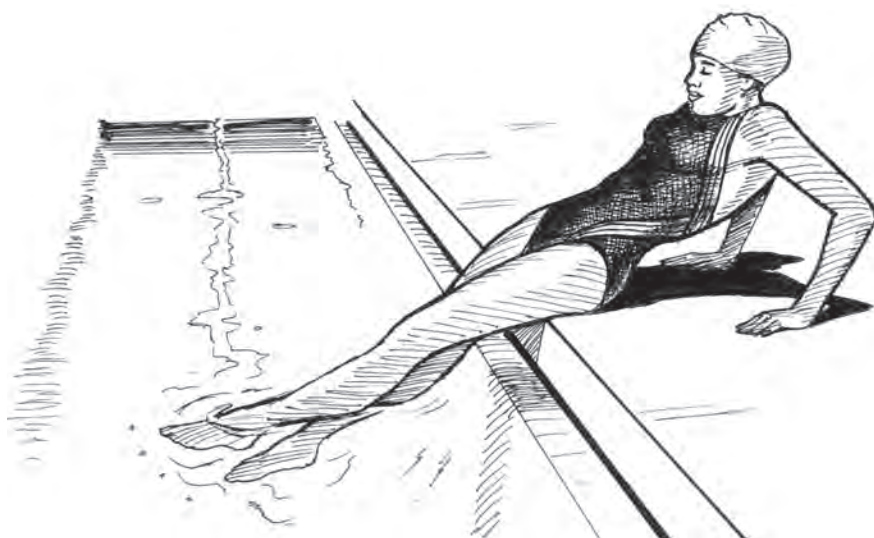
1. Sit on the edge of the deck. With your toes pointed and your legs extended straight over the water, touch just your toes to the surface of the water. Then, lower your legs so your feet are about 12 inches (30.5 cm) under the water. Keep your legs close together.
2. Slowly raise one foot toward the surface and then lower it back down to 12 inches (30.5 cm) under the water while raising the other foot. Continue alternately raising and lowering your feet, making sure that your feet are close together as they pass each other. Keep the toes pointed toward the opposite end of the pool.
3. Kick the water up toward the surface, but do not go above the surface. Gradually increase the speed of the kick.
4. As your speed increases, bend your knees a little and relax your ankles.

Focus Points

- Keep your toes pointed toward the opposite end of the pool. Avoid pointing your toes up to the sky.
- “Boil” the water, but do not splash—that is, kick just under the surface of the water so that the motion is confined to the surface, rather than sending water into the air.

Tips

- Ask someone to stand in the water and hold his or her hand just under the water with the palm facing the pool floor. Kick the palm with the top of your foot. If your toes hit first, they need to be pointed more.
- Practice leg raises. Hold on to a bar or the back of a chair and stand straight with one foot flat on the ground. Point the other foot out in front of you and touch your big toe to the ground. Keeping your leg straight, lift it about 12 inches (30.5 cm) off the ground. Hold the position for two seconds. Slowly lower your leg and touch your big toe to the ground. Repeat 10 to 20 times. Switch legs.
- Advanced variation: Do this drill as a dry-land exercise. Lie on your back and place your hands flat underneath your buttocks. Raise your legs 6 inches (15 cm) off the ground and flutter kick with your toes pointed. This exercise will also work your abdominal muscles! Your legs should stay straight; kick with your upper thighs and your ankles with minimal bend in the knees.



12 VERTICAL FLUTTER KICK

Purpose

To help you develop the full power of the flutter kick. Vertical kicking is perhaps the quickest way to develop a powerful, efficient kick

Procedure

1. Position yourself vertically in water deep enough that your toes cannot touch the bottom of the pool.
2. Face the lane rope and hold on to it with your arms extended.
3. Slowly flutter kick, keeping your body in a vertical position with good posture (*a*). Your feet should separate about 12 inches (30.5 cm).
4. Gradually kick a little harder so that your shoulders rise above the surface (*b, c*).

Focus Points

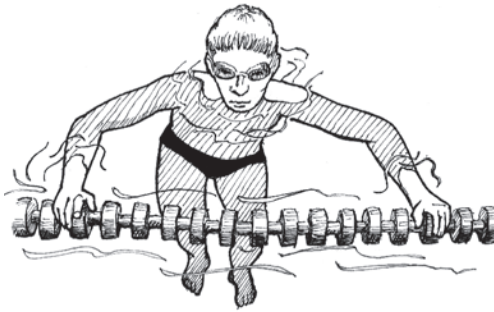
- Keep your knees fairly straight.
- Maintain excellent posture. Many swimmers tend to push their hips back; focus on keeping them straight and staying completely erect.
- Keep your feet moving back and forth and maintain a small separation. Avoid bending your hips and knees and doing a bicycle kick.

Tips

- When you are able, try kicking in the vertical position with sculling (see chapter 3).
- For an added challenge, bring your hands above the surface.
- For an even greater challenge, position your arms in streamline.
- For an extreme challenge, add a weight belt.
- Advanced variation: Practice sprint kicking by performing a fast vertical flutter kick for 20 seconds and then resting for 10 seconds. Repeat this at least four times.



a



b



c

13 PUSH AND FLOAT ON BACK

Purpose

To establish the feel of the proper body position for the backstroke.

Procedure

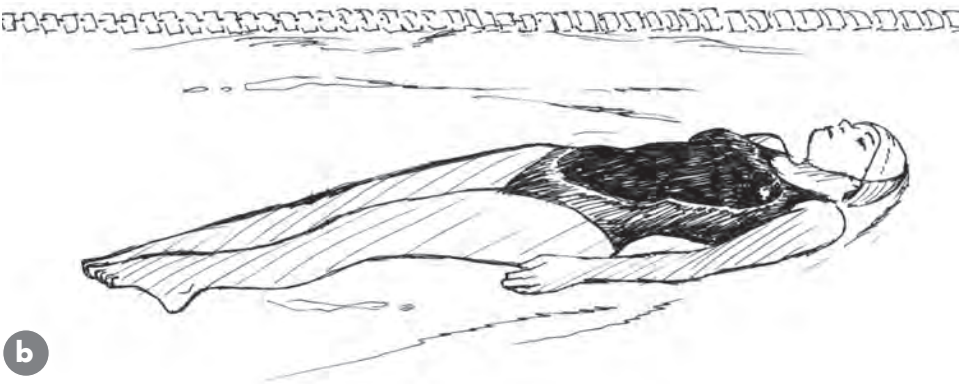
1. Hold on to the gutter or wall and place your feet on the wall at around hip depth, keeping your knee bend as close to 90 degrees as possible (*a*).
2. Let go of the wall and slowly push off with your legs. Straighten your body and float along the surface for about five seconds
3. Keep your arms at your sides. Arch your back a little so that your abdomen stays along the surface. Feel the bottom of your rib cage at the surface. It's okay if your legs sink a little (*b*).
4. Breathe comfortably and keep your upper body on the surface.

Focus Points

- Feel the bottom of your rib cage staying at the surface.
- Keep your head back far enough that your ears are just under the water.
- Point your toes as you float

Tip

Ask someone to place a half board or a noodle on your abdomen as you begin to float. See how long you can keep it the e.



14 SLOW FLUTTER ON BACK

Purpose

To practice correct body position for the backstroke while adding a kicking action.

Procedure

1. Begin with the back float from the previous drill and gradually add a slow flutter kick. Kick just fast enough to keep the bottom of your rib cage at the surface (*a, b*).
2. Kick for one lap.
3. As you pass the far side flags, place one arm above your head to ensure that you do not crash into the wall.
4. Stop before you get to the wall.

Focus Points

- Kick as slowly as possible while maintaining correct body position.
- Stay relaxed! Keep your head back and enjoy yourself.

Tip

Ask someone to place a half board or a noodle on your abdomen as you begin to kick. See how long you can keep it there.



15 STREAMLINE BACK FLUTTER KICK

Purpose

To introduce the streamline arm position with kicking. Maintaining a good streamline will reduce friction and help you slice through the water with little energy.

Procedure

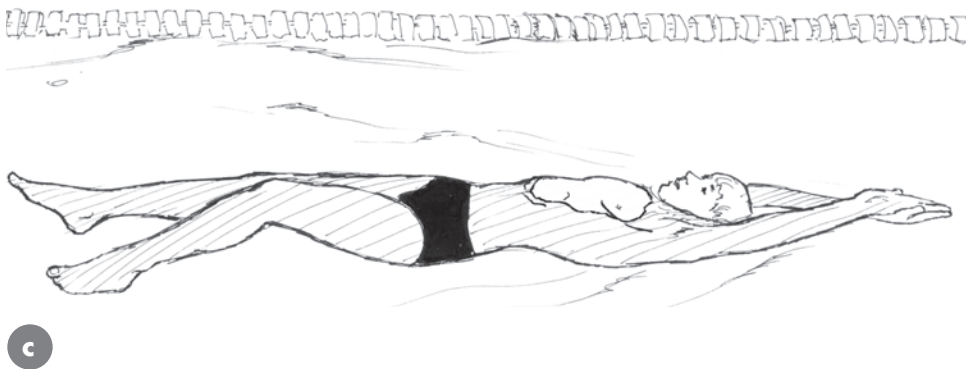
1. Place one hand over the other with your fingers together. Line up your middle fingers. Either hand can be on top
2. Wrap the thumb of the hand on top around the lower hand to lock your hands so that you cannot pull them apart (*a*).
3. Straighten your arms overhead so that you cradle or brace your head between your arms. Your arms should be at least slightly behind your ears, and your elbows should be completely locked (*b*).
4. Push off the wall to a back float (as in the Push and Float on Back drill) but hold a streamline position.
5. Gradually add a slow kick. Keep your abdomen up and make the bottom of your rib cage your focus point. Think in the following pattern: float, streamline, kick (*c*).

Focus Points

- Concentrate on each aspect in the following order: float, streamline, kick.
- Relax; don't force it.
- Keep your toes pointed and your ankles relaxed.
- Kick slowly.
- Keep your head back. If you lift your head, your hips will sink.
- Arch your back to help keep you afloat
- Keep your hands just under the water.

Tips

- Using a kickboard or noodle (as described in the Push and Float on Back drill) works well here.
- Stand in front of a mirror to check your streamline position.
- Observe the following three rules for an excellent streamline and commit them to memory:
 1. Place one hand over the other.
 2. Lock the thumb.
 3. Brace the head.



16 SLOW FLUTTER ON FRONT

Purpose

To practice correct body position for the freestyle while adding a kicking action.

Procedure

1. Start at the wall and take a deep breath.
2. Push off from the wall with your eyes facing down. The back of your head should be touching the surface. You should also feel your shoulders, hips, and heels at the surface.
3. Gradually add a flutter kick. Kick just fast enough to keep your hips touching the surface.
4. Kick and slowly exhale (hum bubbles) until you need to breathe; then stop, breathe, and repeat.

Focus Points

- Kick as slowly as possible while maintaining correct body position.
- Feel your hips touching the surface at all times.
- Kick the water, not the air. If you can hear your kick, your feet are coming up too high.
- Keep your toes pointed.
- Kick with your ankles and thighs, not with your knees.
- Stay relaxed!

Tips

- Have your coach or a partner place a half board or noodle just above your hips. See whether you can keep it there.
- Imagine you are snorkeling and looking at all the fish at the bottom of the ocean.
- Perform this drill with a snorkel.



17 STREAMLINE FRONT FLUTTER KICK

Purpose

To develop good kicking mechanics while kicking freestyle on your front side. This position is frequently used in training sets.

Procedure

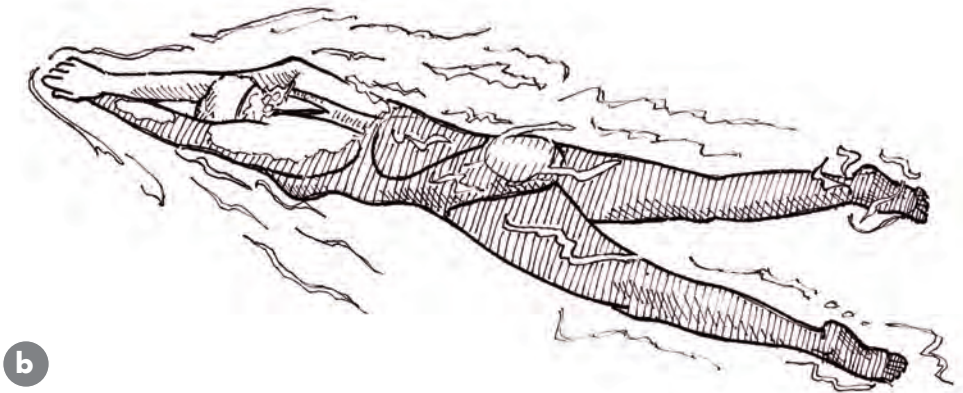
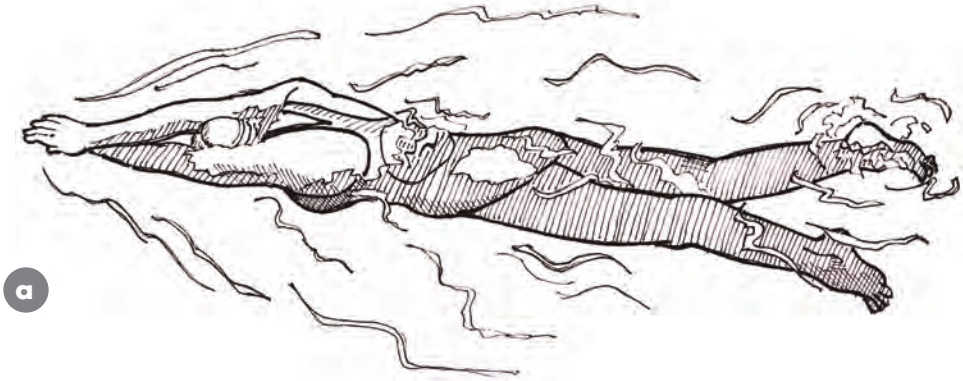
1. Start at the wall and take a deep breath.
2. Push off the wall and place your hands in a prone streamline position. Keep your hands, shoulders, hips, and heels at the surface.
3. Slide for two seconds. Then, begin a quick, steady flutter kick. Keep your toes in the water at all times. The heels of your feet should just barely break the surface of the water. Your hips should be right at the surface (*a*).
4. Keep your head tucked in under your arms. Slowly exhale to let your air out and go as far as you can; then stop, breathe, and repeat (*b*).
5. As you develop your skill, start taking freestyle side breaths instead of lifting your head to breathe.

Focus Points

- Keep your arms in the streamline position.
- Avoid lifting your feet above the surface. While splashing may look impressive, it does nothing but waste energy.
- Keep your hips up.

Tips

- Position your head so that it is just barely breaking the surface or is slightly below the surface. This positioning will help you get ready for the freestyle drills.
- Do this with the snorkel.



18 BREASTSTROKE KICK DECK DRILL

Purpose

To help you see and feel how to do a proper breaststroke kick.

Procedure

1. Sit on the edge of the deck with your legs extended over the water. Keep your heels just below the surface at all times during this exercise. Begin with your legs together and your toes pointed. The inner sides of your feet and your thighs should touch (*a*).
2. Bring your legs in toward your body (bend at the knees and keep the heels together) until your knees are at a 90-degree angle. Keep your heels close together and your toes pointed to the sides of the pool (*b*).
3. Rotate your feet out and around to catch the water with the inner sides of your feet and your calves. Keep your knees close together through the kick (*c*).
4. Squeeze the water between your legs while keeping your feet flexed (*d*).
5. Bring your legs completely together and finish with your toes pointed. You should see and feel the powerful squeeze of the water.

Focus Points

- Develop the following pattern: heels in, toes out, squeeze, together.
- Finish each kick with your knees straight and your toes pointed.
- Catch as much water as possible on the inner sides of your feet when you squeeze your legs together.

Tips

- You can practice this kick almost anywhere. Try it while you are sitting on the floor watching television or on your bed before you go to sleep.
- Advanced variation: Begin in a leg-lift position and do not let your feet touch. This exercise is great for the abdominal muscles!



19 INVERTED BREASTSTROKE KICK

Purpose

To develop a balanced breaststroke kick with good body control. This drill prevents exaggerated hip action and improper leg mechanics. Anyone with a weak breaststroke kick should emphasize this drill.

Procedure

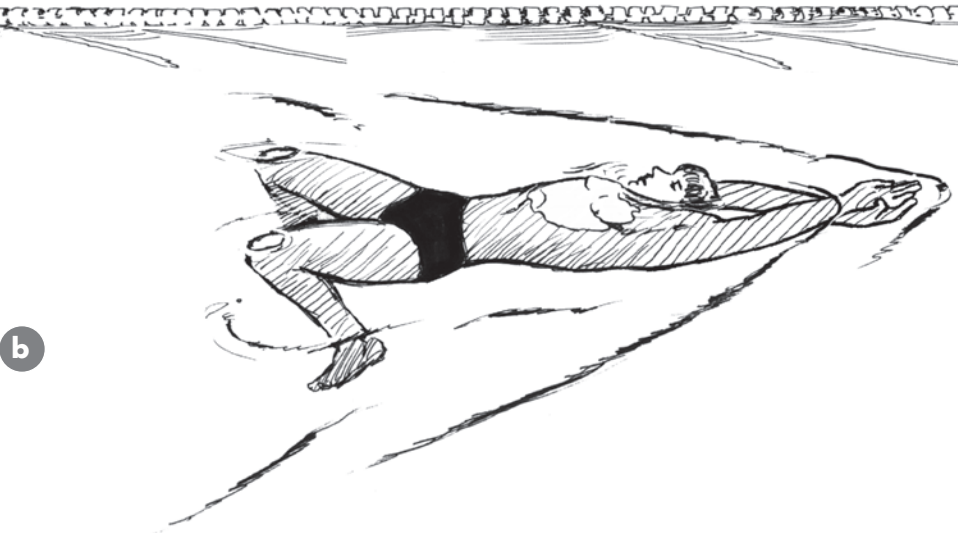
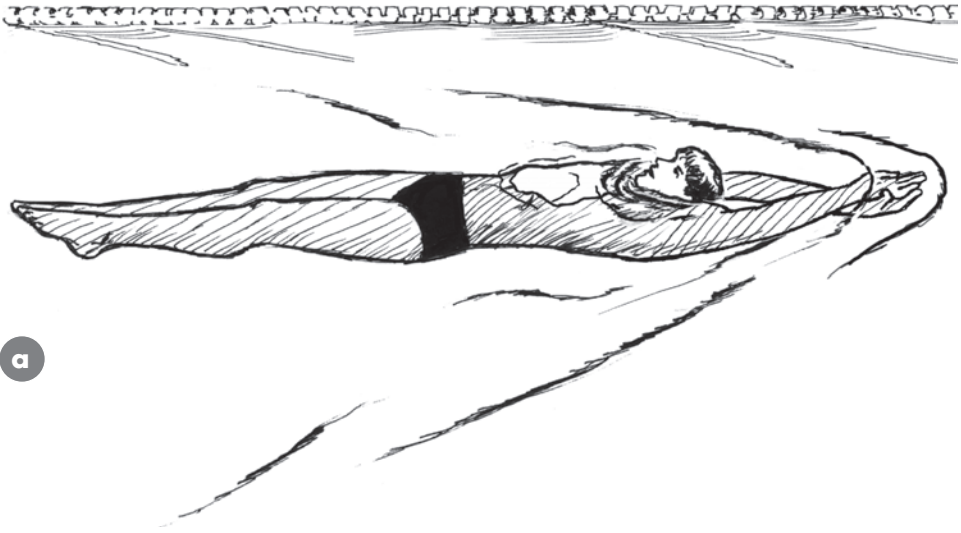
1. Push off the wall and float on your back in a streamline position along the surface (*a*). Keep your chest up while floating
2. After counting to three (one thousand one, one thousand two, one thousand three), complete a breaststroke kick (*b*).
3. Count to three after each repetition.

Focus Points

- Keep your upper-body position stable. Your head and chest should not go under the water. If they do, you are likely not keeping your feet up high enough.
- Keep a tight streamline. Your hands should stay just below the surface.
- Finish each kick in a floating position with your chest up and your toes pointed and near the surface.
- Do not allow your knees to rise more than 1 inch (2.5 cm) above the surface.

Tips

- Move across the pool with as few kicks as possible. Make it a contest with a friend!
- Training: Incorporate this drill as part of practice. Try five sets of 100 yards with 30 to 45 seconds of rest between sets. This provides a measure for improving power and efficiency.



20 STREAMLINE BREASTSTROKE KICK

Purpose

To further the development of your breaststroke kick.

Procedure

1. Start at the wall and take a deep breath.
2. Push off the wall and place your hands in a prone streamline position. Keep your hands, shoulders, hips, and heels at the surface.
3. Slide for two seconds. Then perform the breaststroke kick with a three-count hold between kicks (*a, b*). When you finish the kick, your hips should be at the surface. The heels of your feet should just barely break the surface of the water (*c*).
4. Keep your head tucked in under your arms. Slowly exhale to let your air out and go as far as you can; then stop, breathe, and repeat.

Focus Points

- Keep your arms in a tight streamline and keep your head tucked in under your arms.
- Finish each kick with a tight squeeze and make sure that your toes are pointed.
- Each time you keep your feet together for a count of three is called a glide. You'll need to remember this for later drills.
- Keep your knees from drifting wider than shoulder-width apart.

Tips

- Have someone watch you to verify that you are squeezing the kick and keeping your hips up at the end of each kick.
- Move across the pool with as few kicks as possible.
- Training: Incorporate this drill as part of practice. Try five sets of 100 yards with 30 to 45 seconds of rest between sets. This provides a measure for improving power and efficiency.



a



b



c

21 BUTTERFLY KICK DECK DRILL

Purpose

To feel the body action of the butterfly stroke.

Procedure

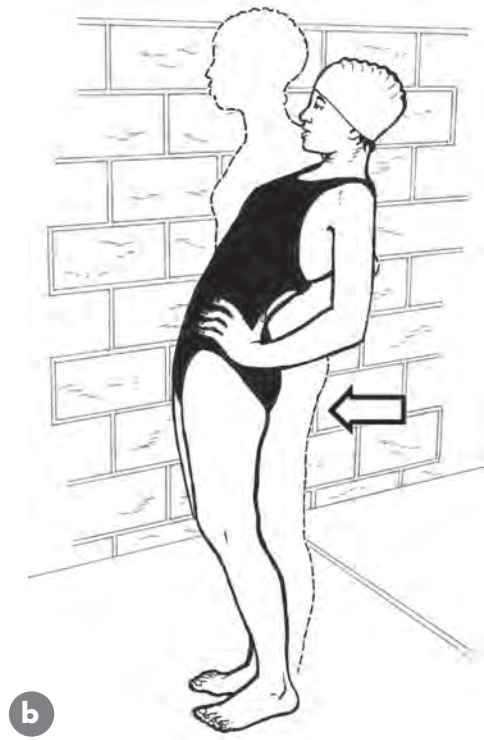
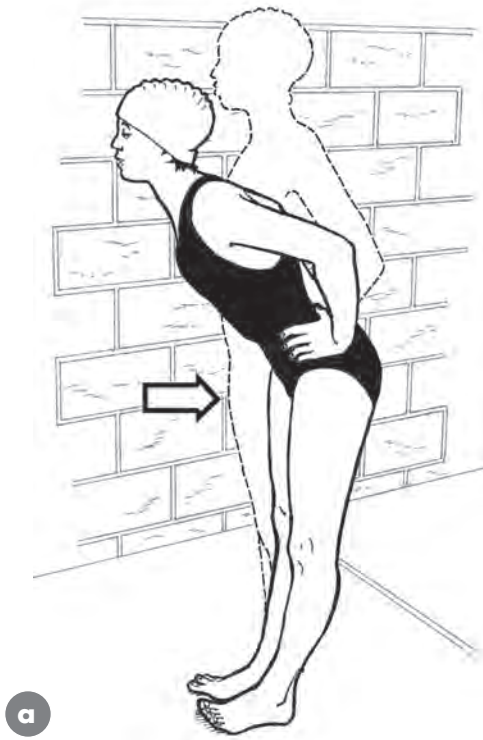
1. Stand on the deck with your hands on your hips. Keep good back posture at all times during this exercise; avoid rounding your back and shoulders. Always look forward.
2. Begin by pushing your hips back and your chest forward while keeping your back and legs straight. (The correct position will feel like you are starting to lean over to get a drink from a drinking fountain.) Push your hips as far back as you can while maintaining your balance (*a*).
3. Return your hips to a straight position. Push your hips forward, bend your knees slightly, and keep your back slightly arched (*b*). Return to the straight position.
4. After you are comfortable with the motions, start to blend them in a smooth, continuous action. Try to feel your hips moving through a full range of motion.

Focus Points

- Keep your neck flexible so that you always look forward. Your chin should be tucked in when your hips are forward and should stick out when your hips are back.
- Keep a slight arch in your lower back at all times.
- At first, push the hips as far forward and as far back as possible. Then speed up and move your hips just 2 to 4 inches (5 or 10 cm) forward and 2 to 4 inches back.

Tips

- Practice in front of a mirror to ensure that you are always looking forward.
- Do this drill in shallow water (about waist deep) and really feel how the water moves.



22 MERMAID DOLPHIN KICK

Purpose

To feel the complete body action of the butterfly .

Procedure

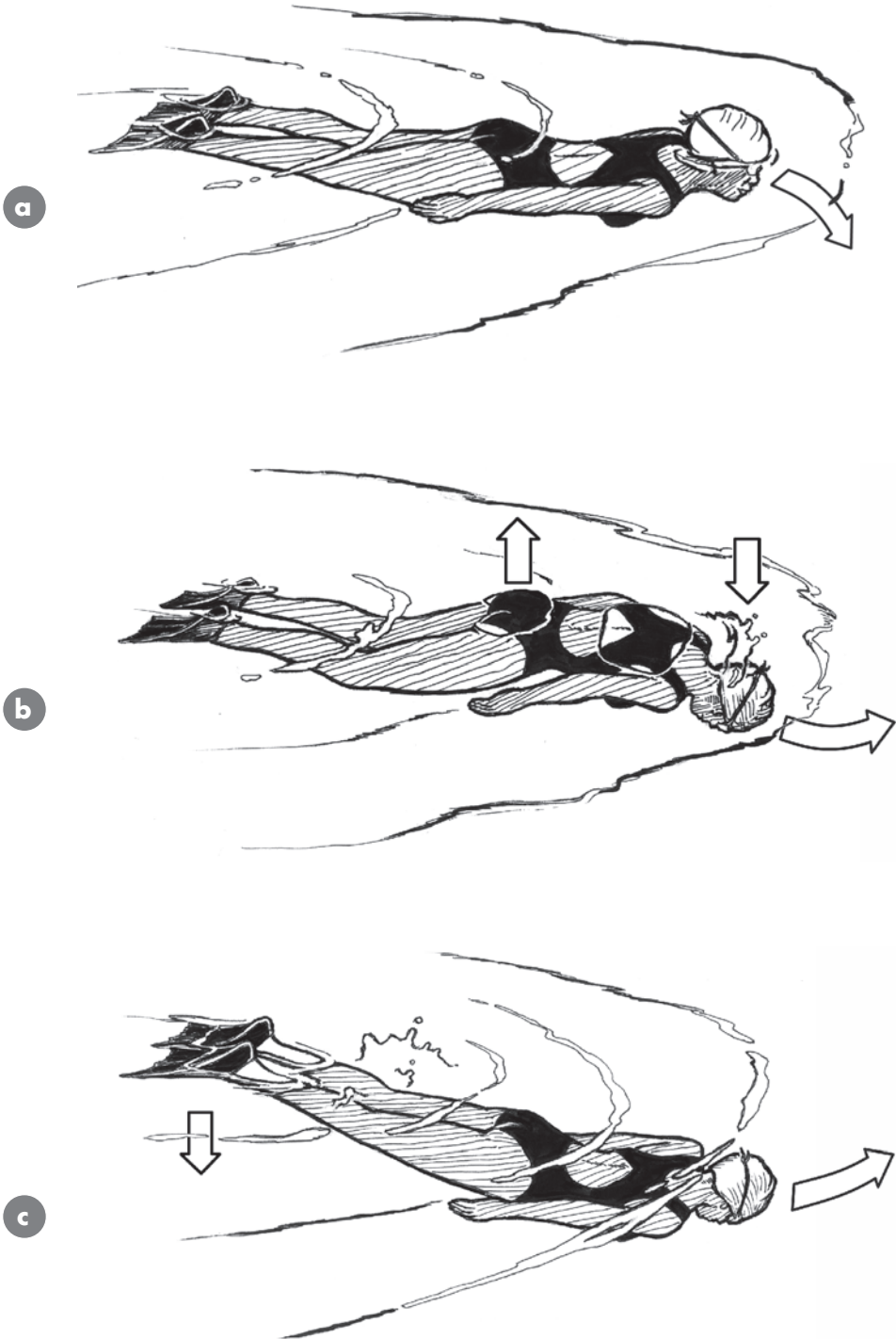
1. Put on fins. Imagine yourself as a mermaid or merman swimming in the sea.
2. Take a deep breath. Push off the wall on your front side under the surface. Keep your hands down by your sides and look down at the bottom of the pool. Do not use your arms at all in this drill.
3. Push downward with your forehead to start the whiplike, up-and-down action of the kick (*a*). Keep the head angle changing but primarily look down (*b, c*).

Focus Points

- Do the surface dive slowly. Feel your body slide into the deeper water.
- Keep your head moving at all times.
- Look down at the black line on the bottom of the pool. If you are looking forward, your hips will not be able to create enough power for a strong kick.

Tips

- Have someone watch you under the water to verify that you are not looking forward.
- Use a monofin to help you get the body action of the kick



23 DOLPHIN DRILL

Purpose

To feel the body action of the butterfly stroke while at the surface.

Procedure

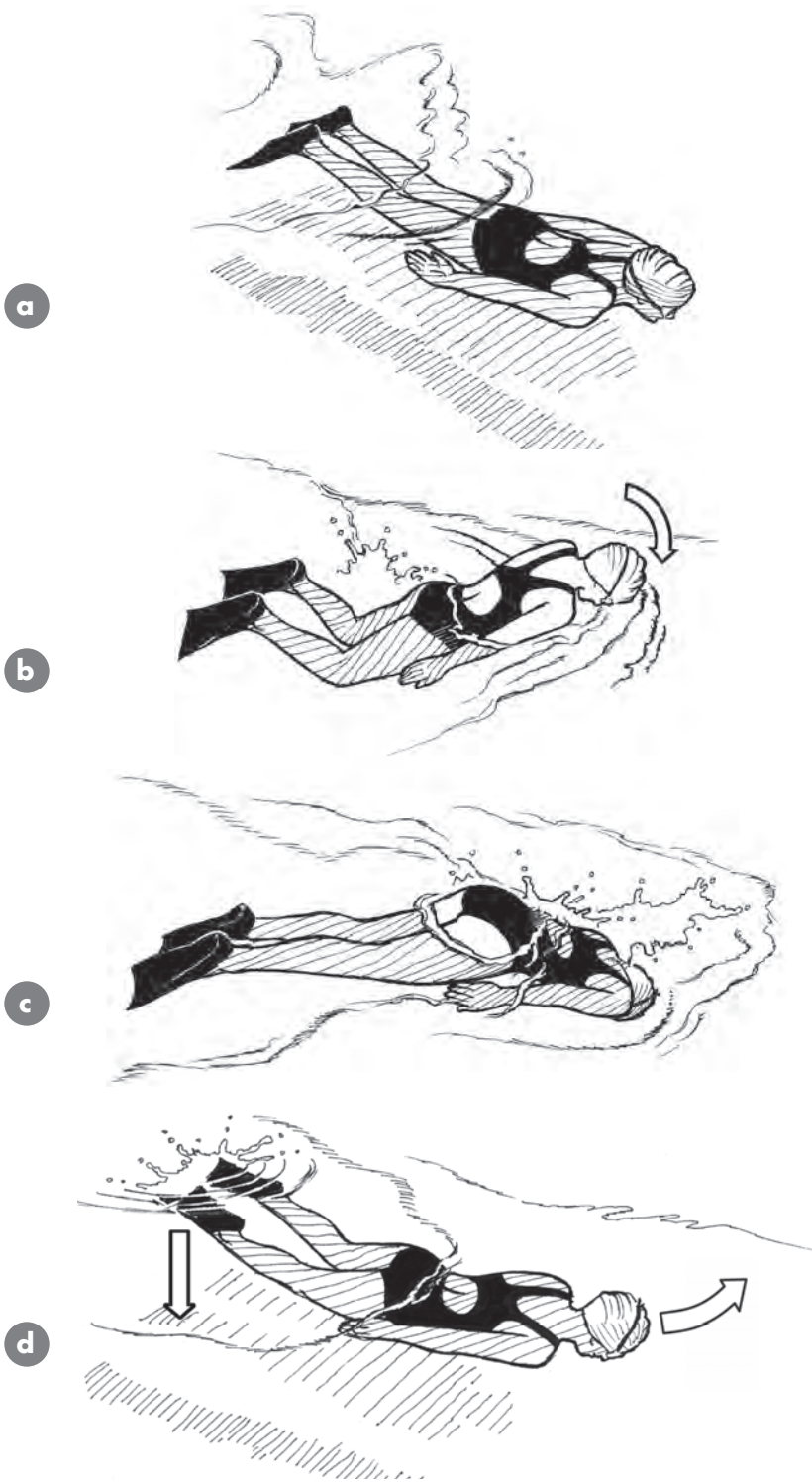
1. Put on fins. Imagine yourself as a dolphin swimming on the surface of the ocean. This drill has the same body action as the previous drill, but you are at the surface.
2. Take a deep breath. Push off the wall on your front side along the surface. Keep your hands down by your sides and look down at the bottom of the pool (*a*). Only the back of your head will break the surface. Do not use your arms in this drill.
3. Push downward with your forehead to start the whiplike action of the kick (*b*). Keep the head angle changing but primarily look down. As you push your forehead down, allow your hips to come up (*c*). Then allow your feet to slide above the surface and begin to kick down (*d*). Your head will begin to come back up to break the surface as you kick down.
4. Break the surface with your head and repeat.
5. Your body will “stitch” the surface of the water. Your head, back, hips, and feet will all break the surface in progression with each kick. Keep the motion fluid.
6. Go as far as you can with one breath; then breathe and repeat.

Focus Points

- Keep your head moving at all times.
- Look down at the black line on the bottom of the pool. If you are looking forward, your hips will not be able to create enough power for a strong kick.
- Remember to move with your forehead first
- Develop a steady rhythm.

Tips

- Stay relaxed and see whether you can make it all the way across the pool without having to stop and breathe.
- Training: Incorporate this drill into your training by doing 10 sets of 25 (with 30 to 45 seconds rest between sets) as fast as you can while maintaining excellent body action and control. This will help you get the feel of the butterfly stroke for competition.



24 SUPERMAN DOLPHIN KICK

Purpose

To feel the body action of the butterfly stroke with your arms extended out in front of your body.

Procedure

1. Put on fins. Imagine you are Superman and you are dolphin kicking through the water. This drill will have the same body action as the previous two drills, but your arms will be extended out in front of your body.
2. Take a deep breath. Push off the wall on your front side along the surface. Keep your hands out in front of you while you look down at the bottom of the pool (*a*).
3. Use your hands instead of your head to start the body action. Push downward with your hands to start the whiplike action of the kick (*b*). Keep your head angle changing along with your hands, but primarily look down. As you push your hands down, allow your hips to come up (*c*). Then allow your feet to slide above the surface and begin to kick down. Your head will begin to come back up to break the surface as you kick down.
4. Break the surface with your head and repeat.
5. Your body will “stitch” the surface of the water. Your hands, head, back, hips, and feet will all break the surface in progression with each kick. Keep the motion fluid.
6. Go as far as you can with one breath; then breathe and repeat.

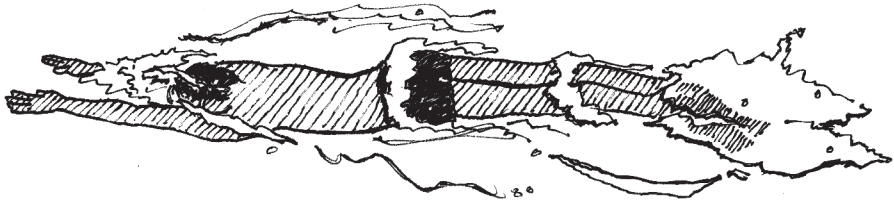
Focus Points

- Keep your hands moving at all times.
- Look down at the black line on the bottom of the pool. If you are looking forward, your hips will not be able to create enough power for a strong kick.
- Remember to move with your forehead first
- Develop a steady rhythm.

Tips

- Stay relaxed and see whether you can make it all the way across the pool without having to stop and breathe.
- Training: Incorporate this drill into your training by doing 10 sets of 25 (with 30 to 45 seconds of rest between sets) as fast as you can while maintaining excellent body action and control. This will help you get the feel of the butterfly stroke for competition.

a



b



c



25 STREAMLINE DOLPHIN KICK

Purpose

To practice the body action of the butterfly stroke in streamline.

Procedure

1. Put on fins. (This drill should also be done without fins to develop the skill.) Push off the wall and place your hands in a prone streamline position with your arms above your head (*a*).
2. Perform the dolphin kick by pushing with your hands, then your abdominal muscles, then your hips, then your knees, and finally your feet up to the surface (*b, c*).

Focus Points

- Stay in streamline when you start the butterfly action
- Use your hips to provide the main power source for the kick. Bend your knees just a little while using your hips to drive the motion. In the streamline do not let your head bob in relation to your arms. Your head should remain relatively still and centered in line with the spine.

Tips

- Start off underwater and then gradually come to the surface. See if the kick feels the same while performed underwater as compared to swimming at the surface.
- Do slow, big, powerful kicks at first. Gradually build speed. As you get faster, your kicks will be shallower and quicker.
- Training: Incorporate this drill as part of your kicking sets. Try 10 sets of 25 at 45-second intervals. Work on speed while you hold a tight streamline.

a



b



c



26 INVERTED DOLPHIN KICK

Purpose

To practice the body action of the butterfly stroke.

Procedure

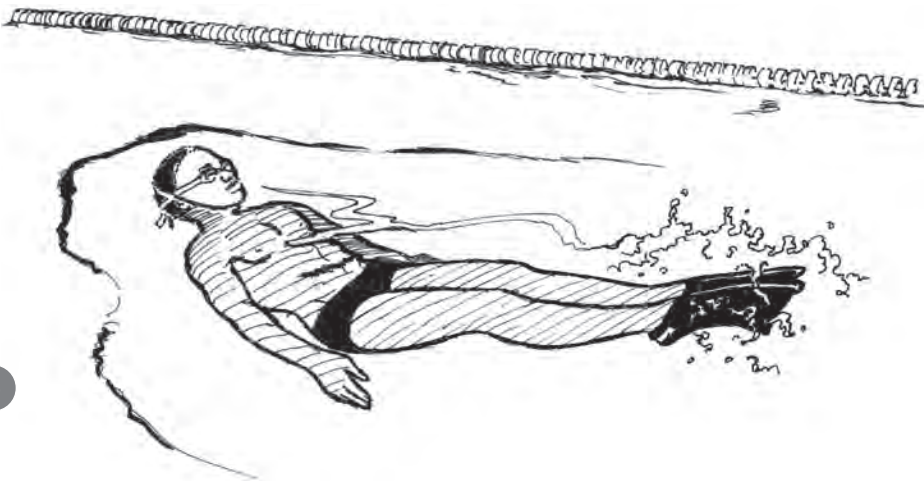
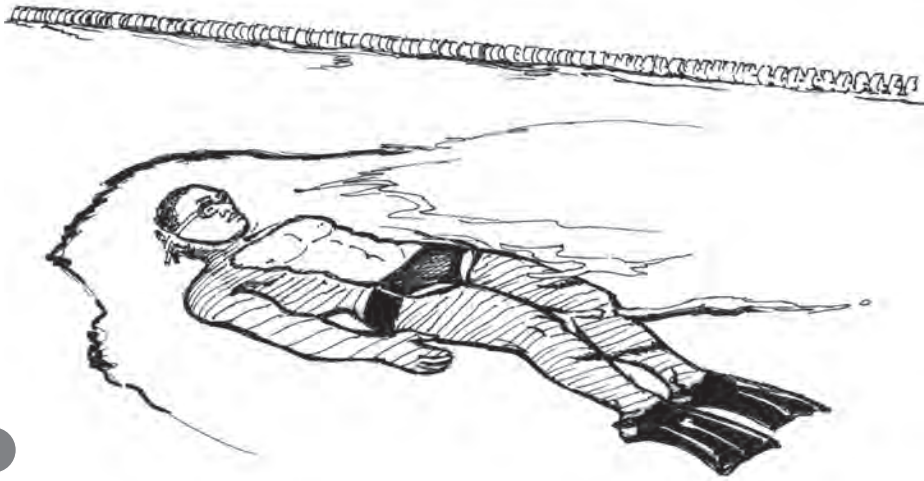
1. Put on fins. Push off the wall and float on your back with your arms down at your sides.
2. Begin the dolphin kick by pushing your abdominal muscles up (*a*). Then progressively push your knees and then your feet up to the surface, creating a whiplike action beginning with the abdominal muscles (*b*). Your hands and head may go up and down a little; that's okay. Put one hand above your head to protect it as you approach the wall.

Focus Points

- Push your abdominal muscles up above the surface on each kick.
- Power the motion of the kick using your hips (not the knees) and bend your knees just a little.

Tips

- Start off underwater and then gradually come to the surface. See whether the kick feels the same underwater as it does as you move up to the surface.
- Do slow, big, powerful kicks at first. Build speed later.



27 STREAMLINE INVERTED DOLPHIN KICK

Purpose

To practice the body action of the butterfly stroke.

Procedure

1. Put on fins. (This should also be done without fins to develop the skill.) Push off the wall and float on your back with your arms above your head in a streamline position with your body under the water (*a*).
2. Begin the dolphin kick by pushing your abdominal muscles, then your knees, and then your feet up to the surface (*b*).

Focus Points

- Push your abdominal muscles up above the surface on each kick.
- Kick from your hips (not your knees) and bend your knees just a little.

Tips

- Start off underwater; then, gradually come to the surface. See whether the kick feels the same underwater as it does when it is performed at the surface.
- Do slow, big, powerful kicks at first. Gradually build speed. As you get faster, the kicks will be shallower and quicker.
- Training: Incorporate this drill as part of your kicking sets. Try 10 sets of 25 at 45-second intervals. Work on speed while you hold a tight streamline.



28 DOLPHIN TAIL WALK (VERTICAL DOLPHIN KICK)

Purpose

To feel the body action, speed, and power of the butterfly kick

Procedure

1. Imagine watching dolphins at a marine park. Picture dolphins as they kick up above the surface and seem to walk backward on the surface with their tails. Their bodies move back and forth quickly and powerfully as they gradually move backward. You will attempt to imitate this movement.
2. Put on fins. Push off the wall on your back with your feet deep, your arms down at your sides, and your head above the surface. Use quick, strong dolphin kicks to keep your head and shoulders above the water as you gradually kick backward (*a*). This one is a challenge! You will really feel your abdominal muscles (*b*).

Focus Points

- Feel your hips moving back and forth as quickly and powerfully as possible.
- Kick from your hips (not your knees) and bend your knees just a little.

Tips

- For an advanced version, keep your hands just above the surface at your sides (*b*).
- To build great power, try the drill while wearing a weight belt.
- Training: Incorporate this drill as part of your vertical kicking sets. Stay in one position and kick as high as you can, especially with the hands above the surface. Try four sets of 20-second vertical kicking sprints at 30-second intervals.



a



b

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Sculling

By learning how to interpret sensations of moving pressure, swimmers of average ability can acquire the subtleties of advanced stroke technique. Talented swimmers coached in these skills will likewise achieve expertise and better performance.

For effective arm action in all the strokes, you need to learn how to generate propulsion through the shape of your hands and forearms as you move through the water. For many years, pulling paddles have been used to increase the power of the arms in the strokes. If these paddles are used with too much force, however, the swimmer runs the risk of injuring the shoulder. Sculling drills may be the best and safest way to learn the propeller-like propulsion methods that swimming scientists have long considered the most effective.

The drills in this chapter provide practical ways to

- practice pulling action, lifting action, and the finish of all strokes;
- learn about the pitch, lift, and angles of attack (creating whirlpools gives you direct feedback);
- improve your feel for the water; and
- strengthen your hands, forearms, and wrists.

By modifying your body position and the direction of your sculling, you can feel how to apply pressure in the water and you can position your fingers, hands, wrists, and forearms for the most effective movement. The drills in this chapter offer a primer in the art of sculling. In addition, some fun and challenging training recommendations are provided to improve arm propulsion.

29 STANDING WHIRLPOOLS

Purpose

To develop the foundation for propulsive arm movement in all the strokes. This drill presents the basic sculling action. The drills that follow use this basic action.

Procedure

1. Stand in shoulder-depth water. Extend one arm with your hand about 12 inches (30 cm) deep (*a*).
2. With your palm facing downward and your wrist strong, begin to trace a figure eight on its side. Sweep up and out; then sweep down and in (*b, c*). This is the basic sculling action.
3. Your figure eight should be 12 to 18 inches (30.5 to 45 cm) wide. These movements are short but strong.
4. Keep the pressure on the palm of your hand. Use enough pressure to create a whirlpool at the surface.
5. Switch hands and repeat.

Focus Points

- Quickly change the angle of your hand as you move it back and forth.
- Keep your wrists strong.
- Rotate from your elbow.
- Feel the pressure on your hand and forearm.

Tip

Practice sculling with different hand shapes: a fist, two fingers out, finger together, fingers spread, and fingers together with the thumb out



30 SWEEP IN AND SWEEP OUT

Purpose

To develop coordination in sculling with both hands and to improve your instinct in the water.

Procedure

1. Stand in shoulder-deep water. Start with both arms extended in front of you a little wider than shoulder-width apart and your hands about 12 inches (30 cm) deep.
2. Using the same action as in the previous drill, scull with the hands moving in opposite directions at the same time. Sweep out with both hands (*a*); then sweep in with both hands (*b*).
3. Start slowly and gradually move your hands more quickly to create two whirlpools.

Focus Points

- Quickly change the angle of your hands as you move them through the water.
- Keep your wrists strong.
- Rotate from the elbow.
- Feel the pressure on your hands and forearms.

Tips

- Practice sculling with different hand shapes: a fist, two fingers out, finger together, fingers spread, and fingers together with the thumb out
- Move to deep water and see whether you can create the whirlpools at the surface while you flutter kick and stay in a vertical position



a



b

31 DEEP-WATER SCULL

Purpose

To practice the sculling motion.

Procedure

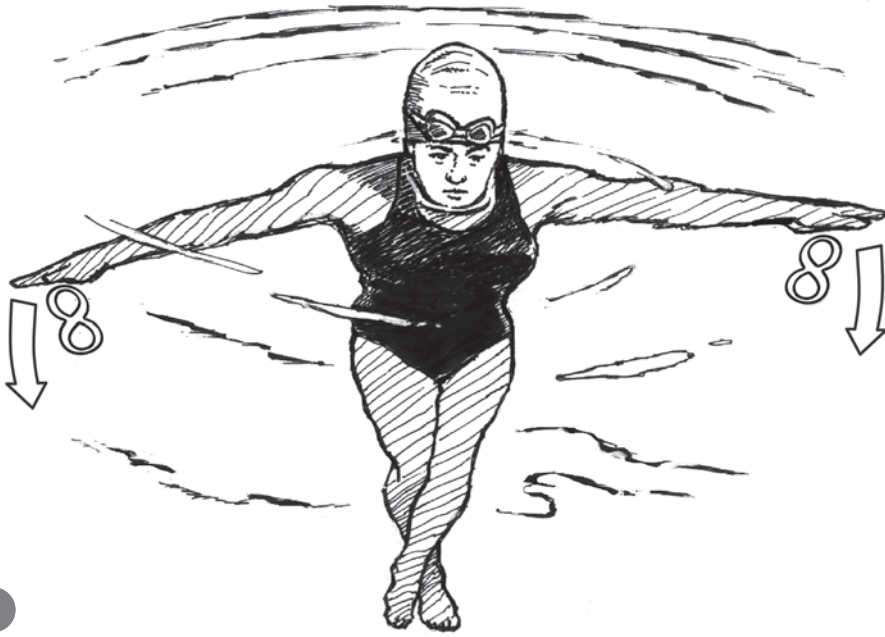
1. Move to deep water (your feet should not touch the bottom).
2. Practice the basic two-hand sculling action and keep your feet together (*a, b*). Keep your head up and your body straight. Create whirlpools at the surface.
3. Start by sculling for 20 seconds at a time and then gradually increase the amount of time to several minutes. It's a tough workout!

Focus Points

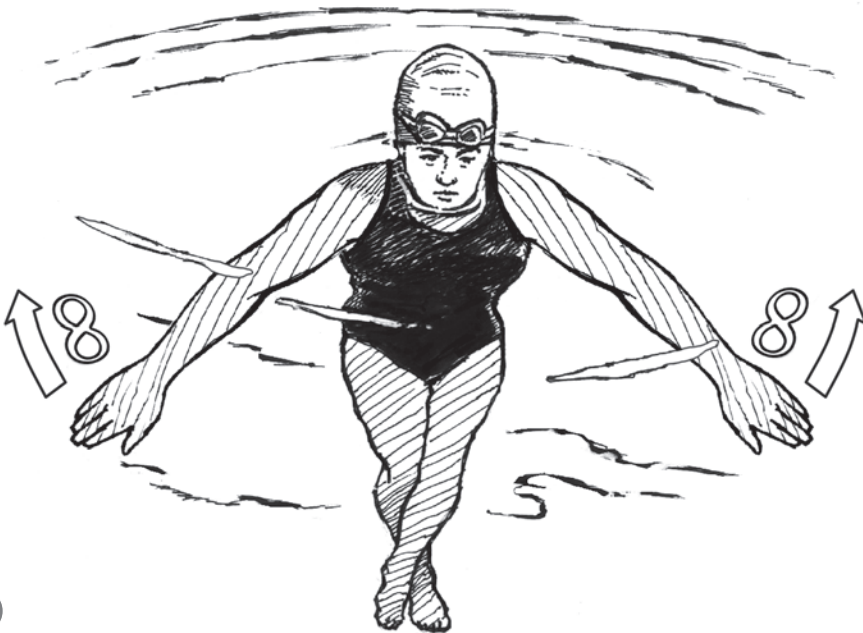
- Move your hands quickly.
- Keep your body straight, your feet together, and your head up.

Tips

- For variety, change your body position slowly while keeping your hand action very fast.
- Try any arm position but don't kick.
- Training: Include this drill as part of the vertical kicking and sculling set (at least once a week). For example, do 20 seconds of fast sculling and then rest for 10 seconds; repeat this four times. Try to lift your body position as high as possible while you are sculling fast.



a



b

32 VERTICAL TWISTS

Purpose

To practice body control while sculling.

Procedure

1. Start in deep water (your feet should not touch the bottom). Begin the basic sculling action with both arms extended out at your sides.
2. While sculling with short, quick hand movements and changing the angle of your hands, begin to rotate slowly in one direction for a couple of turns and then reverse the direction (*a*).
3. Rotate with one hand behind your back using short, quick hand movements (*b*). Alternate the direction of rotation.

Focus Points

- Rotate slowly with short, quick hand movements.
- Keep your body straight, your feet together, and your head up.

Tips

- If you have trouble staying up, try using a pull buoy between your legs.
- Advanced variation: Try doing this drill upside down with your feet above the surface.
- Training: Include this drill as part of the vertical kicking and sculling set (at least once a week). For example, do 20 seconds of fast sculling while twisting, followed by 10 seconds of rest. Repeat this four times. Twist in one direction and then switch directions. Try to lift your body position as high as possible while you are sculling fast.



a



b

33 SOMERSAULT

Purpose

To feel your hands and forearms acting as oars.

Procedure

1. Start in water that is at least 6 feet (1.8 m) deep so you don't hit your head on the bottom. Sink just under the water and tuck into a tight ball. Keep your chin tucked into your chest.
2. Extend your arms out to your sides. Keep your arms almost completely straight (*a*).
3. Somersault forward, moving your arms quickly (sculling) in a circular motion (*b*).
4. Try to do two or three somersaults in a row.
5. Try to do reverse somersaults as well.

Focus Points

- Keep your arms extended and your chin tucked in.
- Keep the sculling action of the hands short and quick.
- Rotate slowly.

Tips

- Breathe out slowly so that water does not go up your nose.
- Training: Incorporate this drill as part of the vertical kicking and sculling set (at least once a week). Scull for about 10 seconds with your head out of the water. Then somersault as quickly as possible to help develop the speed needed for the flip turns. Repeat this about 10 times



34 LAYOUT

Purpose

To practice the wrist action needed for all strokes.

Procedure

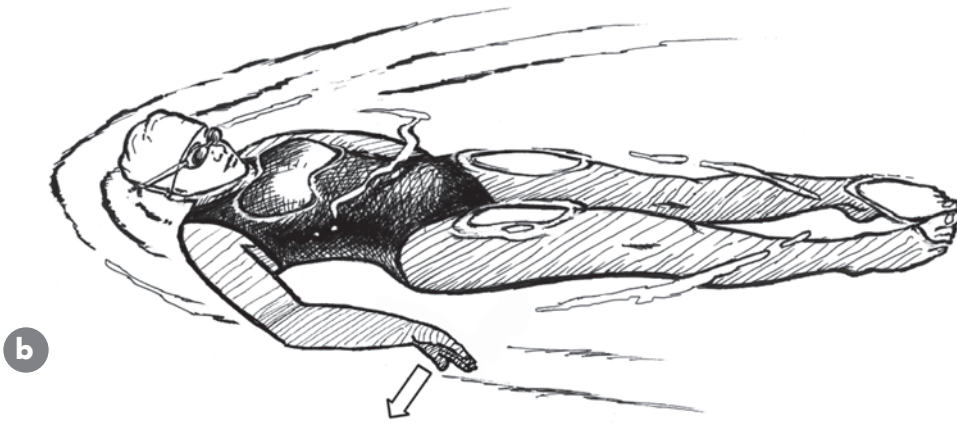
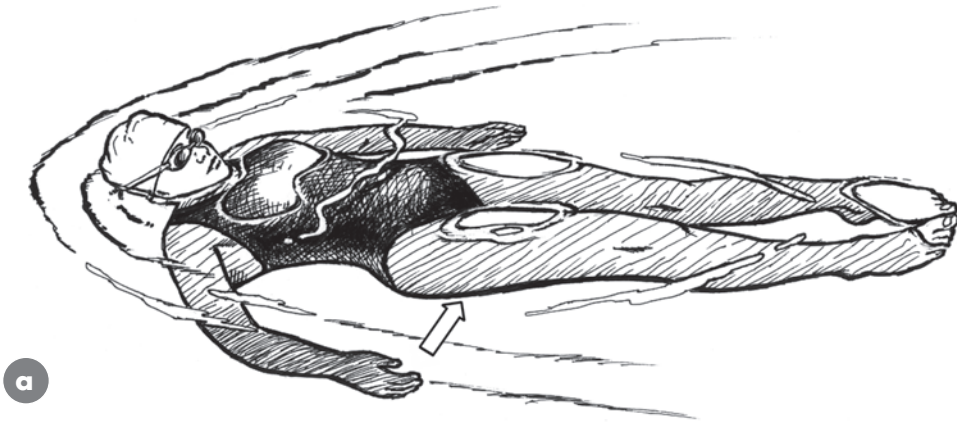
1. Float on your back with your toes pointed, your feet together, and your abdomen up. You will be traveling headfirst.
2. Keep your hands down at your sides and your arms straight. Scull the water under your hips (*a, b*).
3. Use a quick wrist action.

Focus Points

- Keep your arms straight and focus on working your wrists.
- Keep your abdomen up.
- Keep your feet pointed and at the surface.
- Use quick wrist action.

Tips

- Advanced variation: Try going feetfirst. Use only your wrists and try not to bend your elbows.
- Training: This is a great drill to incorporate as part of the warm-up to prepare the wrists and forearms. Do at least two sets of 25 going in both directions (headfirst and feetfirst).
- This is also a great drill to incorporate with team relay races for a fun practice.



35 SEATED DRILL

Purpose

To practice the wrist action needed for all strokes.

Procedure

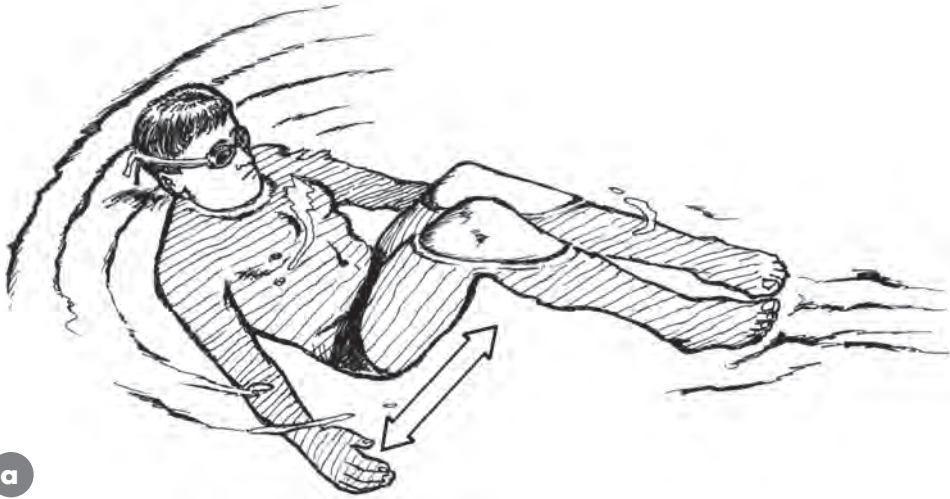
1. Float on your back and then tuck into a seated position. Keep your knees and toes at the surface. Your head should be up as well.
2. Scull the water inward so that it travels under your knees (*a*). You will travel backward or headfirst
3. Use a quick wrist action (*b*).

Focus Points

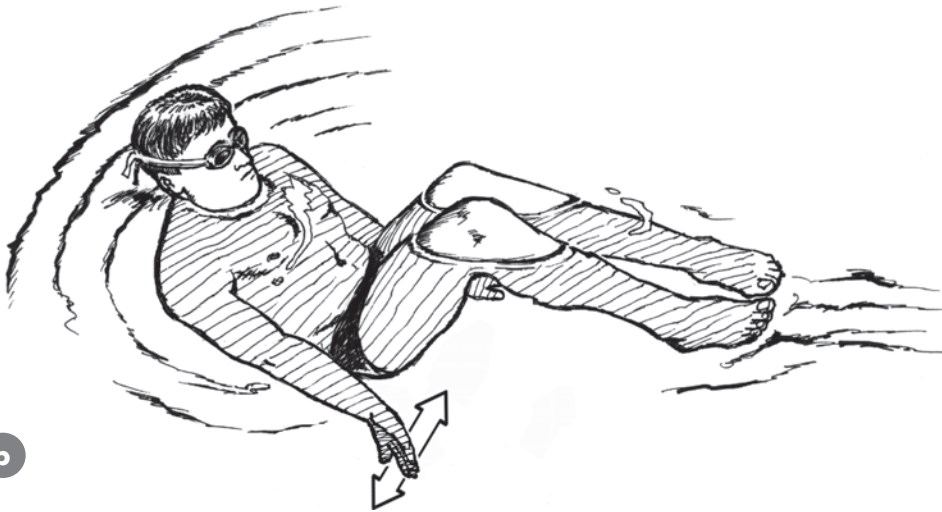
- Keep your arms extended and focus on working the wrists.
- Keep your knees up at the surface.
- Stay in a seated position.

Tips

- Advanced variation: Travel feetfirst. Use only your wrists and try not to bend your elbows. To move in a forward, feetfirst direction, scoop the water outward away from your knees.
- Training: This is another great drill to incorporate in the warm-up. Place a pull buoy between your thighs to keep your legs together and work your abs. Do at least two sets of 25, one set in each direction (feetfirst and headfirst)



a



b

36 ELEMENTARY BACKSTROKE PULL

Purpose

To practice the backstroke pulling action.

Procedure

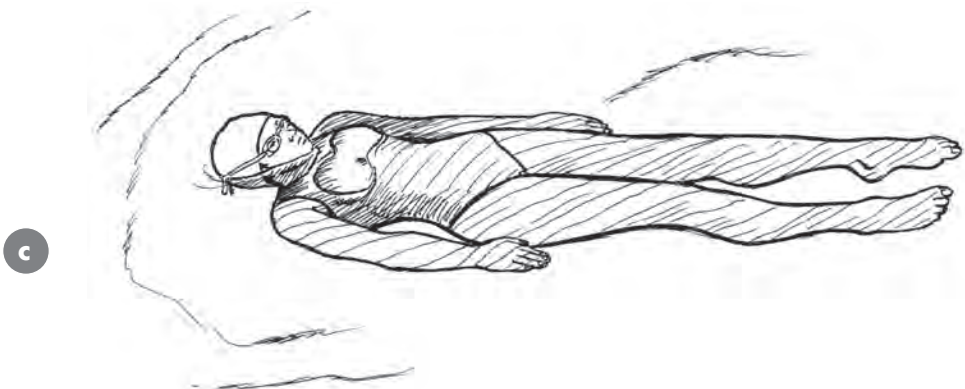
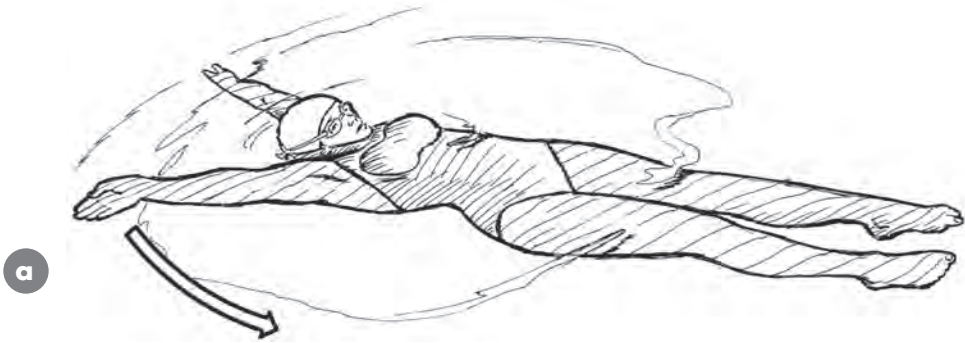
1. Float flat on your back, traveling headfirst.
2. Place your arms over your head with your palms facing out. Keep your hands under the water at all times.
3. Using both arms at the same time, pull downward past your shoulders. Keep your arms fairly straight (*a*).
4. Bend your elbows and turn your palms down toward your knees (*b*).
5. Keep your hands close to the surface and continue to pull the water down toward your knees. Finish the pull with your thumbs against your thighs (*c*).
6. Return your hands to the starting position by drawing them up alongside your body and stretching your arms overhead. Remember to keep your arms underwater.

Focus Points

- Pull evenly and slowly. Feel the pressure on your palms and forearms.
- Stay flat on your back with your abdomen up

Tip

Use a pull buoy between your legs if it helps.



37 SEA OTTER

Purpose

To get the feel of the finish of the strokes.

Procedure

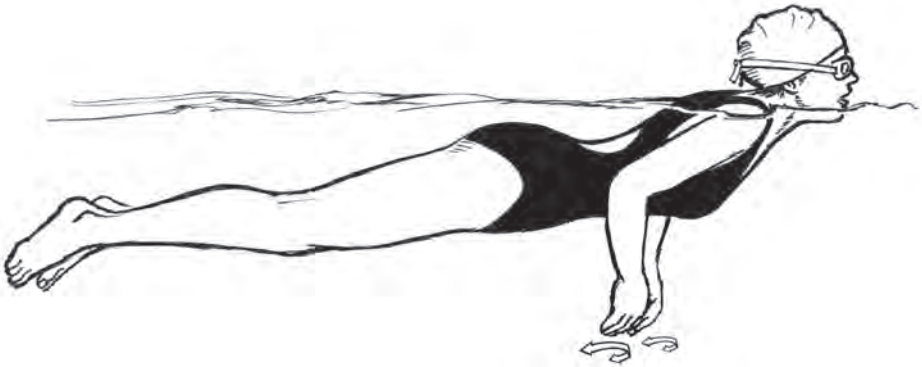
1. Float on your front side, traveling headfirst. Keep your head up.
2. Place your arms down at your sides and keep your elbows close to your ribs.
3. Bend your elbows so that your hands are under your waist. Using your hands and forearms, scull the water backward beginning at your waist (*a*).
4. Create a small circular motion with the sculling. Move your hands quickly (*b*).

Focus Points

- Keep your elbows in.
- Keep your head up as high as possible so that your eyes remain above the surface.
- Keep your hands under your waist.

Tips

- Using a pull buoy between your legs may provide flotation to help keep you above the surface.
- Try sculling both forward and backward.
- Training: This is another good drill to incorporate in the warm-up. Use the pull buoy and do at least two sets of 25. Focus on quick hand action.



a



b

38 DOG PADDLE

Purpose

To practice the lift needed in the middle of the strokes.

Procedure

1. Float on your front side, traveling headfirst. Keep your head up.
2. Your hands should be deep in the water, and your elbows should stay under your shoulders.
3. Bend your elbows and put your hands under your chin.
4. Alternating your arms, scull down and back until your arms are straight and your hands are below your chest. Then bend your elbow and bring your hand up toward your body and then forward under your chin (*a*). Keep your hands above your waist and move them quickly (*b*).

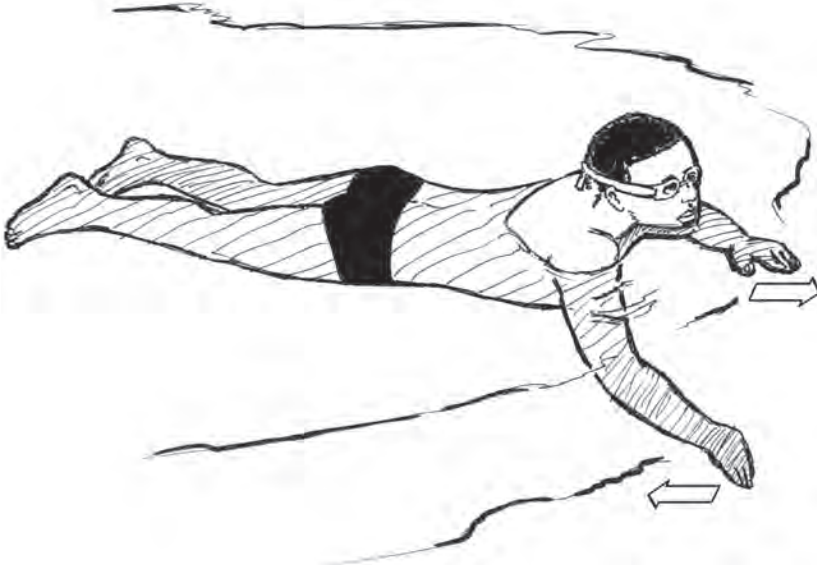
Focus Points

- Keep your elbows in a steady position under your shoulders.
- Keep your head up so that your eyes remain above the surface.
- Keep your hands above your waist.

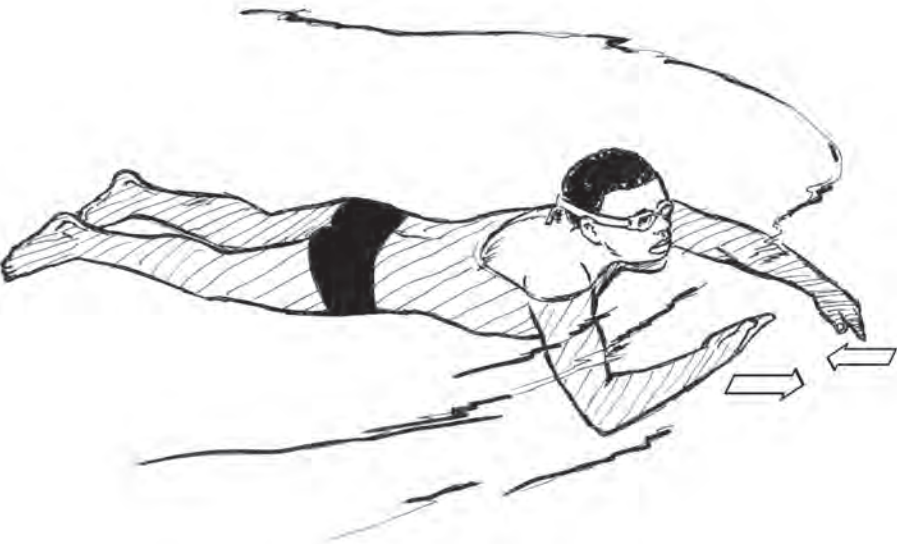
Tips

- Using a pull buoy between your legs may provide floatation to help keep you above the surface.
- Training: This is another good drill to incorporate in the warm-up. Use the pull buoy and focus on quick hand action. Do at least two sets of 25.

a



b



39 FRONT SCULL

Purpose

To feel the catch of the water at the beginning of the pulling action for the strokes.

Procedure

1. Float on your front side, traveling headfirst. Keep your head up.
2. Extend your arms in front of you. Sweep them out (*a*) and then press them in using a wide motion (*b*).
3. Move your arms quickly.
4. Bend your elbows slightly.

Focus Points

- Keep your arms extended and flex your elbows when pressing in.
- Keep your head up so that your eyes remain above the surface.
- Move your arms quickly.

Tips

- Using a pull buoy between your legs may help provide flotation
- Advanced variation: Try going backward (feetfirst)
- Training: This is a good drill to incorporate during practice when swimmers are at the wall waiting to start their respective swims in a set. Instead of holding on to the wall, place your feet on the wall and stretch out to scull as you wait to be sent off. Streamline for your push-off.



40 SCULL AND KICK

Purpose

To practice combining sculling and kicking.

Procedure

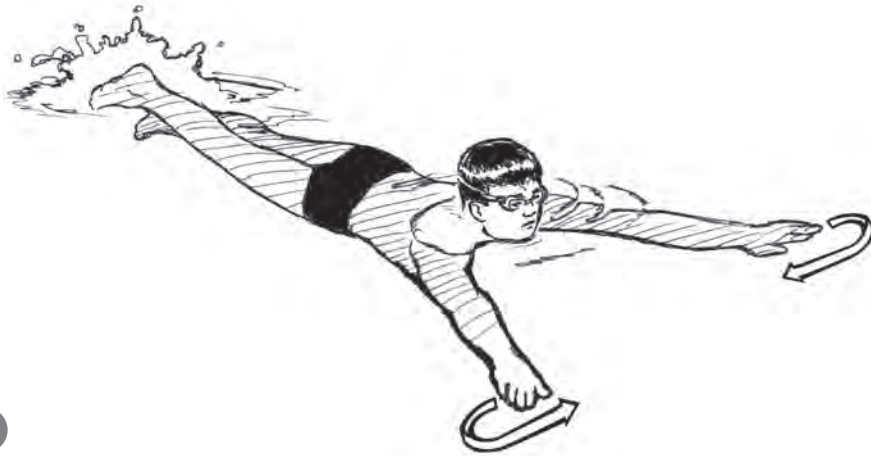
Repeat the Front Scull drill but add a flutter kick

Focus Points

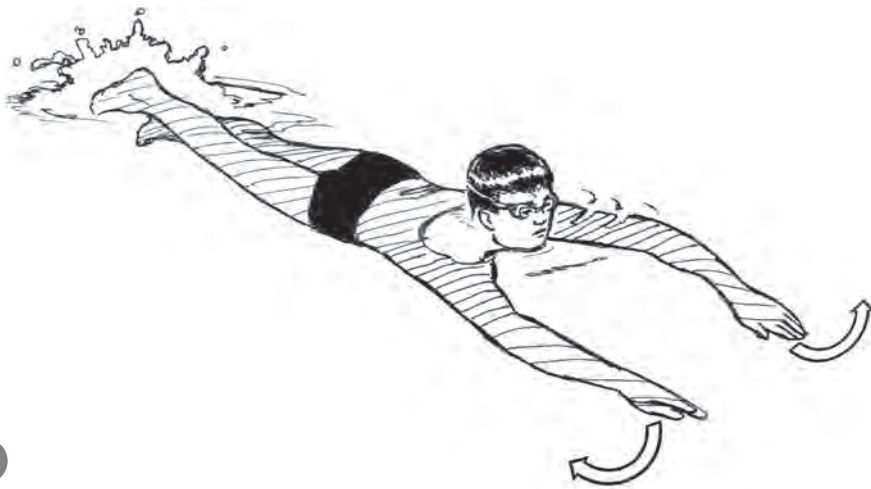
- Keep your arms extended in front of you, sweeping out and pressing in (*a*).
- Keep your head up so that your eyes remain above the surface.
- Move your arms quickly (*b*).

Tips

- Advanced variation: Do this drill backward or staying in place.
- Training: This is another good drill to incorporate in the warm-up. Do at least two sets of 25. Focus on keeping your head up high and using fast hand action.



a



b

41 LATERAL SCULL

Purpose

To practice the pulling action of the freestyle and backstroke.

Procedure

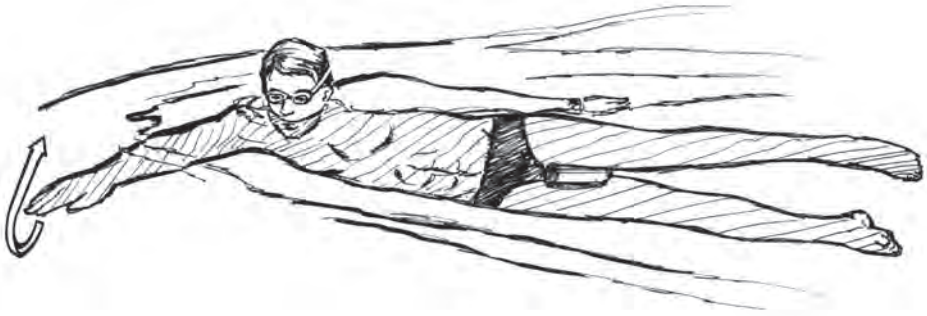
1. Float on your side.
2. You do not use the top arm, so it should stay down at your side. Stretch your bottom arm out ahead of you.
3. Begin sculling in different directions: sideways, downward, and so on. Keep the hand action fast (*a, b*).
4. Keep your hand above the level of your shoulder.

Focus Points

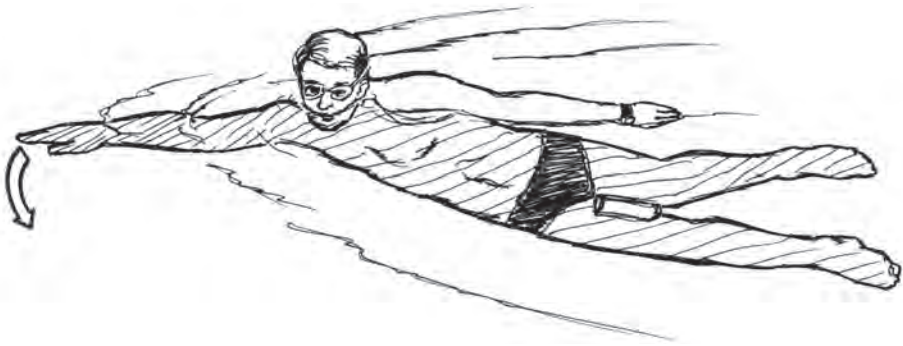
- Move your hand quickly.
- Keep your body steady.

Tips

- Using a pull buoy between your legs may help you focus on the stroke. Try to combine the action of this drill with kicking.
- Training: This is another good drill to incorporate in the warm-up. Do at least two sets of 25. Focus on keeping your head up high and using fast hand action.



a



b

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Backstroke

Even though most swimmers primarily swim freestyle in their practices, I begin the process of developing the competitive strokes by introducing the backstroke first. The fundamentals of the backstroke are similar to those of the freestyle except that the face is not submerged in the backstroke; therefore, head-turning mechanics are unnecessary, and it is easier to breathe. In addition, the arm stroke is performed with the arms out to the side of the body. Both backstroke and freestyle require good hip rotation and excellent kicking.

The backstroke is the only competitive stroke performed on the back. Executing it requires technical skills and a high degree of comfort while swimming on the back. In addition, swimmers must practice safely to prevent injury.

The best backstrokers

- maintain excellent body position with their hips and torso up high;
- have a smooth, relaxed stroke recovery with their arms entering directly in line with their shoulders;
- have excellent head control and keep the head steady;
- have good hip rotation, torso rolling, and shoulder lift;
- have flawless kicking; and
- pull through the water efficiently and with great power.

The drills presented in this chapter will help you improve all these fundamental aspects of your backstroke. In addition, training tips help you incorporate these skills into your regular practice schedule.

42 BACKSTROKE RECOVERY ON DECK

Purpose

To isolate and emphasize the arm action of the backstroke recovery.

Procedure

1. Stand next to a wall that is taller than you are when your arms are stretched over your head.
2. Position your body with your side to the wall so that your shoulder is 1 or 2 inches (2.5 to 5 cm) from the wall (*a*). You will be using only the arm next to the wall. Keep that arm close to the wall at all times during this drill.
3. Start with your arm straight and your palm against your thigh. Lift your arm up as if you were going to shake hands with an imaginary person in front of you (*b*). Keep your arm straight.
4. Rotate your arm inward at the shoulder as you raise it. Keep your elbow straight and turn your palm down. By the time your hand is as high as your head, your palm should be facing down.
5. Continue to rotate your palm as you lift your arm. When your arm is directly overhead, your palm should be facing the wall (*c*). Repeat this movement several times. Begin slowly and gradually build up speed.

Focus Points

- Imagine painting a large arc with your fingers as you do this drill
- Perform this drill slowly and with great control.
- Stay close to the wall.

Tip

Practice at home in front of a mirror to verify that your arms recover directly above your shoulders.



43 STREAMLINE BACKSTROKE KICK

Purpose

To practice full-speed backstroke kicking while maintaining correct body position.

Procedure

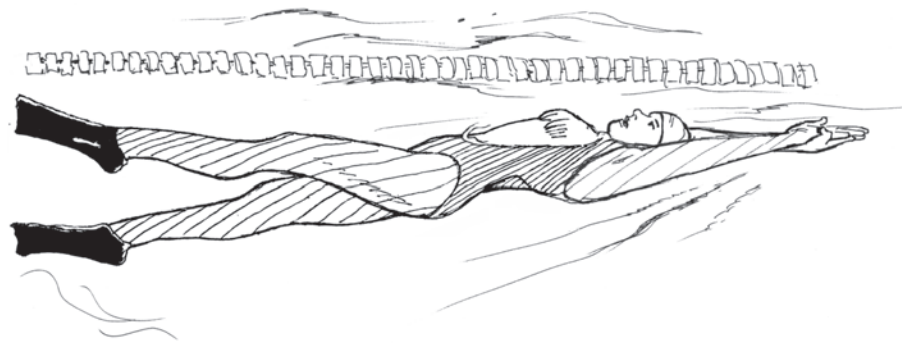
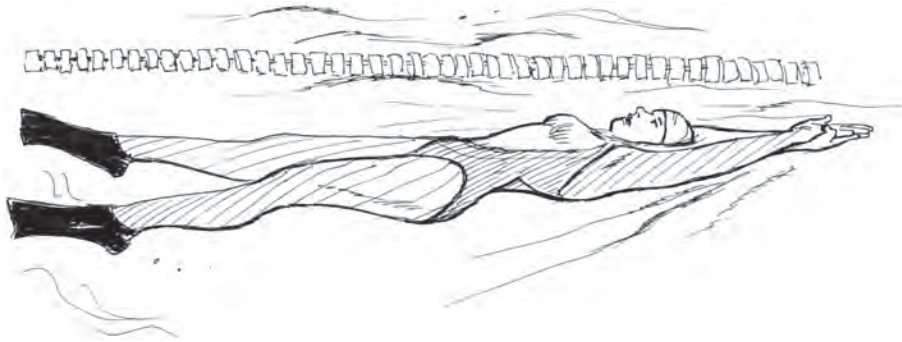
1. Repeat the Slow Flutter on Back drill and Streamline Back Flutter Kick drill from chapter 2, but put on fins for more power. Hold a good streamline and correct body position (*a, b*).
2. Begin to kick faster and more forcefully.

Focus Points

- Remember to float, streamline, and kick.
- Keep your hands just under the water.
- Keep your toes pointed and your ankles relaxed.
- Boil the water but do not splash.
- Keep your head back so that your ears are under the water and are cradled by your arms.
- Keep your abdomen up; feel the bottom of your rib cage on the surface.

Tips

- See how hard you can kick to boil the water as much as possible. Have a boiling contest with a friend! Remember to boil, not splash.
- Training: This is a key drill to incorporate into the kicking sets that helps to reinforce good body position and streamlining. Try 10 sets of 25 at 30-second intervals or 4 sets of 50 at 1-minute intervals. Senior-level swimmers can do these sets without fins



44 ONE-ARM EXTENDED BACK KICK

Purpose

This drill is an intermediate step to help you move into the correct backstroke position.

Procedure

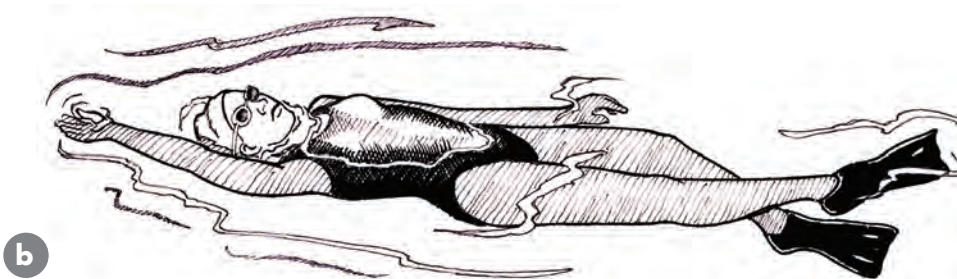
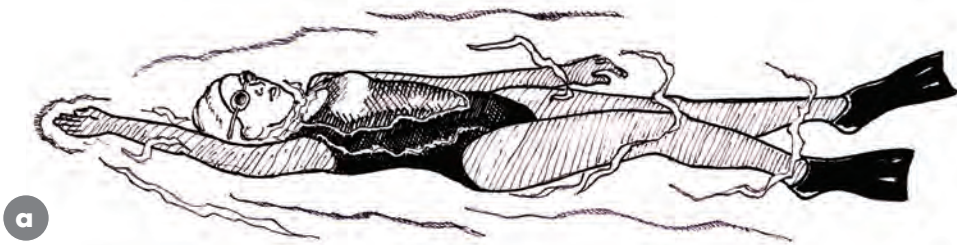
1. Put on fins. Push off the wall on your back with only one arm above your head in a half-streamline position.
2. Position your extended arm with your palm facing up and your thumb in. Straighten your elbow. Extend your arm forward from your shoulder, close to but not quite touching the head. Keep your other arm down at your side.
3. Use a flutter kick to move along the surface. Keep the bottom of your rib cage up and keep your head steady (*a, b*).

Focus Points

- Keep your head stationary. Keep your ears level and just below the surface.
- Keep your shoulders steady.
- Control the position of your hand above your head so that your palm faces up.

Tip

To ensure your shoulders are staying steady and your rib cage is high enough during the drill, balance a cup on top of your chest, right at the bottom of your sternum.



45 BACKSTROKE SIDE GLIDE AND KICK

Purpose

When we study how the body moves most effectively through the water during the backstroke or freestyle, we notice that the best swimmers have a certain degree of rotation in the long axis and that their bodies stay high in relation to the surface of the water. Here is a simple explanation of how this works.

In chapter 1, you saw that the body has natural buoyancy and that some people have better buoyancy than others. The best swimmers move through the water with most of the body below the surface, but a good deal of the body is above the surface, too. Humans are not designed to move through the water as fish do; we do not move completely underwater with our bodies in vertical positions. The closest representation of the human body's natural buoyancy is a sailboat. If you have ever operated a good-sized sailboat, you'll probably recognize what I mean.

Much of the sailboat is actually underwater. As it moves through the water, an interesting thing happens when the sails catch the wind just right: the boat lifts and cuts through the water more easily. This usually happens when the boat is at an angle. Likewise, swimmers can shape their body positions for the freestyle and the backstroke at angles that give the body more lift, reduce drag, and increase speed.

Procedure

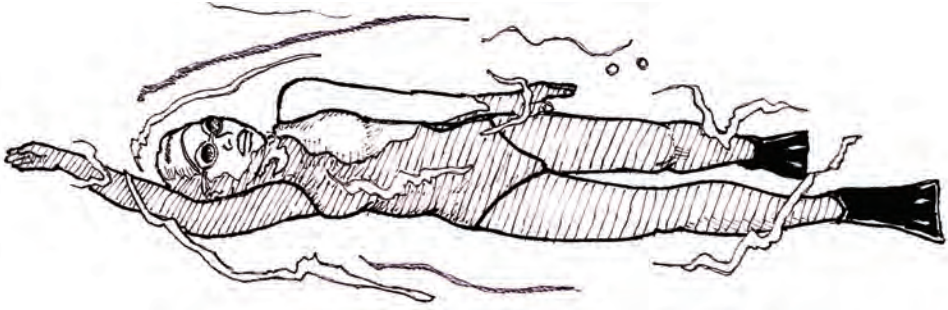
When you are providing propulsion from a flutter kick, you can position your body at an angle, giving it the appearance of a sailboat, for additional lift. For most people this angle is about 45 degrees, but it can vary from one person to another. It is known as the sailboat position or sailboat angle.

The key is to feel your body lift to the highest position possible while moving through the water. A higher body position results in less drag, which makes it easier to move through the water and swim faster.

1. Put on fins. Push off from the wall on your back and immediately shape your body into the sailboat position. Allow yourself to glide as far as possible while holding this position.
2. Add a slow flutter kick and continue to hold the sailboat position

Focus Points

- Keep your head straight.
- On one side of your body, feel your shoulder, your elbow, and the side of your rib cage at the surface.



46 LATERAL BACKSTROKE KICK

Purpose

To establish the sailboat phase of the backstroke with control of your body and hand positions. This drill is the most important one in the backstroke series.

Procedure

1. Put on fins. Push off as you did in the One-Arm Extended Back Kick drill.
2. Rotate your extended arm deeper in the water and move your body to the sailboat angle as you kick (see the Backstroke Side Glide and Kick drill). When your body is in the sailboat angle, you should feel your shoulder, your elbow, and the side of your rib cage on one side at the surface.
3. Rotate your extended arm so that your palm is vertical with the pinky down and the thumb up. Your arm should be 6 to 10 inches (15 to 25 cm) below the surface.

Focus Points

- Keep your head stationary and in a straight alignment. Keep your ears level and just below the surface.
- Feel your shoulder, your elbow, and the side of your rib cage at the surface.
- Keep the wrist of your extended arm straight.

Tips

- For the hand position, think of your thumb as a periscope and make sure you keep the periscope in position to come up.
- Advanced variation: Use a freestyler hand paddle on the extended arm. I like this hand paddle because of the skew, which allows the swimmer to feel the correct alignment. No other hand paddle has this feature.
- Try this drill with your eyes closed and see whether you move in a straight line.
- Try balancing a cup or water bottle on your forehead while you do this drill to encourage a straight alignment.
- Training: This is an important drill to incorporate into the kicking sets. As you increase the speed and intensity, this drill will help you find the right position for arm placement in the backstroke. Do four to eight sets of 25, alternating arms after each set. Gradually increase your speed as you improve your arm position. Senior-level swimmers can do this drill without fins and with the freestyler hand paddle.



47 SHOULDER ROLL

Purpose

To isolate and emphasize the shoulder rotation action of the backstroke.

Procedure

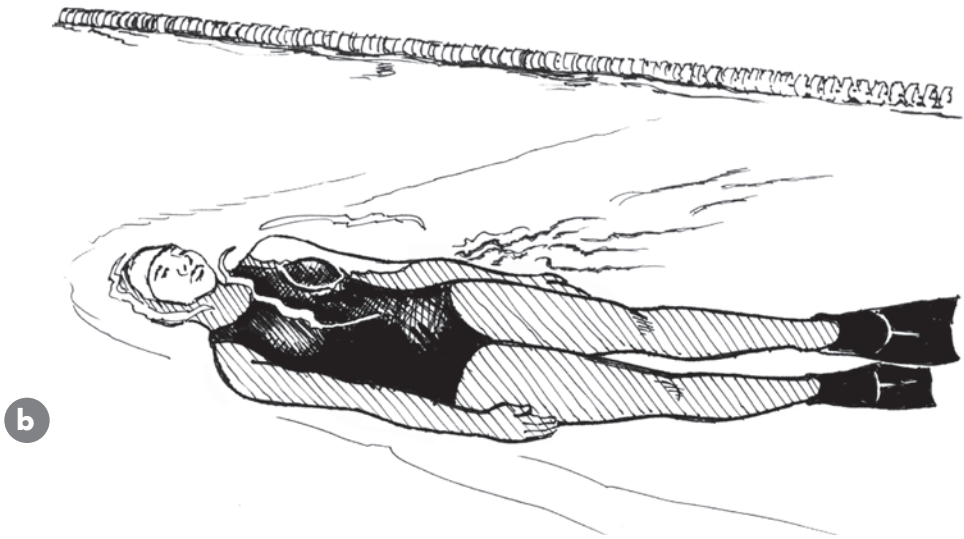
1. Put on fins; this drill requires strong kicking.
2. Float on your back and flutter kick with your arms down at your sides. Keep your head position steady and slowly roll one shoulder up and into the sailboat angle.
3. Pause so that you can feel your shoulder, your elbow, and the side of your rib cage at the surface (*a*). Hold the position for a count of three.
4. Slowly roll your body to the other side (*b*). You should feel your rib cage up at the surface the whole time you are rolling.
5. Continue rolling from one side to the other and back again. After you pass the backstroke flags at the other end of the pool, put one arm above your head so that you can finish safely at the wall. (The flags on either end of the pool, called backstroke flags, are there to help you turn or finish properly.)

Focus Points

- Keep your head steady.
- Roll slowly. It is not important how fast you do this drill but how well you do it!
- Keep your kicking quick and constant.

Tips

- Advanced variation: Position your body vertically in deep water. Have someone on the deck place his or her hands on both sides of your head and hold you just above the surface. Work on rolling your shoulders back and forth to create a washing-machine action.
- Training: Senior-level swimmers can do this drill without fins and work on the timing of their shoulder rotation.



48 FLAG DRILL

Purpose

To emphasize the beginning of the recovery phase of the backstroke.

Procedure

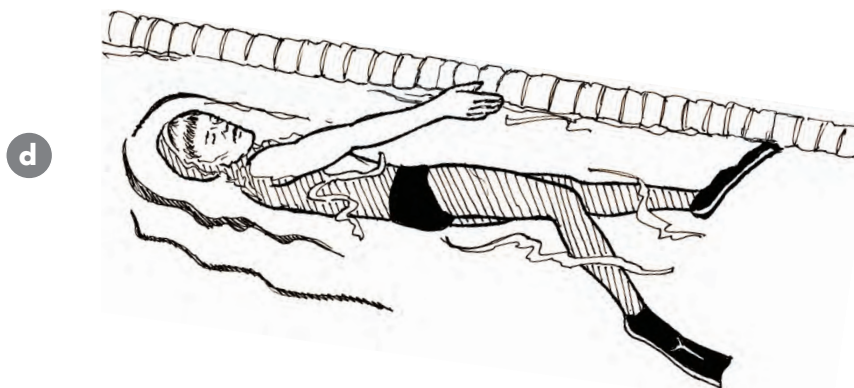
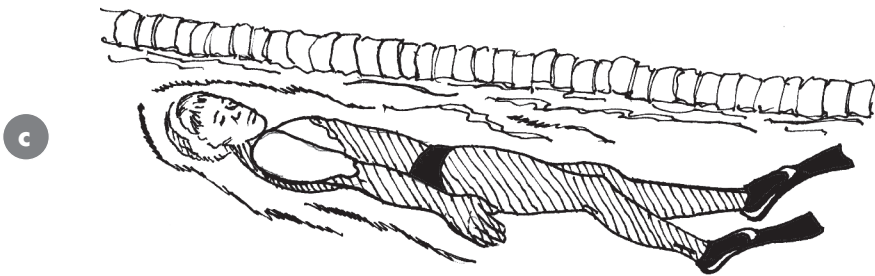
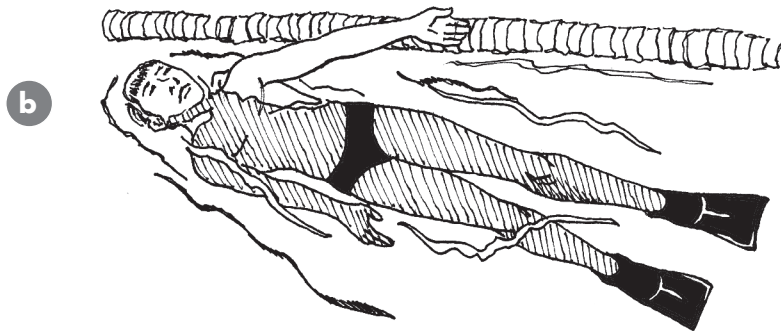
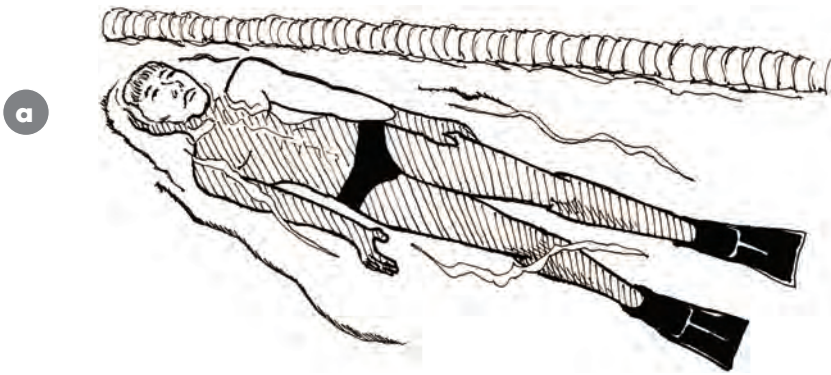
1. Begin as you did in the Lateral Backstroke Kick drill (*a*).
2. After you have rolled your body to one side (keeping one arm above the body and one at your side), hold the sailboat angle and lift the arm on the same side as the shoulder that is up (*b*).
3. Keep your elbow and wrist straight and your thumb up and pinky down. Slowly lift the arm just 2 to 4 inches (5 to 10 cm) above the surface of the water. Then slowly lower the arm back to your side.
4. Roll to the other side and repeat (*c*, *d*).

Focus Points

- Keep your head steady.
- Roll slowly and then lift.
- Kick hard as you lift your arm so that your body can stay up.

Tip

Look down the top of your arm as you lift. Make sure that your arm is straight.



49 GUIDED ONE-ARM BACKSTROKE

Purpose

To emphasize the backstroke pulling action in combination with the recovery and rolling actions.

Procedure

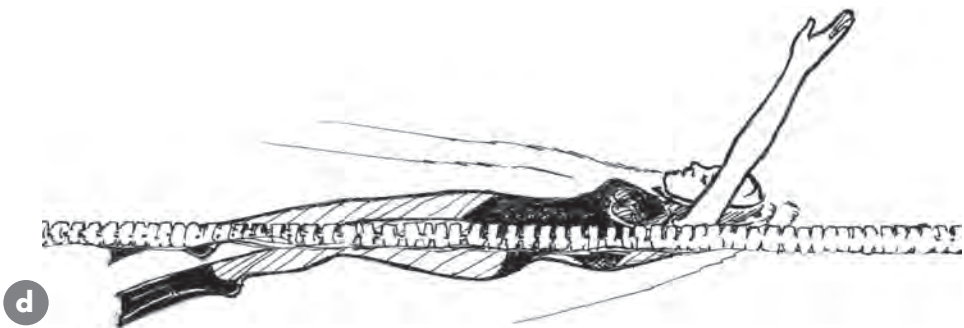
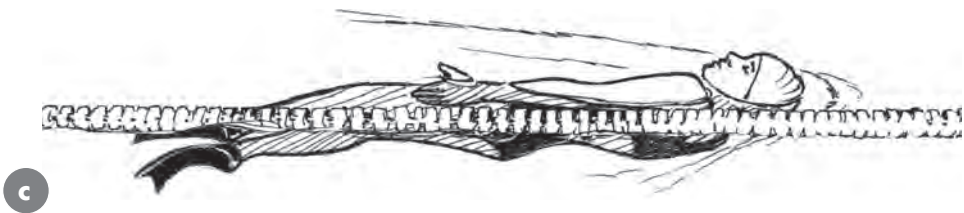
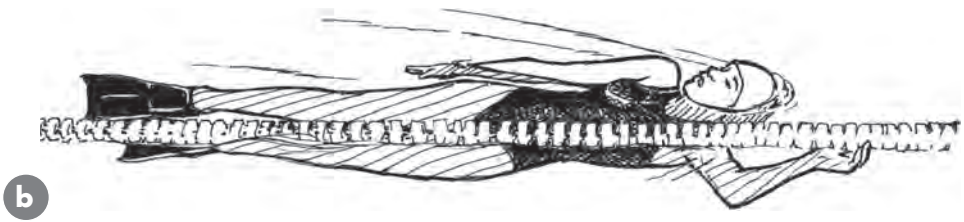
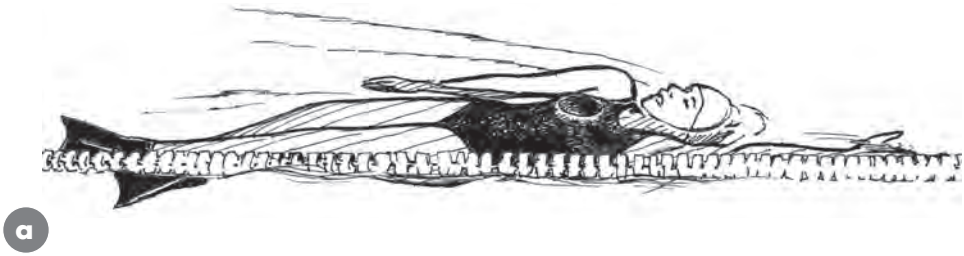
1. Put on fins.
2. Flutter kick in a lateral backstroke position with the extended arm right next to the lane rope and your body in the sailboat angle (*a*). Hold this position for a count of three. You use only the extended arm that is next to the lane rope; the other arm stays down at your side.
3. Grab the lane rope. Gently pull your body along the rope (*b*) and complete the pull-down at your thigh.
4. As you complete the pull, roll the shoulder of your pulling arm up so that you are in the sailboat angle on the other side (*c*). Hold this position for a count of three while you continue to kick.
5. Slowly recover the pulling arm by lifting it through the air (*d*). Your hand travels in a large arc until it enters the water overhead. Rotate your arm during the recovery so that your thumb comes out of the water first and your pinky enters the water first. Your hand should enter the water next to the lane rope with the periscope thumb up.
6. As your hand enters the water, roll the opposite shoulder up into the sailboat angle. This completes one cycle.
7. Continue to repeat this cycle. Keep your arm extended in the water above your head when you pass the flags so that you finish safely at the wall. You should follow this pattern: 1, 2, 3, pull, roll, 4, 5, 6, recover, roll.

Focus Points

- You should roll back and forth into the sailboat angle.
- Stay close to the lane rope.
- Perform the drill slowly.
- Keep your kicking fast and strong.

Tip

Recite this pattern to yourself as you do the drill: 1, 2, 3, pull, roll, 4, 5, 6, recover, roll.



50 CONTROLLED ONE-ARM BACKSTROKE

Purpose

To develop the complete backstroke action with control. This is the second key drill in the backstroke series.

Procedure

Perform this drill exactly as you did the previous drill, but don't use the lane rope for pulling. The pulling action will be along an imaginary lane rope that is about 1 foot (30.5 cm) deep.

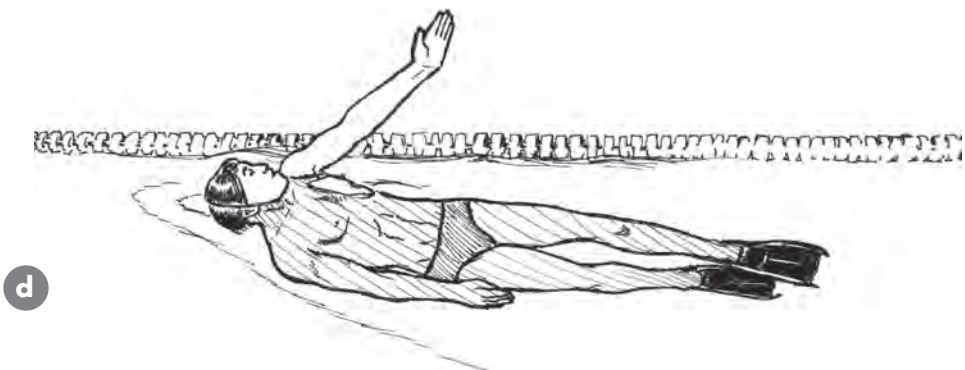
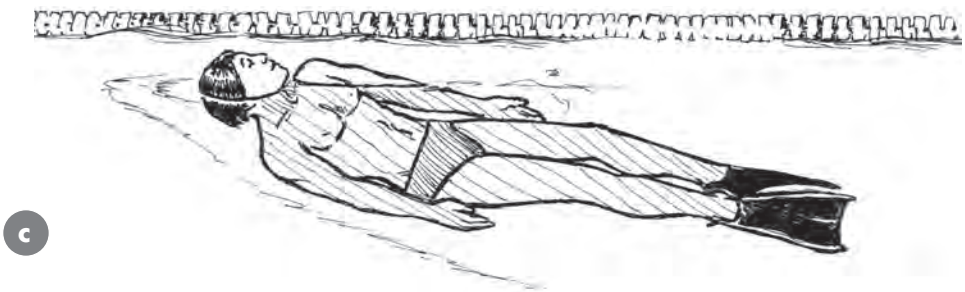
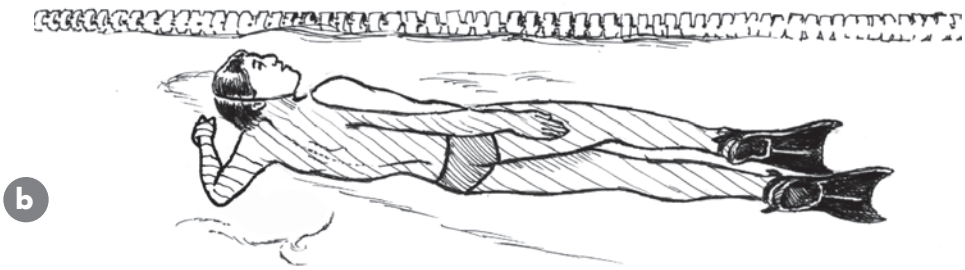
1. Put on fins.
2. Kick in a lateral backstroke kicking position right next to the lane rope with your extended arm next to the rope (*a*). Hold this position for a count of three. You use only the arm that is extended next to the lane rope; the other arm stays down at your side.
3. Pull under the lane rope along an imaginary lane rope (*b*) and complete the pull-down at your thigh.
4. As you complete the pull, roll the shoulder of the pulling arm above the surface (*c*). Hold this position for a count of three while you continue to kick.
5. Slowly recover the pulling arm (*d*). Your hand should enter the water next to the lane rope with the periscope thumb up.
6. As your hand enters the water, roll the opposite shoulder up. This completes one cycle.
7. Continue to repeat this cycle. Keep your arm extended above your head when you pass the flags so that you finish safely at the wall. Remember this pattern: 1, 2, 3, pull, roll, 4, 5, 6, recover, roll.

Focus Points

- You should roll from the sailboat angle on one side to the other.
- Stay within 2 inches (5 cm) of the lane rope.
- Keep your kicking fast and strong.

Tip

Recite this to yourself as you do the drill: 1, 2, 3, pull, roll, 4, 5, 6, recover, roll.



51 DOUBLE-ARM BACKSTROKE

Purpose

To encourage the development of bent-elbow backstroke pulling and correct hand entry.

Procedure

1. Put on fins. Flutter kick on your back with both arms above your head (*a*). Hold this position for a count of three.
2. Pull with both arms at the same time all way to your hips.
3. Recover both arms at the same time (*b*). Concentrate on feeling your hands enter the water at the ten o'clock and two o'clock positions. After your hands enter the water, hold this position (your arms stretched overhead and your hands barely underwater) for a count of three (*c*).
4. Pull both arms at the same time and finish at your side (*d*). This completes one cycle.
5. Continue to repeat this cycle. Keep your arms above your head when you pass the flags so that you finish safely at the wall.

Focus Points

- Keep your body position steady. Avoid bouncing.
- Perform the drill slowly.
- Keep your kicking fast and strong.
- Make sure your hands enter the water at the ten o'clock and two o'clock positions.

Tips

- Think of pulling on imaginary lane ropes that are close to you on both sides.
- Advanced variation: Perform this drill with a pull buoy between your legs while you keep your body steady.



52 L DRILL

Purpose

To emphasize the middle of the recovery phase of the backstroke while keeping maximum buoyancy and to start coordinating the recovery with the pull to emphasize timing and stroke rate.

Procedure

1. Put on fins. Kick in a lateral backstroke position with your right arm extended and your left arm down at your side (*a*) as you did in the Flag drill.
2. Hold this position and kick for a count of five
3. Keep the right arm extended as you lift your left arm straight up to a 90-degree angle from the shoulder (L position). Hold this position and kick for a count of five (*b*).
4. Continue recovering your left arm until your left hand enters the water and touches your right hand.
5. Pull your right arm through the water and roll your shoulder and hips until your right arm is down at your side. You are now in a lateral backstroke kicking position with your right side up (*c*).
6. Repeat these steps using your right arm while your left arm stays extended.

Focus Points

- Make sure you are in the sailboat position on one side.
- Perform the drill slowly and smoothly.
- Keep your kicking steady and strong.

Tips

- Keep your head steady as you perform this drill.
- Look at your hand above you when it is in the L position. Stay focused.

a



b



c



53 CONTROLLED TWO-ARM BACKSTROKE

Purpose

To develop the complete backstroke action with control and coordination in both arms. This is the third key drill in the backstroke series.

Procedure

This drill is the same as the Controlled One-Arm Backstroke drill, but in this drill you use both arms.

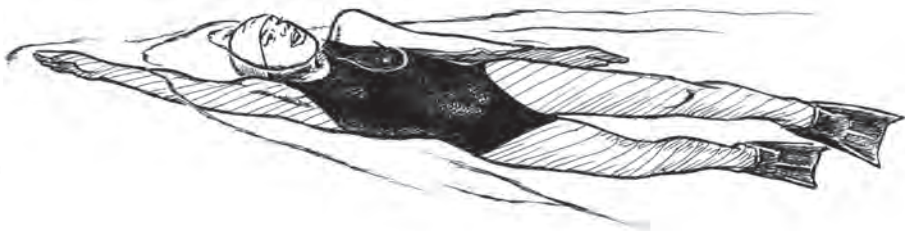
1. Put on fins. Kick in a lateral backstroke kicking position with your right arm extended and your left arm down at your side (*a*). Hold this position for a count of three.
2. Switch arms at the same time by pulling with your right arm and recovering with your left arm (*b*) until you reach the lateral backstroke kicking position with your left arm up and your right arm down (*c*). Hold this position for a count of three.
3. Repeat the switch. This is one stroke cycle.
4. Continue to repeat this cycle. Keep your arm extended above your head when you pass the flags so that you finish safely at the wall.

Focus Points

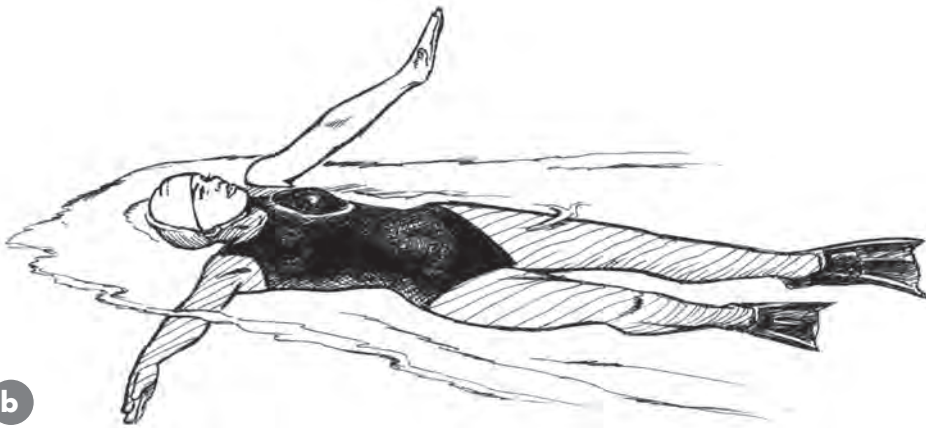
- Roll from one side to the other.
- Perform the drill slowly and smoothly.
- Keep your kicking fast and strong.

Tips

- Switch your arms at close to the same time. Imagine a teeter-totter: Let your shoulders rock back and forth with that motion. Let your shoulders lead the way. First rotate the shoulders and then rotate the arms.
- Training: To reinforce these mechanics, hold the lateral position on each side for a count of six; do two sets of 25. Then do two sets holding for a count of three and two sets holding for a count of one.



a



b



c

54 CONTINUOUS ONE-ARM BACKSTROKE

Purpose

To emphasize stroke control and body roll while focusing on just one arm. This is the fourth key drill in the backstroke series.

Procedure

Perform this drill exactly as you did the Controlled One-Arm Backstroke but without pausing between strokes.

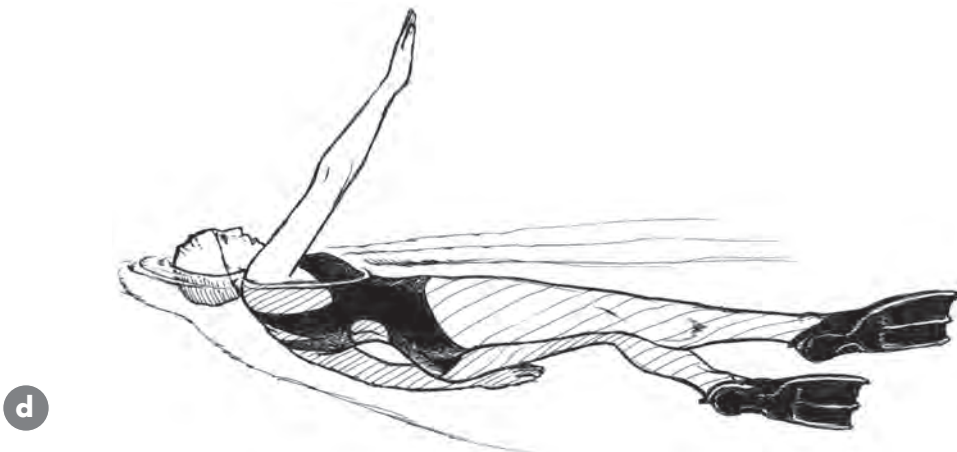
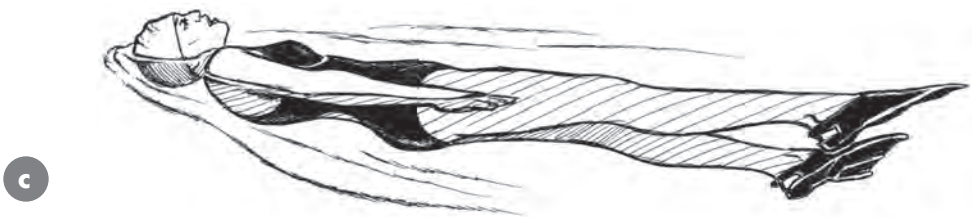
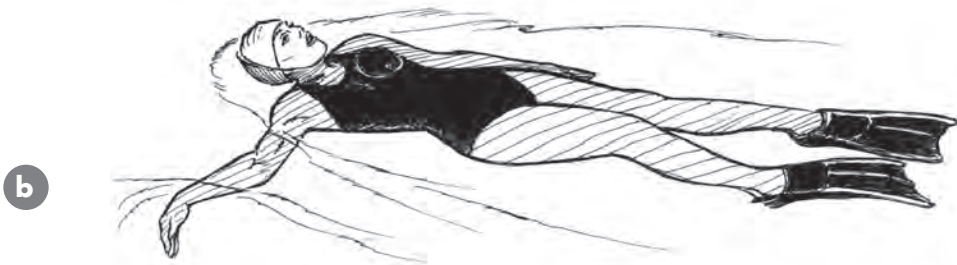
1. Put on fins. Start in a lateral backstroke kicking position (*a*). You use the arm extended above your head; the other arm stays down at your side.
2. Using a continuous action, pull and recover one arm (*b-d*). Concentrate on excellent shoulder and body roll and a steady head position.
3. Keep one arm above your head when you pass the flags so that you finish safely at the wall.

Focus Points

- Keep rolling from one side to the other.
- Perform the stroke smoothly. Do not pause at any point in the stroke.
- Keep your kicking fast and strong.

Tip

Pay attention your shoulders; rotate each one into the sailboat angle each time. Remember to imagine that teeter-totter movement.



55 CONTINUOUS TWO-ARM BACKSTROKE

Purpose

To emphasize stroke control and body roll while coordinating your arms.

Procedure

Perform this drill exactly as you did the Controlled One-Arm Backstroke but use both arms at the same time.

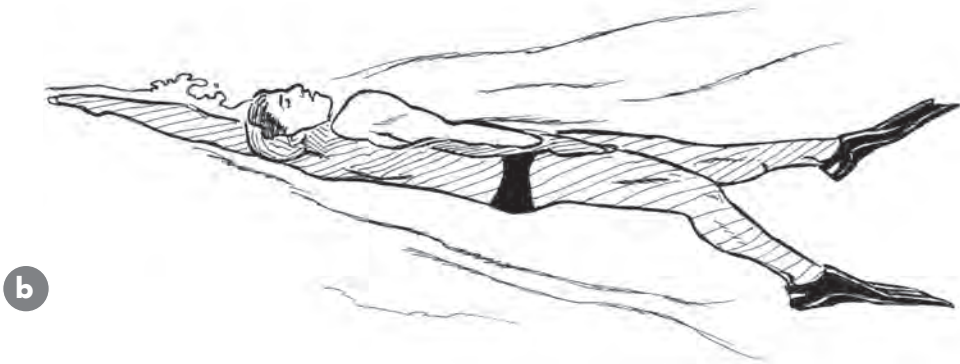
1. Put on fins. Kick in a lateral backstroke kicking position.
2. Using a smooth, continuous action, switch both arms at the same time (*a*).
3. Let your shoulders lead the arm action. Lift your shoulders to the sailboat angle on the recovery. Do not pause at any point in the stroke.
4. Continue to repeat the cycle. Extend one arm above your head when you pass the flags so that you finish safely at the wall (*b*).

Focus Points

- Keep rolling from one side to the other.
- Perform the stroke smoothly. Do not pause at any point in the stroke.
- Keep your kicking fast and strong.

Tip

Pay attention to your shoulders; rotate each one out to the sailboat angle. Remember to imagine that teeter-totter movement.



56 BACKSTROKE FINAL ADJUSTMENT

Purpose

To practice the backstroke while focusing on the correct position of your hands as they enter the water. Now that you have excellent shoulder and body roll in the backstroke, you will be able to swim with what feels like a wider stroke.

Procedure

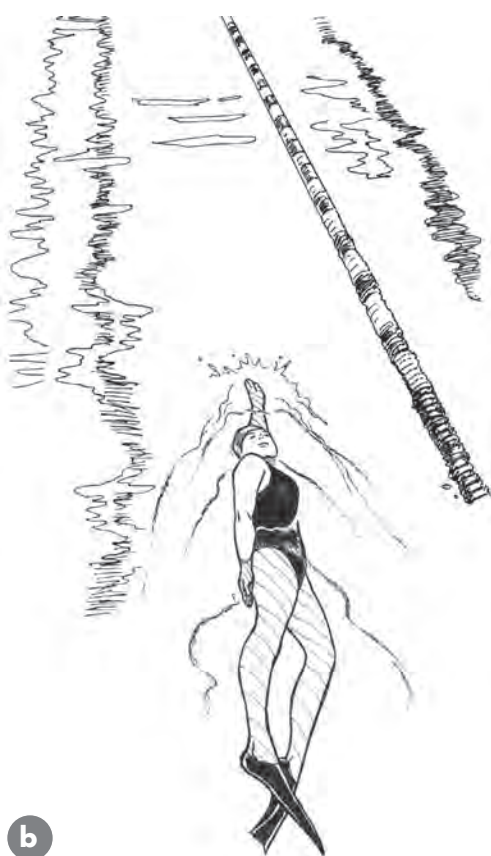
1. Your hands should feel as if they are entering the water at the ten o'clock and two o'clock positions. This will feel deceptively easy, and if the stroke is correct, it should be.
2. Swim a smooth, controlled backstroke (*a, b*). Concentrate on feeling your hands enter the water at the ten o'clock and two o'clock positions. You may also notice that the stroke moves a little quicker. This is okay. Maintain your good shoulder roll, steady body position, and strong kicking.
3. Have your coach or training partner stand on the deck at the end of your lane to see whether your hands enter the water right above your shoulders. Do not over- or underreach. The most common problem is overreaching (when your hands enter past the line of the respective shoulder, such as when your hand enters directly over your head). Make adjustments as necessary.

Focus Points

- Make sure that your hands enter the water at the ten o'clock and two o'clock positions.
- Don't forget to maintain all the correct mechanics of the backstroke: steady body position, quick and strong kicking, and a good shoulder roll.

Tips

- Swimming next to the lane rope is another way to check your arm entry position. Your hand should enter the water right next to the lane rope.
- While swimming next to the lane rope, perform a few strokes with your eyes closed to help you really feel the stroke.



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Freestyle

Freestyle is the fastest of the competitive strokes. In competition, however, swimmers often try to speed up by moving their arms faster through the air. They try so hard that their strokes deteriorate, slowing them down. To move faster, swimmers must balance good technique with strong pulling and kicking.

Efficiency is vital to swimming freestyle fast. In the past few years, much has been learned about the way that the best swimmers in the world swim freestyle. Sprinters tend to have straighter arms for a faster turnover and higher stroke rate rather than a long stroke that focuses on distance per stroke. Distance swimmers tend to have more of a front-quadrant stroke that resembles the catch-up freestyle in some ways. New research supports a shallower pull stemming from the elbow to improve the efficiency of the stroke. The drag applied to the hand and forearm is much less than that for the upper arm, so swimmers are trying to pull with a bent elbow under the water while keeping the upper arm as close to the surface as possible.

The best freestylers

- maintain excellent head and body position with their bodies high out of the water;
- have a smooth, relaxed stroke recovery with the elbows high;
- have excellent head control;
- breathe comfortably;
- have good hip rotation, torso rolling, and shoulder lift;
- have flawless kicking;
- pull through the water efficiently and with great power;
- catch the water with the elbow high during the catch phase; and
- pull all the way past the hip until the hand releases to the recovery.

The drills in this chapter will help you apply the characteristics of the best freestylers to your stroke.

57 STREAMLINE FREESTYLE KICK, NO BREATH

Purpose

To practice full-speed freestyle kicking while maintaining a flat body position.

Procedure

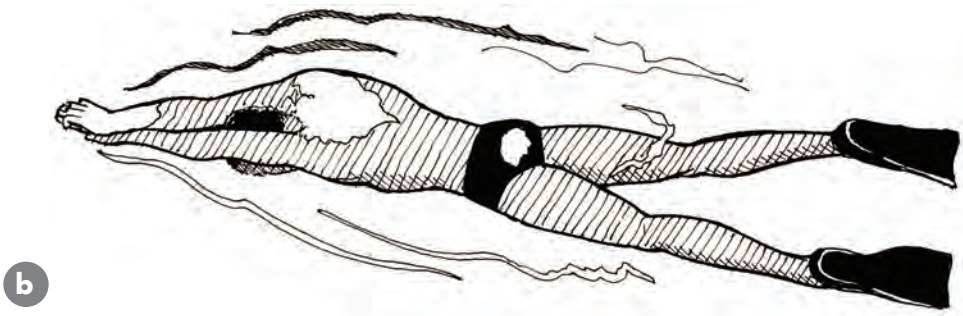
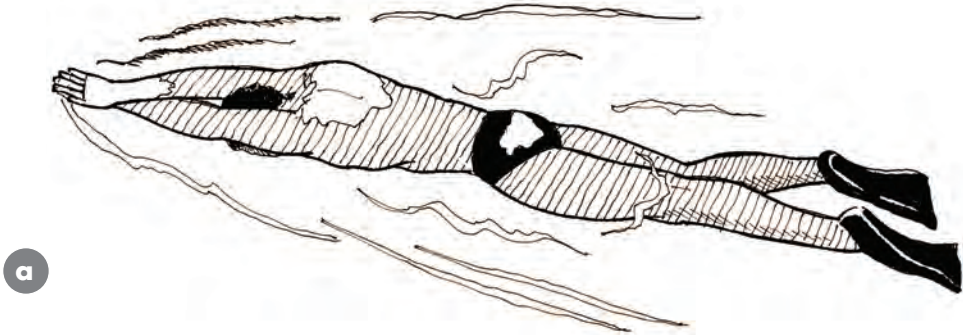
1. Start at the wall with fins on.
2. Take a deep breath, push off the wall, and place your hands in a streamline position—nose down, with the hands, shoulders, hips, and heels at the surface (*a*).
3. Slide for a couple of seconds and then start kicking with a quick, steady flutter kick (*b*). Keep your toes pointed and in the water at all times. The heels of your feet should just barely break the surface of the water. Your hips should be right at the surface.
4. Keep your head tucked in under your arms. Slowly let your air out of your nose and go about halfway across the pool. Then stop and repeat.

Focus Points

- Keep your arms in the streamline position. The arms should be behind the head with the elbows locked in a tight streamline.
- Kick the water, not the air. In other words, avoid lifting your feet above the surface of the water. While the splashing may look impressive, it does nothing! Kick from the thighs and the ankles, not the knees.
- Keep your hips up.

Tips

- Try to position your head so that it just barely breaks the surface or sits slightly below the surface. This positioning will help get you ready for the freestyle drills.
- Do this drill with the snorkel.



58 ONE-ARM EXTENDED FREESTYLE KICK

Purpose

To help you transition into the sailboat angle. This drill is a novice to intermediate step.

Procedure

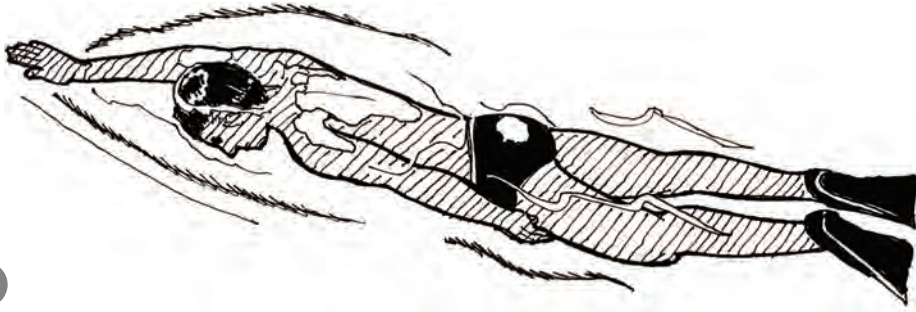
1. Put fins on. Begin by pushing off the wall on your front with just one arm extended in a half-streamline position (*a*).
2. Position your extended arm with the palm facing down. Your elbow should be straight, and your arm should be extended forward from the shoulder, close to but not quite touching the head.
3. Keep your other arm down at your side.
4. Use a flutter kick and move along the surface (*b*). Keep your shoulders and hips up.
5. Keep your head steady.
6. Slowly let out your air as you go about halfway across the pool and then stop. Repeat.
7. Add a freestyle side breath to continue performing the drill down the pool.

Focus Points

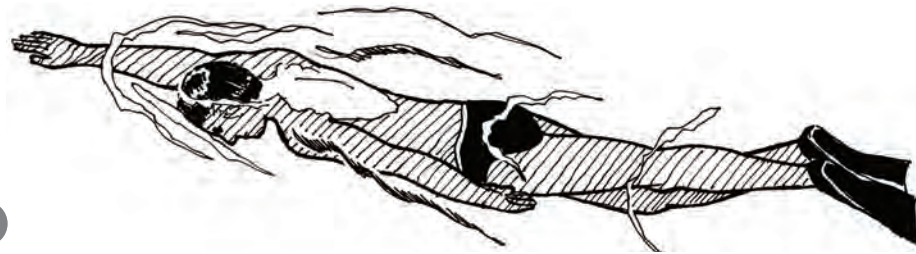
- The head should remain stationary. Keep the ears level and just below the surface.
- Keep your shoulders steady.
- Control the position of your extended hand so that the palm faces down.

Tip

Do this drill with the snorkel.



a



b

59 FREESTYLE SIDE GLIDE

Purpose

To establish the sailboat angle phase of the freestyle with control of the body and hand positions. This is the most important drill of the freestyle series.

Procedure

1. Review the discussion in the Sailboat Angle drill in chapter 4. You will focus on getting into the sailboat angle while on your front side.
2. Put on fins. Start by pushing off on your front. Have one arm extended and begin flutter kicking (*a*).
3. Rotate the extended arm forward in the water and move the body to the sailboat angle as you continue kicking. You should feel the shoulder coming out of the water with the elbow and the side of the hip on the other side all being at the surface. This position is the sailboat angle.
4. Rotate the extended arm so that the palm is horizontal, facing down. The arm should be 1 to 2 inches (2.5 to 5 cm) below the surface (*b*).
5. Look straight down at the bottom of the pool. Only the back of your head should be breaking the surface.
6. With a steady kick, go halfway across the pool without a breath. Stop and repeat.

Focus Points

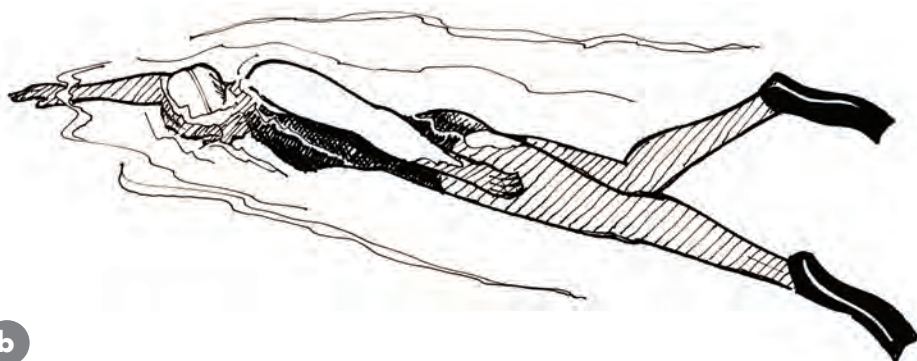
- Keep the head stationary and in straight alignment.
- Feel the shoulder, elbow, and side of the hip all on the same side at the surface.
- Keep the wrist of the extended arm straight.

Tips

- For an advanced version, use a freestyler hand paddle on the extended arm.
- Kick with your body right over the black line without letting the extended arm move across the line.
- Try this drill with your eyes closed and see whether you move in a straight line.
- Be sure to keep the head straight while rotating to the side glide position.
- Also, try this with the snorkel.



a



b

60 FREESTYLE SIDE GLIDE WITH BREATHING

Purpose

To add the breathing action of the freestyle and to continue to practice control of the body position and head position. This is another key drill in the freestyle series.

Procedure

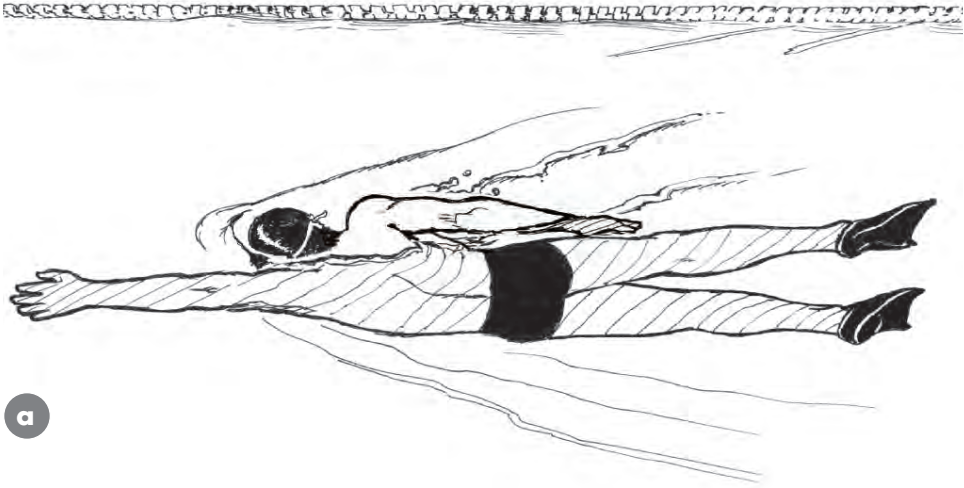
1. Put on fins. Push off the wall into the position described in the Freestyle Side Glide drill. Hold the sailboat angle steady throughout this drill.
2. Begin kicking while looking down at the bottom with the back of your head just barely above the surface (*a*). Hold this position for a count of three. Be sure to blow a steady stream of bubbles out of your nose while humming (hum bubbles).
3. Rotate your head to turn away from the extended arm. Turn the head enough so that your mouth is at the surface and you can sneak in a breath (*b*). Inhale.
4. Rotate your head back down so that you are looking straight down again. Begin to blow bubbles as soon as your face reenters the water.
5. Continue to repeat the cycle.

Focus Points

- When your face is in the water, look straight down.
- Rotate at the neck to breathe. Keep the crown of your head in one spot. Rotate the head; don't lift it.
- Keep your body in the sailboat angle. Feel your shoulder, elbow, and hip up at all times.

Tips

- Practice this drill on both sides so that you learn to be comfortable with alternate breathing.
- Use a freestyler hand paddle on the extended arm to help you get the feel of keeping your body on keel while you breathe.



61 SHARK FIN DRILL

Purpose

To establish the sailboat angle phase of the freestyle while holding a high elbow recovery position and controlling the body and hand positions. This is a key drill of the freestyle series. The drill develops core strength and helps you visualize the recovery action of the arm movements.

Procedure

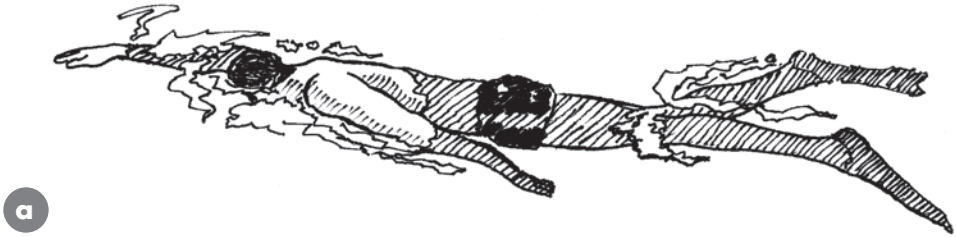
1. This drill begins the same as Freestyle Side Glide drill did—you must be in sailboat angle to perform this drill correctly.
2. Put on fins. Start by pushing off on your front. Have one arm extended and begin flutter kicking (*a*).
3. Rotate the extended arm forward in the water and move the body to the sailboat angle as you continue kicking. You should feel the shoulder coming out of the water with the elbow and the side of the hip on the other side all being at the surface. This is the sailboat angle.
4. Rotate the extended arm so that the palm is horizontal, facing down. The arm should be 1 to 2 inches (2.5 to 5 cm) below the surface (*b*).
5. Look straight down at the bottom of the pool with just the back of the head breaking the surface.
6. After you are in the sailboat angle, lift the elbow high out of the water.
7. Reach the hand as far forward as you can while keeping the elbow as high as possible (*c*).
8. With a steady kick, go halfway across the pool without a breath. Stop and repeat.

Focus Points

- Keep the head stationary and in straight alignment.
- Feel the shoulder, elbow, and side of the hip all on the same side at the surface.
- Keep the wrist of the extended arm straight.
- Keep the elbow as high as possible.
- Reach the upper hand as far forward as you can.

Tips

- For an advanced version, use a freestyler hand paddle on the extended arm.
- Kick with your body right over the black line without letting the extended arm move across the line.
- Be sure to keep the head straight while you rotate to the sailboat angle and lift the hand out of the water.
- Keep the elbow as high as you can while putting the shark fin hand as far forward as possible.
- Also, try this with the snorkel.



a



b



c

62 ZIPPER DRILL

Purpose

To emphasize the proper mechanics for the arm recovery. This drill is excellent for helping swimmers with chronic shoulder problems retrain their strokes, and it usually corrects the problem. Most shoulder pain is caused by improper mechanics, not a deficiency of a pain reliever!

Procedure

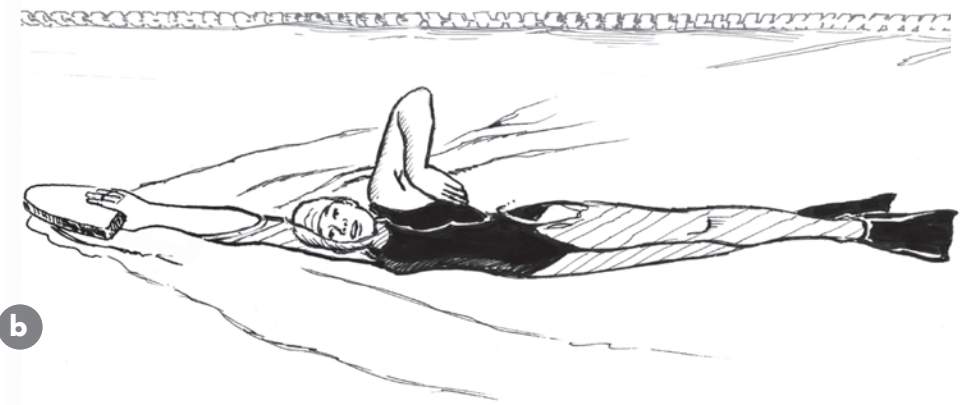
1. Put on fins. Hold a half board at the bottom with one arm and push off. Move your body to the sailboat angle with your head in the breathing position and kick.
2. Place your other arm down at your side so that the back of your hand is against your thigh (*a*). Then grab an imaginary zipper between your thumb and forefinger and pull the zipper up along your body until you reach your armpit (*b*). Allow your wrist to flex.
3. Your thumbnail should stay against your body, pointing toward the middle of your body. Your palm should remain facing up. As you pull up, your wrist should be relaxed and your elbow should come straight up.
4. After you complete the lifting action, slowly return the arm in the same manner to the starting position. Continue to repeat this cycle. Be sure to practice on both sides.

Focus Points

- Keep the body in the sailboat angle with your head in the breathing position.
- Perform this drill slowly and with control.
- Lift the elbow straight up as you pull up.
- Be sure to attempt to keep the hand out of the water as long as possible after the zipper action. Letting the hand hit the water right after the zip will cause your hand entry to be too close to the head.

Tips

- Try doing this drill while facing a lane rope or high wall. Keep your hand next to your body, which will force you to recover properly.
- Variation: Perform the drill without a kickboard.



63 FINGERTIP DRAG

Purpose

To emphasize the proper mechanics for the arm recovery. This drill is excellent for helping swimmers with chronic shoulder problems retrain their strokes, and it usually corrects the problem. This drill is similar to the Zipper drill in that it helps with recovery. It also helps with extension. Maintaining the high elbow during the recovery is important for efficient swimming.

Procedure

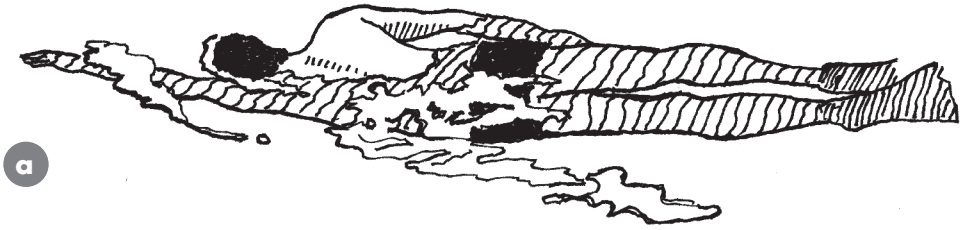
1. Put on fins. Push off the wall. Move your body to the sailboat angle with your head in the breathing position and kick.
2. Pull through the water with your other arm down at your side so that the back of your hand is against your thigh (*a*). Next, lift the elbow out of the water so that only the fingertips are in the water. Then, move them up along your body until you reach maximum extension out in front (*b*). Allow your wrist to flex.
3. Your hands should travel under the elbow as they recover. Your palm should start facing up as you begin the drag and finish facing down when the hand enters the water. As you lift the elbow and begin the drag, your wrist should be relaxed and your elbow should come straight up.
4. After you complete the lifting action, slowly drag the hand out as far as possible so that the hand enters out in front of the body. Continue to repeat this cycle. Be sure to practice maintaining a high elbow on both sides to maintain balance.

Focus Points

- Keep the body in the sailboat angle with your head still.
- Perform this drill slowly and with control.
- Lift the elbow straight up as you begin the drag.
- Be sure to drag out the hand as far as possible before entering the water; a short hand entry will create needless drag.

Tips

- Try combining this drill with the Zipper drill to practice a keeping high elbow in all parts of the stroke; we call this the Zipper Drag drill.
- You can also add the Fingertip Drag drill to the Catch-Up Freestyle drill.



64 CONTROLLED ONE-ARM FREESTYLE

Purpose

To isolate the proper mechanics of the freestyle, one arm at a time. This drill is another important part of the freestyle series.

Procedure

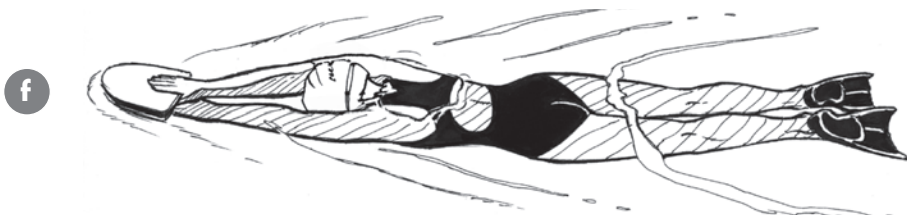
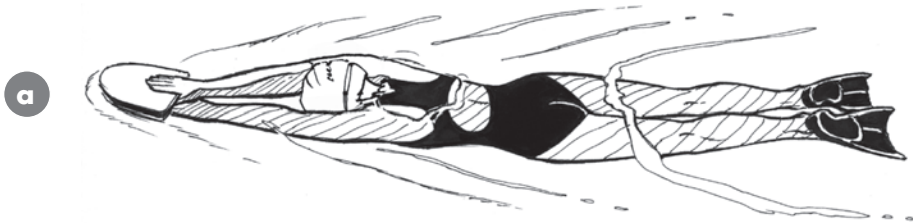
1. Put on fins. Hold a half board with one hand. Place your other hand (which will be pulling) under the board with the knuckles against the board. Start with your eyes looking down and position the back of your head just barely above the surface. Your back and hips will be flat on the surface. Kick while you hold this position for a count of three as you blow bubbles (*a*).
2. After counting to three, begin to pull your arm down and roll your body to the sailboat angle (*b*). As your hand passes under your shoulder, your head should begin turning to the side to breathe.
3. Complete the pull in the stretch position, the same position you used in the Freestyle Side Glide drill. As you finish the pull, the palm will be facing up (*c*). Hold this stretched position for an additional count of three.
4. Begin the zip-up action to bring your elbow up. As your hand reaches the middle of your back, begin to return your head to the forward position (*d*). (The hand should not pass in front of your face on the recovery.)
5. When the hand reaches the shoulder, rotate the hand forward so that it can slice into the water just in front of the half board (*e*). Then, slide the hand under the half board to complete the cycle (*f*). Practice with each arm.
6. Repeat this cycle to yourself as you perform the drill: 1, 2, 3, pull, breathe, stretch, 4, 5, 6, elbow, head, hand.

Focus Points

- Keep your head low so that the hips stay up.
- Keep the kicking steady.
- Concentrate on one step at a time.

Tip

For an advanced version, perform this drill next to a lane rope. Use the top of the rope as a guide for your hand when recovering your arm. Let the fingernail of your first and middle fingers gently glide across the top of the lane rope as if it were a piano.



65 THREE-COUNT SWITCH FREESTYLE, NO BREATH

Purpose

To develop the coordinated two-arm freestyle action with control of the timing. This drill will also allow you to feel the complete extension of the freestyle stroke. This is the next key drill in the freestyle series.

Procedure

1. Put on fins. Start by kicking in the position described in the Freestyle Side Glide drill with the left arm extended and the right arm down at your side (*a*). The shoulder of your right arm will be above the surface. Keep your eyes looking down and hold your breath. Kick in this position for a count of three.
2. Switch arms at the same time by pulling with the left arm and recovering with the right arm until you reach the position described in the Freestyle Side Glide drill, with the right arm up and the left arm down (*b–e*). Kick in this position for a count of three.
3. Repeat the switch. This completes one stroke cycle. Continue to repeat this cycle.
4. Try to go all the way across the pool without breathing. Use the rhythm of 1, 2, 3, switch, 1, 2, 3, switch.

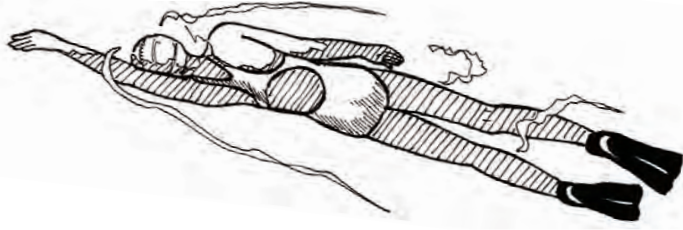
Focus Points

- Keep your eyes down and hips up.
- Move from the sailboat angle on one side to the sailboat angle on the other side.
- Perform the drill slowly and smoothly.
- Keep the kicking quick and strong.
- Keep the head still when rotating side to side.

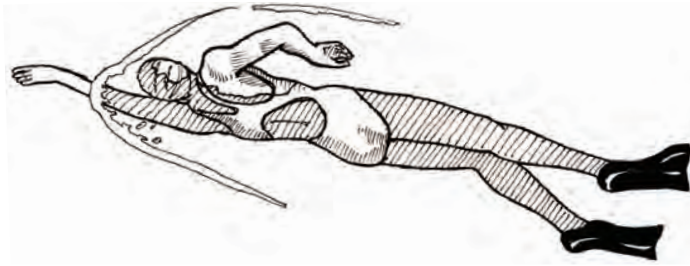
Tips

- For an advanced version, perform this drill with a swimmer's snorkel. It works well because you can practice the control of the stroke without having to move the head to breathe.
- You can also add the use of freestyler hand paddles—one on each hand.
- Variations: You can make it a progression from a six-count switch to a three-count switch to a one-count switch to learn proper timing, extension, and great rotation.

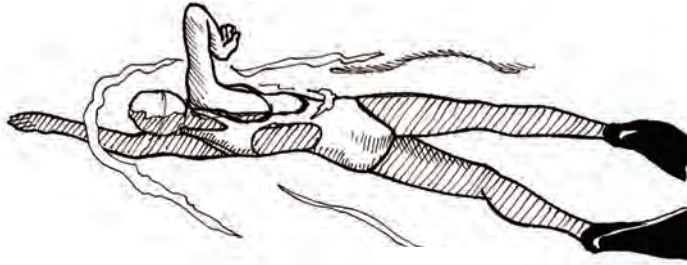
a



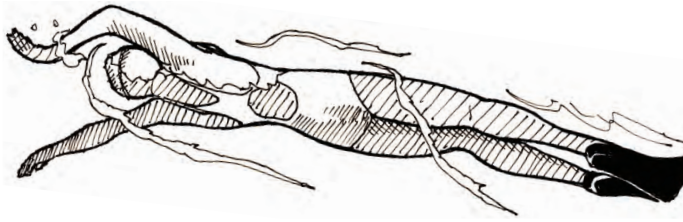
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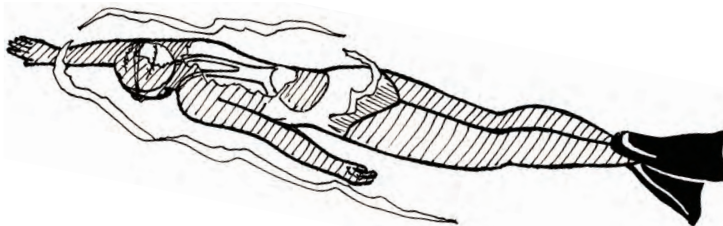
c



d



e



66 SWIVEL FREESTYLE

Purpose

To add the dimension of breathing in the freestyle action with control of the timing. This drill, the next key drill in the freestyle series, will help you feel the complete extension of the freestyle stroke while breathing.

Procedure

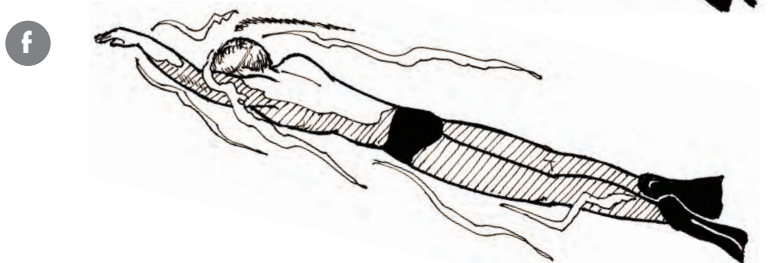
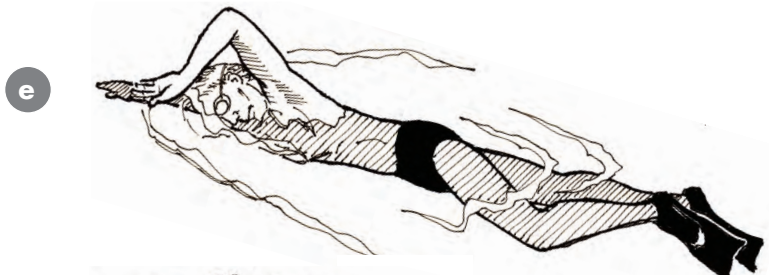
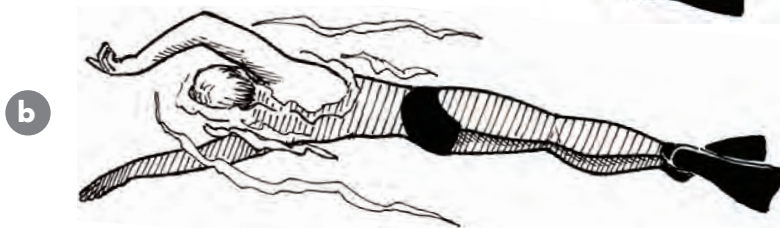
1. Put on fins. Start by kicking in the position described in the Freestyle Side Glide drill with the left arm extended and the right arm down at your side. The shoulder of your right arm will be above the surface. Rotate your head to the breathing position. Kick in this position for a count of three.
2. With a synchronized action of rotating the head through the water all the way to the breathing position on the other side, switch arms at the same time by pulling with the left arm and recovering with the right arm until you reach the sailboat angle, with the right arm up and the left arm down (*a-c*). Kick in this position for a count of three.
3. Repeat the switch and head rotation (*d-f*). This completes one stroke cycle. Continue to repeat this cycle.
4. Use the rhythm of 1, 2, switch and breathe, 1, 2, switch and breathe.

Focus Points

- Move from the sailboat angle on one side to the sailboat angle on the other side.
- Perform the drill slowly and smoothly.
- Rotate the head smoothly, keeping the crown of the head in the water.
- Keep the kicking quick and strong.

Tips

- For an advanced version, perform this drill with your eyes closed for a few strokes and see whether you move in a straight line.
- You can also do this drill with freestyler hand paddles.
- Remember, this is only a drill, so you do not want to breathe to each side after every stroke. Ideally, you want to swim with a still head position.



67 THREE-COUNT SWITCH FREESTYLE

Purpose

To develop the coordinated two-arm freestyle action with control of the timing. This drill will also allow you to feel the complete extension of the freestyle stroke with breathing to one side first. This is the next key drill in the freestyle series.

Procedure

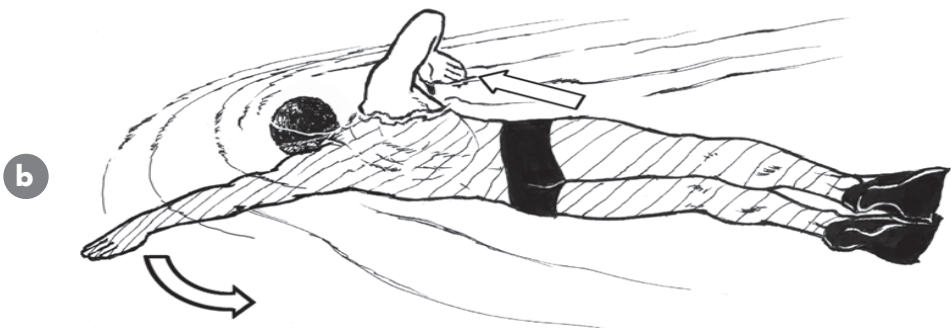
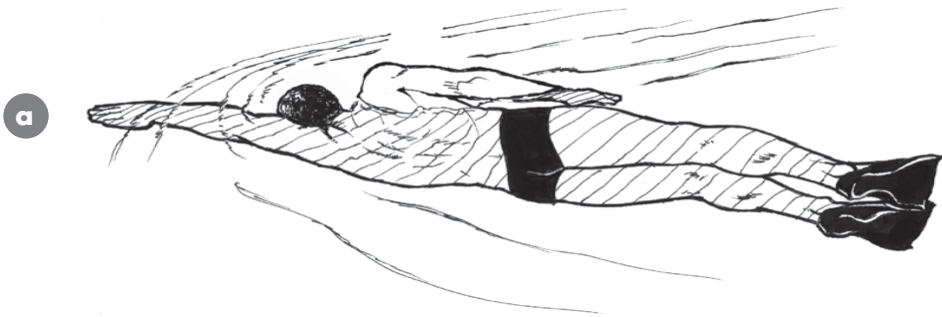
1. Put on fins. Start by kicking in the position described in the Freestyle Side Glide drill with the left arm extended and the right arm down at your side (*a*). The shoulder of your right arm will be above the surface. Keep your eyes looking down and remember to blow bubbles. Kick in this position for a count of three.
2. Switch your arms at the same time by pulling with the left arm and recovering with the right arm until you reach the sailboat angle with the right arm extended and the left arm down (*b*). As you switch, rotate your head to breathe to your left (*c*). Kick in this position for a count of three.
3. Repeat the switch (*d*) and rotate the head so that your eyes are down. This completes one stroke cycle. Continue to repeat this cycle for the entire lap.
4. Change to breathing on the other side on the next lap. Get comfortable breathing on either side.
5. The rhythm for this drill is 1, 2, 3, switch and breathe, 1, 2, 3, switch.

Focus Points

- Keep the crown of your head down and rotate your head when you breathe.
- Move from the sailboat angle on one side to the sailboat angle on the other side.
- Perform the drill slowly and smoothly.
- Keep the kicking quick and strong.

Tips

- Use freestyler hand paddles, which are specifically designed to enhance the freestyle technique. You will get the feel of how to move the arm through the water and how to recover properly.
- Try a few strokes with your eyes closed and see whether you stay in a straight line.
- Variations: You can make it a progression from a six-count switch to a three-count switch to a one-count switch to learn proper timing, extension, and great rotation.



68 THREE-COUNT SWITCH FREESTYLE WITH ALTERNATE BREATHING

Purpose

To develop alternate breathing with the coordinated two-arm freestyle action. This is the next key drill in the freestyle series. This drill is like the previous drill, except that the timing is a little quicker and the breathing occurs on every third stroke.

Procedure

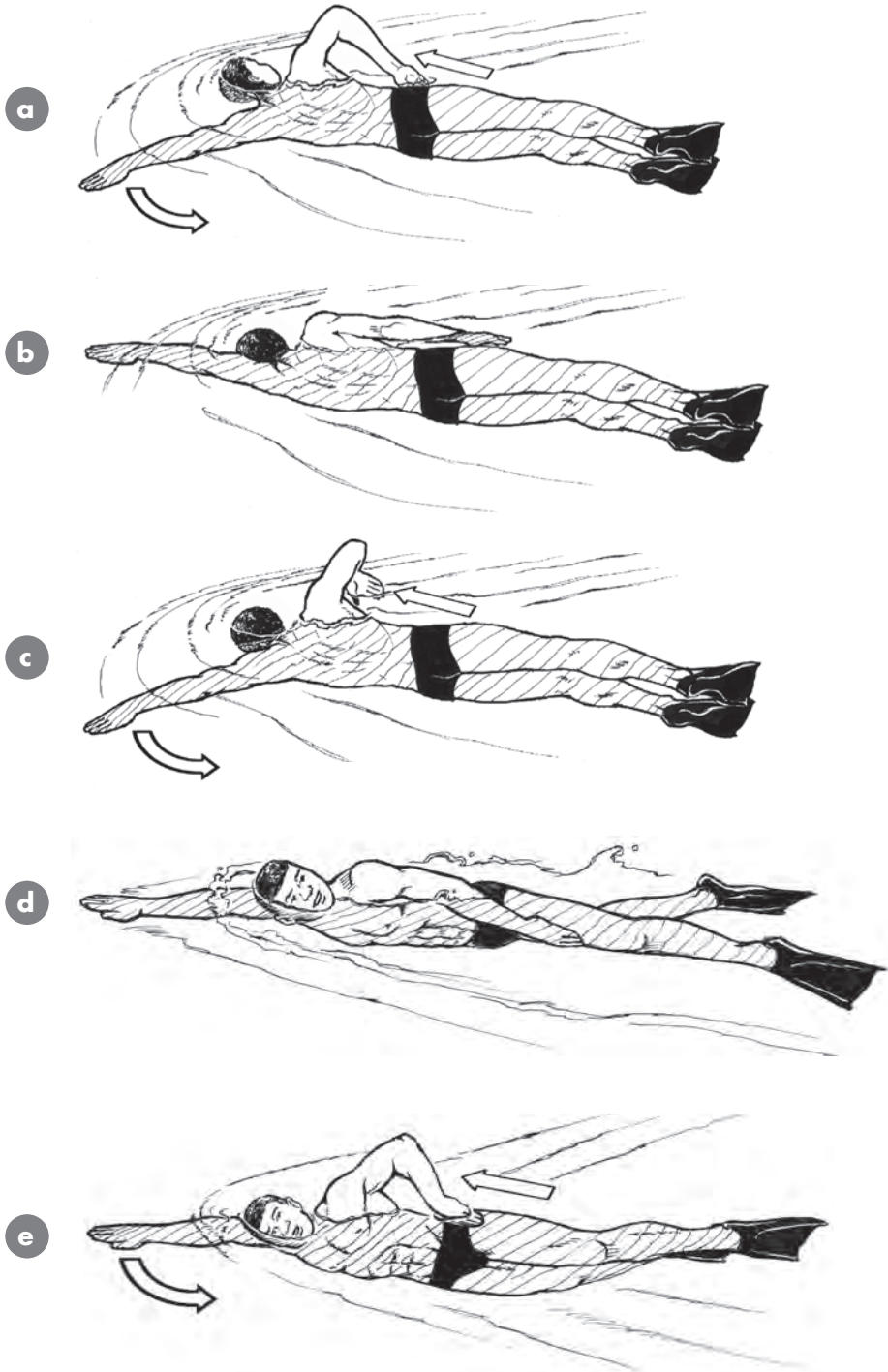
1. Put on fins. Start by kicking in the sailboat angle with the left arm extended and the right arm down at your side. The shoulder of your right arm will be above the surface (*a*). Keep your eyes looking down and remember to blow bubbles. Kick in this position for a count of two.
2. Switch your arms at the same time by pulling with the left arm and recovering with the right arm (*b, c*) until you reach the sailboat angle with the right arm extended and the left arm down. As you switch, keep your eyes looking down and slowly blow bubbles. Kick in this position for a count of two (*d*).
3. Switch your arms at the same time by pulling with the right arm and recovering with the left arm until you reach the position described in the Freestyle Side Glide drill, with the left arm extended and the right arm down (*e*). As you switch, rotate your head to breathe to your right. Kick in this position for a count of two.
4. Repeat the switch and rotate the head so that your eyes are down. This completes one stroke cycle. Continue to repeat this cycle for the entire lap, breathing every third stroke.
5. Get comfortable breathing on either side.
6. The rhythm for this drill is 1, 2, 3 switch, 1, 2, 3, switch, 1, 2, 3 switch and breathe.

Focus Points

- Keep the crown of your head down and rotate your head when you breathe.
- Move from the sailboat angle on one side to the sailboat angle on the other side.
- Perform the drill slowly and smoothly.
- Keep the kicking quick and strong.

Tips

- Use freestyler hand paddles.
- Try a few strokes with your eyes closed and see whether you stay in a straight line.



69 CATCH-UP FREESTYLE

Purpose

To help you improve your arm extension during the breath so that your body position stays high while beginning the recovery without having the extended arm drop into the pull too soon.

Procedure

1. Begin by kicking in a streamlined position with the head down in the water and exhaling (*a*).
2. Pull with your left arm while keeping the right arm extended in front (*b*).
3. As you are pulling with the left arm, roll your body to maximize extension to the right. Continue to keep the right arm extended (*c*).
4. Return your body into streamline as you recover the left arm.
5. Bring your left hand to touch on top of your right hand (catch up) (*d*).
6. Then pull with your right arm while keeping the left arm extended in front.
7. As you pull with the right arm, roll your body to maximize extension to the left. Continue to keep the left arm extended.
8. Return your body into streamline as you recover the right arm.
9. Bring your right hand to touch on top of your left hand (catch up). Repeat.
10. When you need to breathe, you can breathe during the pull phase on either side as needed.

Focus Points

- Keep the extended arm steady as you pull with the other arm.
- Keep your kicking rhythm steady at all times.
- While swimming, keep your head down in the water in a comfortable position. The head is heavy, and lifting it higher could become tiring over time. Try to keep the head in alignment so that the top of the head stays underwater and the back of the head breaks the surface.
- Keep your front arm extended while breathing to keep your body position higher in the water and make it easier to get air while you roll to breathe.
- Keep your strokes nice and smooth.

Tips

- Stay relaxed and perform this drill slowly so that you get the feel of the breathing position.
- Be sure to practice this drill breathing on both sides so that you can be more comfortable with alternate breathing, which can come in handy in rough waters.
- Another way to practice this drill is to hold on to a small kickboard or stick out in front.



70 CONTINUOUS ONE-ARM FREESTYLE

Purpose

To isolate the proper mechanics of the freestyle, one arm at a time. To execute this advanced drill properly, you need to have excellent kicking and stroke control.

Procedure

The action of this drill is similar to that of the Continuous One-Arm Backstroke drill. Remember to move your shoulders back and forth continuously from the sailboat angle on one side to the sailboat angle on the other side.

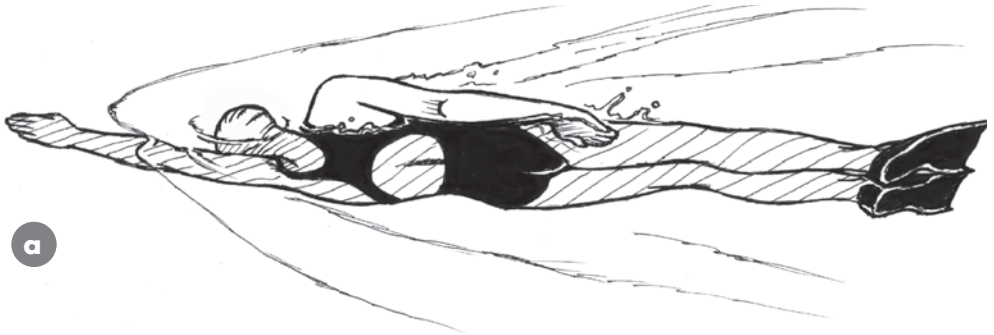
1. Put on fins. Start in the position described the Freestyle Side Glide drill. Use the extended arm in front and keep the other arm down at your side (*a*).
2. Using a smooth, continuous action, pull and recover the arm you are working (*b*). Concentrate on excellent body roll and good head position control. Reach and pause briefly when your arm is fully extended. Pause briefly when you finish the stroke with your hand down at your side.
3. Breathe on the opposite side that you are pulling (*c*). Roll the opposite shoulder so that it completely breaks the surface and reaches the sailboat angle. Keep the hips up.
4. Time the breath so that you are breathing away from the arm that is moving. The breath should start exactly as the stroking arm hits the water.
5. Repeat the action for the other arm.

Focus Points

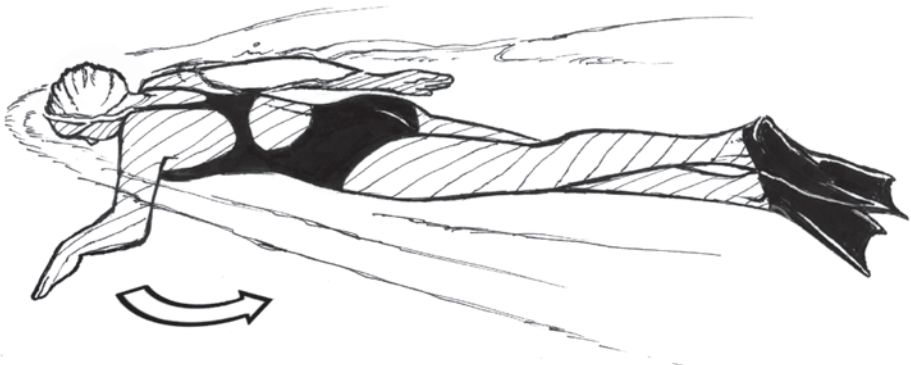
- Rotate from the sailboat angle on one side to the sailboat angle on the other.
- Keep the hips up as you rotate from one side to the other.
- Perform the stroke slowly and smoothly.
- Get full extension on every stroke. Reach all the way forward and pull all the way back.
- Time the breath with key words: touch, roll, breathe.
- Keep the kicking quick and strong.

Tips

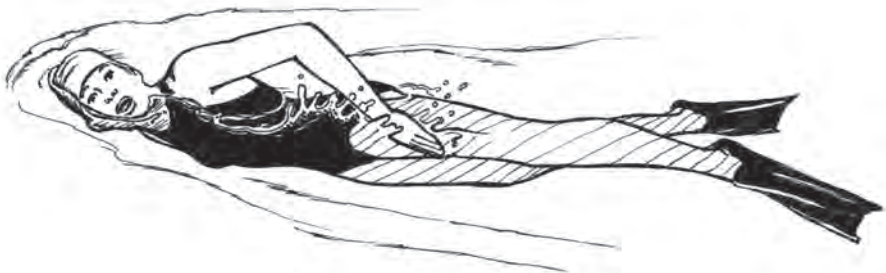
- Feel the shoulder and upper arm of your down arm come above the surface when you extend the pulling arm forward.
- For an advanced version, try this drill with the freestyler hand paddle.



a



b



c

71 CONTINUOUS TWO-ARM FREESTYLE

Purpose

To emphasize stroke control and shoulder roll with the coordination of using both arms.

Procedure

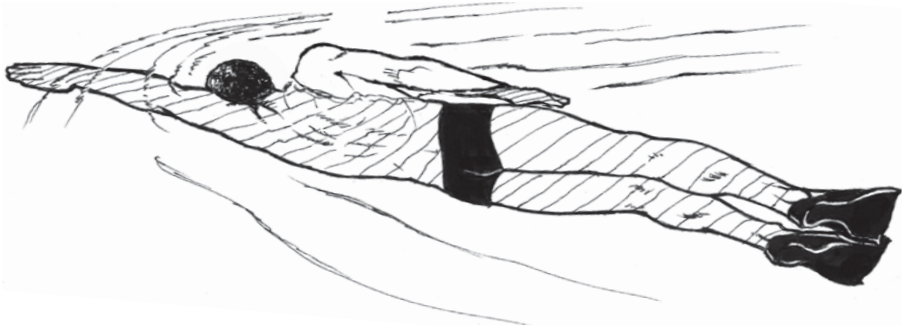
1. Perform this drill as you did the Continuous One-Arm Freestyle drill but use both arms at the same time.
2. Put on fins. Start by kicking in a one-arm streamline position (*a*).
3. Using a smooth, continuous action, switch the arms at the same time (*b*). Pause briefly at the point of full extension in the stroke (*c*). Be sure to reach full extension and to complete each pull.
4. Continue to repeat the cycle (*d*). Use alternate breathing.

Focus Points

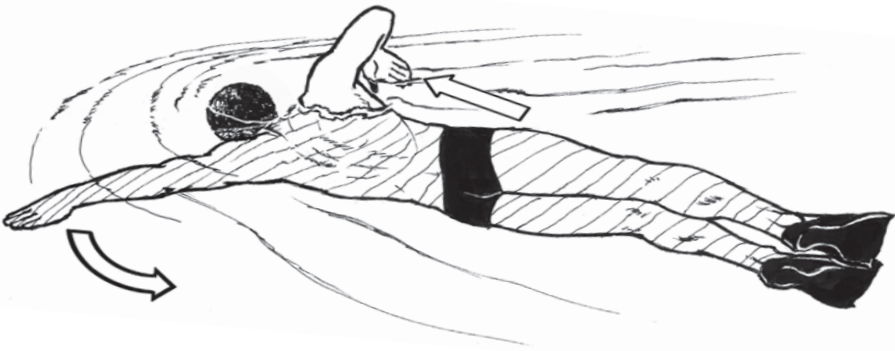
- Rotate from the sailboat angle on one side to the sailboat angle on the other.
- Keep the hips up as you rotate from one side to the other.
- Perform the stroke slowly and smoothly.
- Get full extension on every stroke. Reach all the way forward and pull all the way back. Pausing briefly when you stretch and when you finish is okay.
- Keep the kicking quick and strong.

Tips

- Use freestyler hand paddles.
- Try to slice your hands as they enter the water. Make sure they slice into the water cleanly and notice whether you have very few air bubbles passing past your face as you swim. The fewer air bubbles you see, the better. With younger swimmers, I like to use the analogy of slicing the cheese off the pizza. This image helps with a shallow hand entry.
- Be sure to practice alternate breathing.



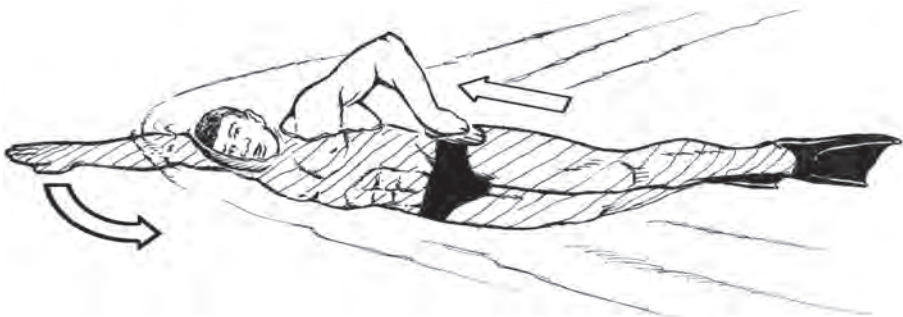
a



b



c



d

72 WINDMILL DRILL

Purpose

To emphasize having a straight-arm freestyle. Sprinters, like Nathan Adrian, an Olympic gold-medalist, keep their arms straight during a sprint race. This drill will help you practice straightening the arms, which is counter to what most swimmers have learned. This drill is the final one in the freestyle series.

Procedure

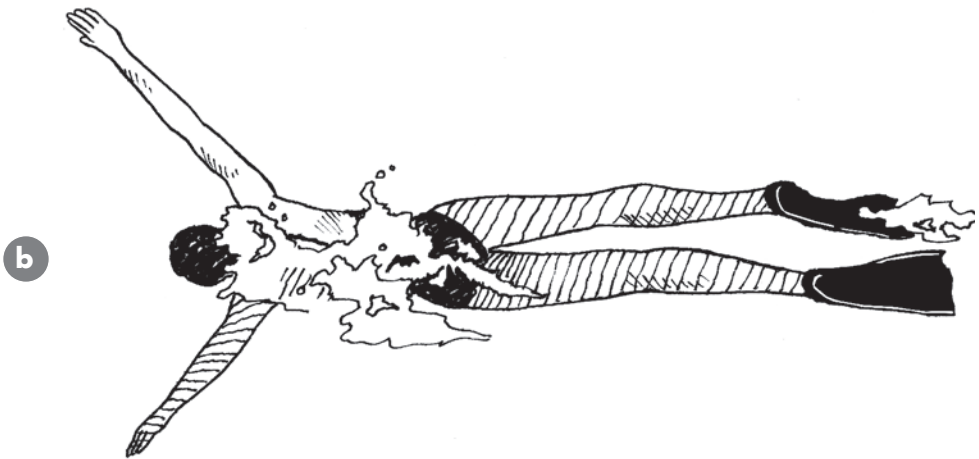
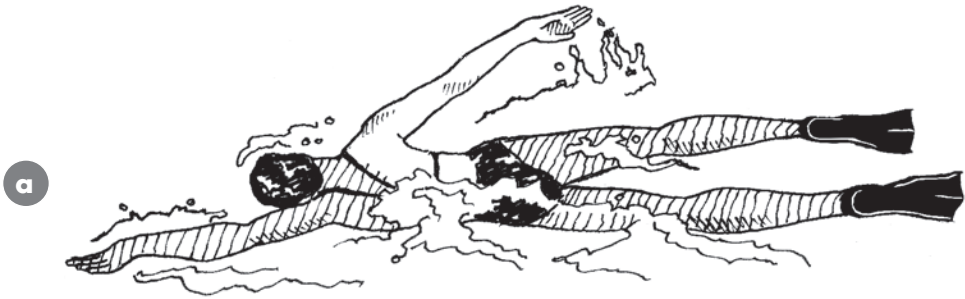
1. Perform this drill as you did the Continuous Two-Arm Freestyle drill but keep the arms straight the entire time, especially at the elbow.
2. Put on fins. Start by kicking in a one-arm streamline position (*a*).
3. Using a smooth, continuous action, switch the arms at the same time (*b*). Keep the arms straight through the pull all the way into the recovery (*c*). Be sure to reach full extension and to complete each pull.
4. Continue to repeat the cycle.
5. Perform this drill without breathing. Breathing will stop the arm cycle and slow the stroke rate, so you should do this drill only for short distances, no more than a 25 yards or meters at a time.

Focus Points

- Rotate less than you would normally.
- Keep the hips up as you start the strokes, keeping the arms as straight as possible the entire time.
- The stroke should cycle a little faster than normal.
- Get full extension on every stroke. Reach all the way forward and pull all the way back.
- Keep the kicking quick and strong.

Tip

Variation: For a short distance, such as 15 yards (meters), spin the arms as fast as possible and do not worry about technique. Focus on moving the arms quickly. We call this drill the Spinner drill.



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Breaststroke

The breaststroke offers perhaps the greatest variability in style among the strokes. There are almost as many styles of breaststroke as there are breaststroke coaches. In swimmers who have excellent upper-body strength relative to their kicking power, we see more emphasis on the arm action, a high head lift, and an almost butterfly undulation in the body action. For swimmers who have most of their power coming from their legs, the head action may be less prominent and the stroke may be flatter. Determining the best style for each swimmer can be a bit of an art, and lots of variation is seen. Some fundamentals, however, are common to almost all great breaststrokers.

The best breaststrokers

- reach an extended position, or glide, at least for an instant on every stroke, assuring full extension and maximum efficiency;
- pull using an outstroke, insweep, and recovery, accelerating from the beginning of the pull and not pausing until again reaching full extension;
- keep their hips high throughout the entire stroke;
- complete the kick with a strong squeeze and pointed toes; and
- maintain good head control, always keeping the chin tucked in.

The breaststroke drills in this chapter will teach you these essential techniques for enhancing your stroke. After mastering these fundamentals, you can develop your own variation.

73 STANDING BREASTSTROKE PULLING ACTION

Purpose

To develop the correct mechanics for the breaststroke pull.

Procedure

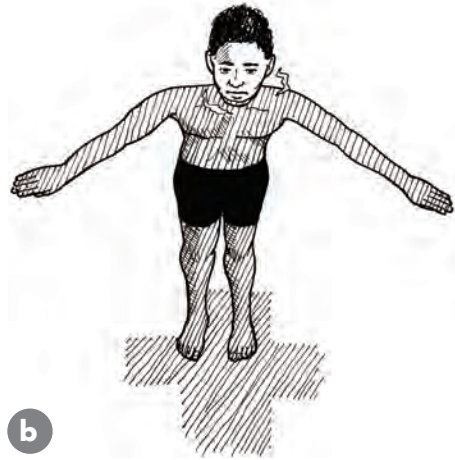
1. Stand in shallow water so that your shoulders are just above the surface. Position your arms out in front of you so that your thumbs are touching and your palms are facing down and slightly out (*a*). Hold this position for a count of three.
2. Begin the pulling action by sweeping your hands outward just under the surface. You should reach a point where the fingers are still pointing forward (before they begin to point out to the sides) and your hands are apart about the length of one arm (*b*). In essence, you will shape an equilateral triangle; your arms will be the sides, and the distance between the hands will be the base.
3. Rotate the hands inward (*c*), begin to bend the elbows back, and sweep your hands in (*d*). Your fingertips will “draw” the sides of the equilateral triangle with the fingertips still facing forward. Sweep in until the fingertips of both hands come together directly in front of and next to your chest (*e*).
4. Shoot the hands forward together, just at or below the surface. Extend your arms completely forward to the starting position (*f*). Repeat the cycle.

Focus Points

- Keep your body standing straight.
- Draw the triangle with your fingertips
- Perform this drill slowly and smoothly at first and then increase your speed.
- Pause only in the starting position.

Tips

- Watch your hands as you perform this drill. You should always see them in front of your shoulders.
- Use freestyler hand paddles. Focus on keeping the tip of the paddle facing forward at all times as you sweep out and sweep in.



74 VERTICAL BREASTSTROKE PULL

Purpose

To develop the correct mechanics for the breaststroke pull. This drill enhances arm pull speed and helps swimmers who tend to overpull or who have a slow arm pull.

Procedure

Perform the Standing Breaststroke Pulling Action drill, but adding vertical kicking in deep water.

1. Wearing fins in deep water, flutter kick in a vertical position with your body straight and head above the surface. Touch thumbs in front of your body, palms facing down and slightly out (*a*). Hold for a count of three.
2. Begin the pull by sweeping your hands outward just under the surface (*b*). You should reach a point where the fingers are still pointing forward (before they begin to point out to the sides) and hands are an arm's length apart. Try to shape an equilateral triangle with your arms as the sides, and the span between your hands as the base.
3. Rotate the hands inward, begin to bend the elbows back, and sweep your hands in (*c*). Your fingertips draw the sides of the equilateral triangle, with fingertips still facing forward. Sweep in until the fingertips of both hands come together in front of you near your chest (*d*).
4. Finally, shoot the hands forward together, just below the surface (*e*). Extend your arms completely forward to the starting position. Repeat the cycle.

Focus Points

- Keep your body straight.
- Pause only in the starting position.
- Accelerate and lift as you pull.
- As you sweep your arms in, lift your body above the surface, at least to midchest height.
- Shoot your hands forward quickly.

Tips

- As you perform this drill, you should always see your hands in front of your shoulders.
- Try using hand paddles. Keep the tip of each paddle facing forward at all times as you sweep out and in.



75 QUICK HANDS BREASTSTROKE

Purpose

To isolate the proper mechanics of the breaststroke pull and to emphasize the speed and lift needed for the stroke. Keeping your head up permits you to see your arm pull in action and serves as a self-check. The drill is also more challenging with the head up.

Procedure

1. Put on fins. Kick forward with your arms extended in front of your body, head lifted, your eyes just above the surface, and your chin tucked in. Hold your arms extended for a count of three. Then, pull and recover quickly, using the breaststroke arm motion you practiced in the previous two drills (*a*).
2. Get plenty of lift while pulling. Lift your shoulders higher above the surface, but keep your chin tucked in (*b*). Return your head to the starting position with the eyes just above the surface. Continue to repeat the cycle (*c*).
3. The eyes should be just above the surface in the starting position. Keep your chin tucked in while pulling. Look downward at about a 45-degree angle, keeping the head angle steady.

Focus Points

- Be sure to breathe. Blow bubbles when your lower face is in the water so that you can breathe in quickly when you pull.
- Keep your chin tucked in. Lift the body, not the chin.
- Really stretch and hold the extension for a count of three.

Tips

- When your arms are out in front, you create a window that you can look through toward the bottom of the pool. Keep your chin tucked in so that you can always look through the top of the window. Make sure that your head angle remains steady.
- For an advanced drill, use freestyler hand paddles. Focus on keeping the tip of each paddle facing forward at all times as you sweep out and sweep in.



76 BREASTSTROKE PULL AND FLUTTER KICK, HEAD DOWN

Purpose

To isolate the proper mechanics of the breaststroke pull and to emphasize the speed and lift needed for the stroke while getting the body to a position with as much buoyancy as possible. This drill is the same as the previous one, except that you change your head position to start in the sliding position.

Procedure

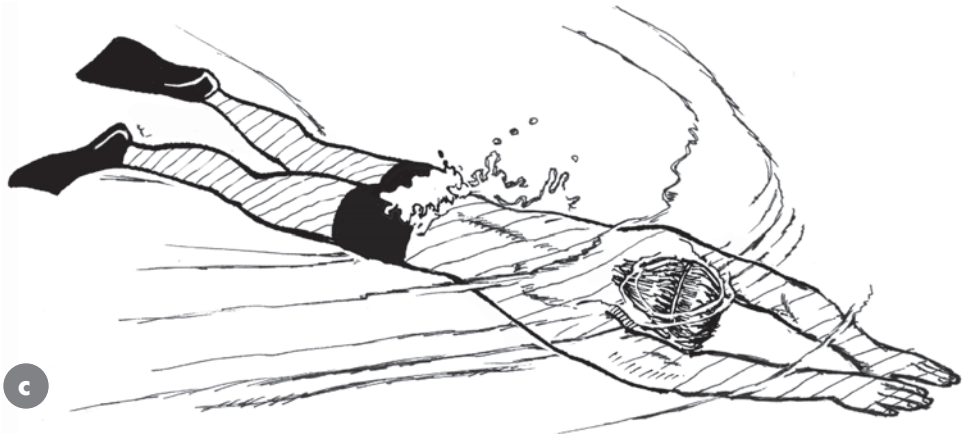
1. Put on fins. Kick forward with your arms extended in front of your body, with your eyes down, the back of your head just above the surface, and your chin tucked in. Hold your arms extended for a count of three. Then, pull and recover quickly, using the breaststroke arm motion you practiced in the previous two drills (*a-c*).
2. Get plenty of lift while pulling. Lift your shoulders higher above the surface but keep your nose down and your chin tucked in. Return your head to the starting position with the eyes just above the surface. Continue to repeat the cycle.
3. The eyes should be looking straight down in the starting position. Keep your chin tucked in while pulling. Look downward right into the surface of the water when you pull and keep the head angle steady.

Focus Points

- Be sure to breathe. Blow bubbles when your face is in the water so that you can breathe in quickly when you pull.
- Look down, look down, look down! You can still breathe without having to look forward.
- Keep your chin tucked in. Lift the body, not the chin.
- Really stretch and hold the extension for a count of three. Feel your hips come up to the surface when you extend.

Tip

For an advanced drill, use freestyler hand paddles. Focus on keeping the tip of each paddle facing forward at all times as you sweep out and sweep in.



77 PULL, BREATHE, KICK, GLIDE

Purpose

To integrate the breathing and kicking phases of the breaststroke so that you can feel the glide created in the power phase of the kick. Review the breaststroke kicking drills from chapter 2 before embarking on this drill.

Procedure

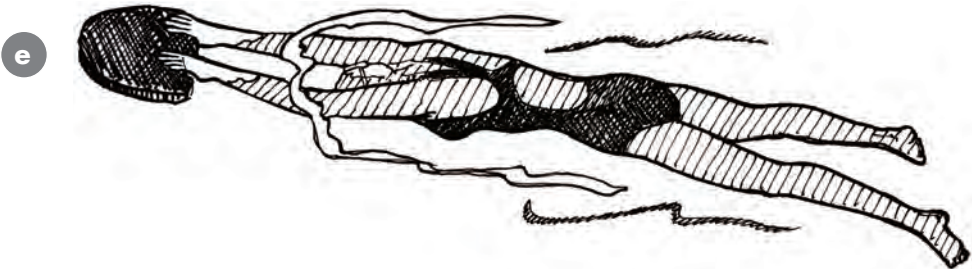
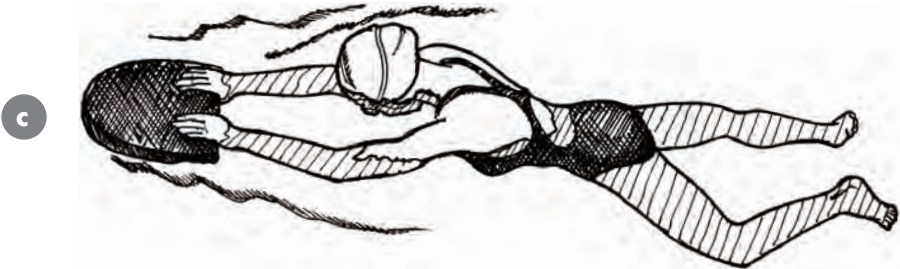
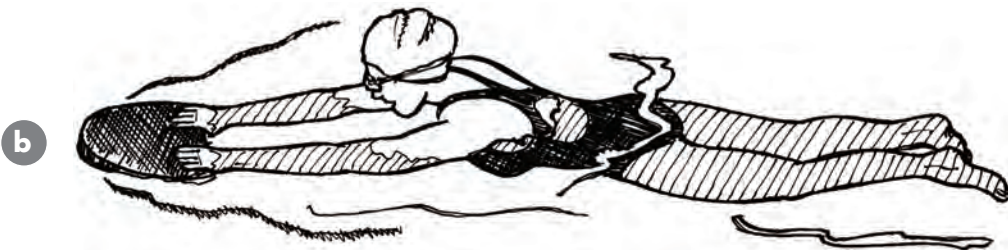
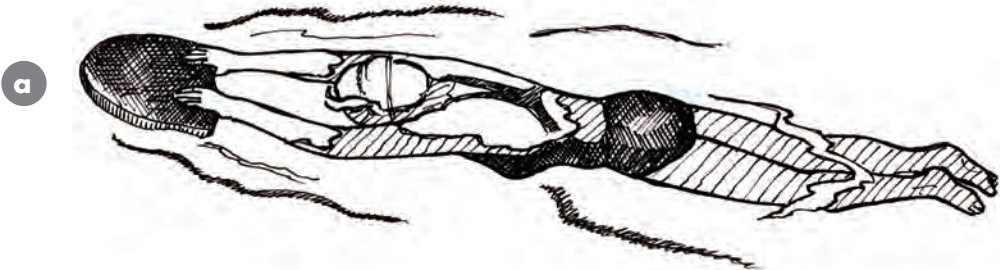
1. Hold the bottom edge of a kickboard with the fingers on top and the thumbs wrapped around underneath. Start by pushing off with your nose down and your head barely breaking the surface. Your arms should be completely extended, and your shoulders, hips, and heels should all be at the surface. Point your toes (*a*).
2. After you push off the wall, hold the slide position for a count of three. Be sure to blow bubbles the whole time that your face is in the water.
3. Lift your head up so that your chin is on the surface (*b*). Your chin should be tucked in, and your eyes should be directed downward. Inhale.
4. As you lower your head back into the water, begin your kick by bringing your heels in and then rotate the toes out (*c*).
5. As your head comes back into position in the water, kick out and squeeze. You will be kicking into the slide position (*d*).
6. Exhale while your face is back in the water (*e*). Hold the slide position for a count of three and then repeat the cycle.

Focus Points

- Concentrate on this pattern: breathe, kick, slide.
- Feel how your body slices through the water when you kick and then slide.
- After you finish the slide, lift your head first.
- Feel your hips and heels return to the surface during the slide.

Tips

- Move across the pool with as few kicks as possible and determine your average number of kicks.
- For a variation, take only one breath for every two or three kicks to help you develop the feel for the slide.
- Try this workout set: Do three 100s kicking, striving for the fewest number of kicks for each 100. This workout is the best way to develop the power of the breaststroke.



78 DOUBLE GLIDE BREASTSTROKE

Purpose

To develop the timing for the breaststroke and to emphasize the glide portion of the stroke. This drill is especially useful with new swimmers and with swimmers who have timing issues that need to be corrected.

Procedure

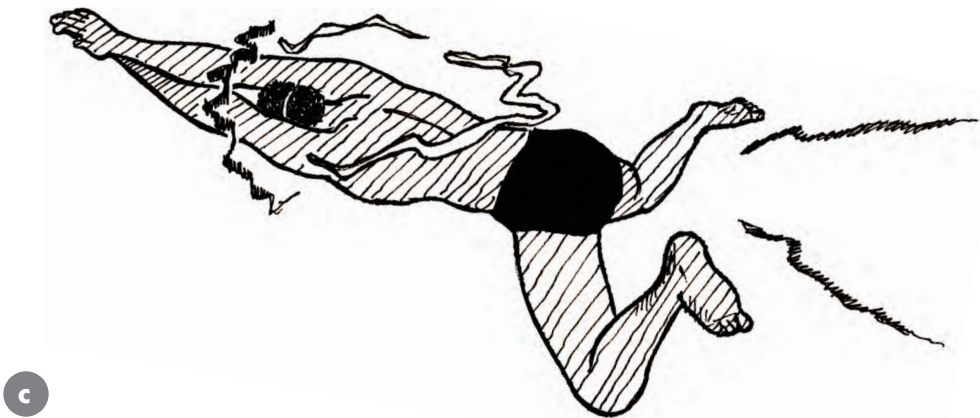
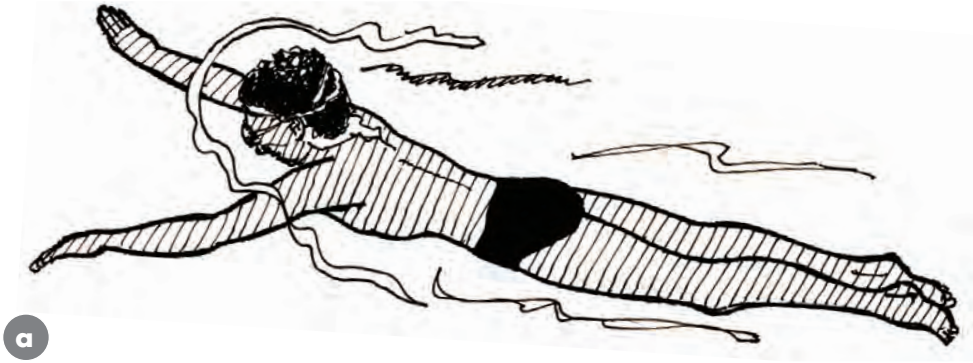
1. Review gliding. Push off the wall with your nose down, in a streamline. Feel your hands, shoulders, hips, and heels at the surface. Take a breath before you push off and then slowly exhale when your face is in the water. Hold the glide for a count of six.
2. Insert one stroke in between two glides. Push off from the wall and slide for a count of three. Then, use this pattern to do one stroke: pull (*a*), breathe (*b*), kick (*c*), glide. Glide for another count of three and stop.
3. Practice this drill until the stroke becomes fluid and the glide position is established quickly after the stroke.

Focus Points

- Be sure to have your nose down on the glide portions.
- Keep your chin tucked in as you lift and breathe.
- Recover your hands high so that you can return to the glide position quickly.

Tips

- Measure the distance you travel when you only glide for a count of six. Make sure that when you add a stroke of breaststroke, you go much farther.
- Make a game of seeing how far you can go with the two glides and one stroke.



79 CONTROLLED BREASTSTROKE

Purpose

To emphasize control along with the proper timing and extension for the breaststroke.

Procedure

1. In this drill, you practice the breaststroke with one pull for each kick and glide, one after another (*a-d*). Follow this pattern: pull, breathe, kick, glide. Hold each glide for a count of three.
2. Keep your nose down on the slide. On the slide, the back of your head should be at the surface.
3. Count the number of strokes per lap. You should strive for the fewest number of strokes with the three-count glide timing.

Focus Points

- Maintain an even rhythm.
- Hold the glide for a count of three on each stroke.
- Keep the pull quick and get plenty of lift.
- Control the head and body position.

Tip

To get closer to the timing needed for the racing stroke, gradually reduce the length of time that you hold the glide position. The shorter the race is, the quicker the glide should be; the longer the race is, the longer the glide should be. Here are the glide times to shoot for in races:

- For the 200, hold for a count of two or three.
- For the 100, hold for a count of one or two.
- For the 50, hold for a count of one.

Coaching note: After the swimmer masters the stroke with consistent head control, the head angle can be modified to promote optimum body position on the glide. Keep in mind that the breaststroke allows a lot of individual variation.

a



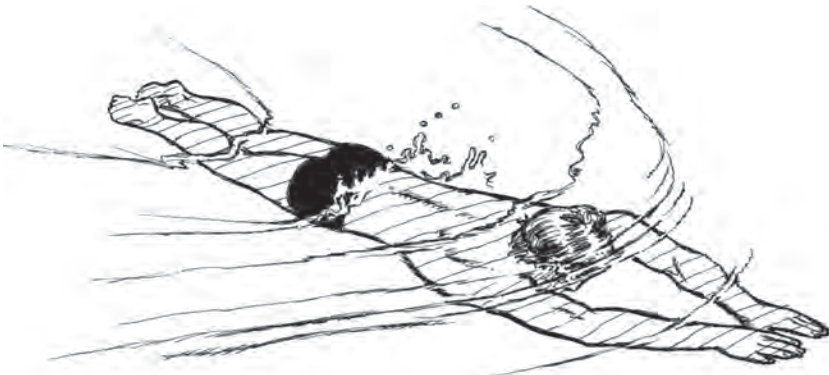
b



c



d



80 TWO KICKS TO ONE PULL

Purpose

To develop the proper timing and extension of the breaststroke. This is a supplemental drill for breaststroke.

Procedure

The kicking action is the same as the one you used in the Controlled Breaststroke drill. You now add the pulling action to every other kick (*a-f*).

1. Follow this pattern: pull, breathe, kick, slide, and then kick, slide. Hold each slide for a count of three.
2. Keep your nose down and your eyes looking down at the bottom. On the slide, the back of your head should be at the surface.

Focus Points

- Kick with an even rhythm.
- Keep your hands in a steady position when not pulling. Locking the thumbs helps.
- Keep the pull quick and get plenty of lift.
- Control your head position.

Tips

- Keep track of the number of kicks you take each lap. Determine your average. Try to decrease the number each time you practice this drill.
- Use this drill as part of your warm-up before a race to help you feel how you slide through the water after each kick.
- Advanced: To help with breath and stroke control, do the same drill with three kicks for each pull. We call this drill the Triple Kick Breaststroke drill.

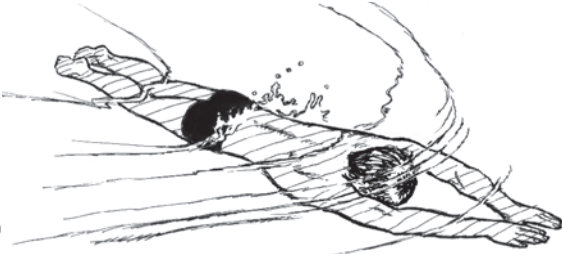
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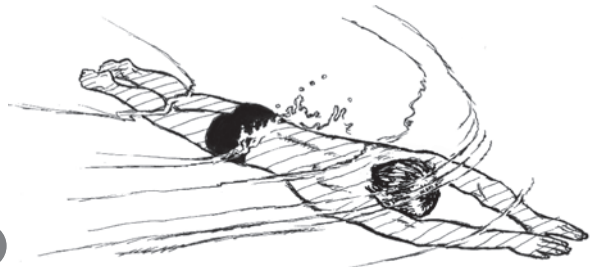
d



e



f



81 BREASTSTROKE PULL WITH DOLPHIN KICK

Purpose

To emphasize the hip action needed for the different dolphin breaststrokes by combining the breaststroke and the butterfly. Not all swimmers will feel comfortable with this technique, which uses more of a dolphin action with the hips. This drill is not essential, but it can be effective for many swimmers, depending on their strengths and weaknesses.

Procedure

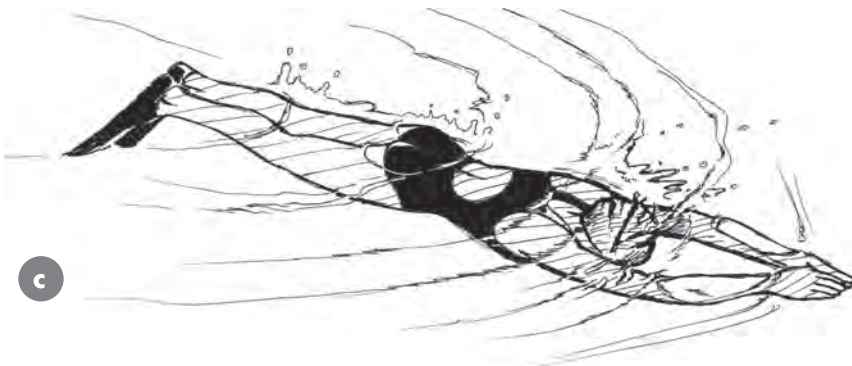
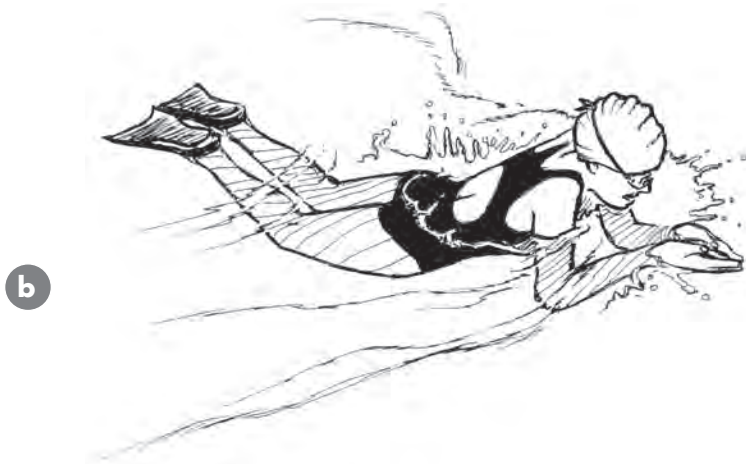
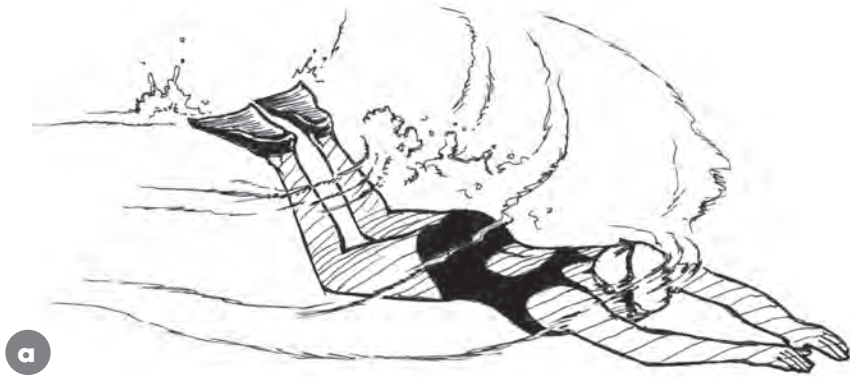
1. Put on fins. Start on your front by dolphin kicking in a streamline position (*a*). Take a breaststroke pull and breathe while you pull (*b*).
2. As you recover, drive your head down into the water, push your hips up, and then finish with the downward part of the dolphin kick. Be sure to stretch your arms out far in front of you (*c*). As you kick down, begin to pull again. Continue to repeat.

Focus Points

- Stretch forward with your arms.
- Get your hips and legs up on every kick.
- Keep the pulling action quick.
- Try to stay up fairly high and resist going too deep under the surface.

Tips

- To get a better sense of the proper rhythm, try breathing on every other pull or every third pull.
- The rhythm of this drill will vary depending on your ease with the dolphin kick. If you are comfortable with this action, the rhythm can be quite quick.
- Advanced: Take off the fins. Alternate between one dolphin kick and one breaststroke kick as you maintain the breaststroke pulling action. Work on getting a consistent rhythm even with the different kicks.



82 OVER THE BARREL BREASTSTROKE

Purpose

To develop and practice the wave body action of the breaststroke during the recovery. This drill also helps to correct low hips that create drag and impede the glide. Many outstanding breaststrokers have an undulation in their breaststroke similar to that of the dolphin motion. A dolphin action of the body is legal in breaststroke as long as the feet only rise during the motion and do not kick downward.

Procedure

For this drill, you want to imagine that you are moving the body cleanly over a barrel that is barely submerged, just below the surface of the water.

You basically do the same arm action and kick that you used in the Standing Breaststroke Pulling Action drill and Vertical Breaststroke Kicking drill. The difference now is that during the recovery of the breaststroke, you are trying to get the hands and hips over the barrel.

1. Push off the wall at the surface in a glide position.
2. The pull remains the same as the pull for the normal breaststroke: out sweep, in sweep, recover (*a*).
3. As you begin to move the hands out in front to begin the glide, you want to get your hands and then your hips over the barrel (*b*).
4. Getting the hips over the barrel adds the dolphin undulation into the breaststroke (*c*).
5. As you continue to glide through the water, you want your body to remain at the surface (*d*).

Focus Points

- Get the hips up and over the barrel.
- Hold the glide position until the dolphin undulation ends and you can glide through the water.
- The glide portion begins as the breaststroke kick finishes

Tip

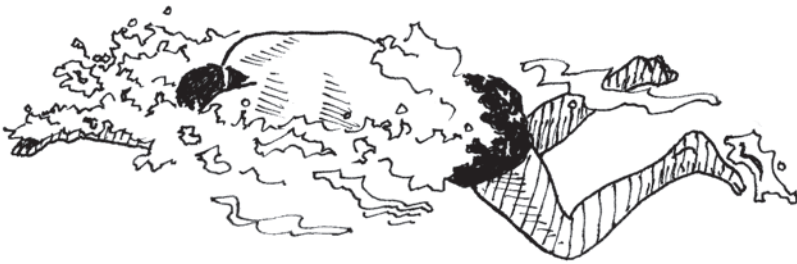
Practice this drill until the dolphin undulation begins to feel like part of your normal stroke.



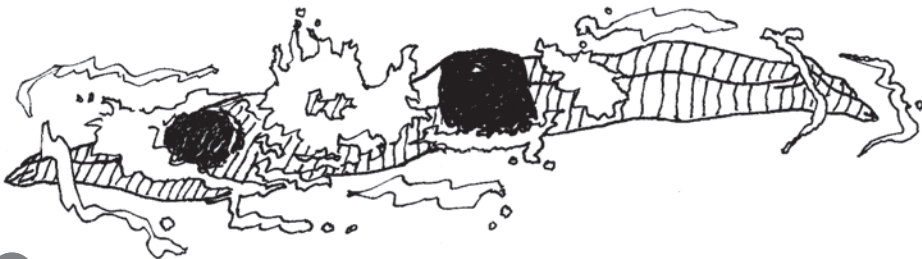
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b



c



d

83 TENNIS BALL BREASTSTROKE

Purpose

To correct improper head and eye position in the breaststroke. Your head should stay in line with your spine as much as possible during the breaststroke, especially the glide. You need to keep the chin tucked in close to the chest during the breath of the breaststroke. This drill keeps the head in the correct position.

Procedure

1. Start by placing a tennis ball under your chin. Squeeze the ball between your chin and your chest.
2. Push off the wall in a glide position (*a*).
3. Swim normal breaststroke while holding the tennis ball under the chin (*b*).
4. Attempt to swim without dropping the ball (*c*).

Focus Points

- Keep the head in line with the spine.
- Try to keep the ball in place.
- In both the stroke and the glide, the ball should stay tucked under the chin.

Tips

- Hold the tennis ball in place and glide as long as possible while maintaining the correct head position.
- Variation: Use the tennis ball when performing other breaststroke drills such as the Quick Hands Breaststroke drill and the Breaststroke Pull With Dolphin Kick drill.



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Butterfly

When performed correctly, the butterfly is probably the most graceful and beautiful of all the strokes. But, it is also the most difficult stroke for swimmers to master. The butterfly requires the most arm strength to lift the body above the surface, and getting the proper timing can require considerable practice.

To learn to swim butterfly well, the best approach is to do the drills at short distances while maintaining excellent stroke technique. This idea also translates to training, because maintaining good technique during training sets is better than allowing the quality of the stroke to deteriorate. Repeating good-quality butterfly swimming sets up proper muscle memory and efficient swimming during races. Be patient. With consistency of good technical execution, you will make great progress with your butterfly!

The best butterflyers

- have excellent serpentine body action and move through the water with a fluid wave action;
- have strong kicks, generating power from the hips;
- have good head position, looking primarily down and keeping the chin tucked in while breathing;
- recover their arms with the elbows straight and thumbs down; and
- perform two dolphin kicks for every one butterfly stroke.

The following drills will help you achieve these fundamentals in your strokes as well as excellent timing.

84 MERMAID DRILL WITH BREATHING

Purpose

To feel the body action of the butterfly stroke while at the surface. This drill is a modification of the Dolphin drill from chapter 2, and it is a key drill in beginning the butterfly series

Procedure

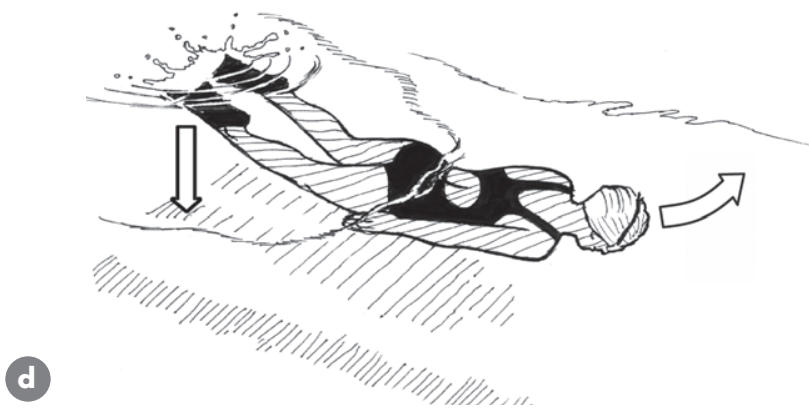
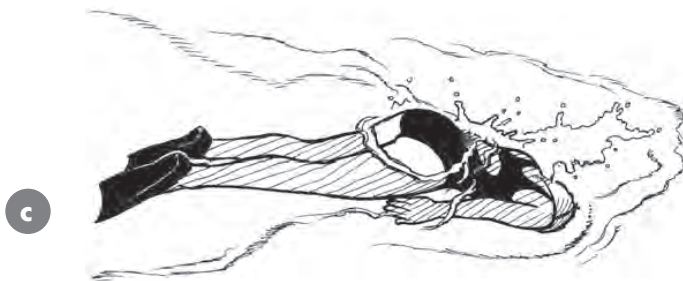
1. This drill has the same body action you used in the Dolphin drill (chapter 2), except that you add breathing in sync.
2. Imagine yourself as a dolphin swimming at the surface on the ocean.
3. Put on fins. Take a deep breath. Push off the wall on your front side along the surface, keeping your hands down by your sides and looking down at the bottom of the pool. Just the back of your head will break the surface (*a*). Do not use your arms on this drill.
4. Use your head to start the body action. Push downward with your forehead to start the whiplike action of the kick (*b*). Keep the head angle changing, but primarily look down. As you push your forehead down, allow the hips to come up (*c*). Then allow your heels to slide above the surface and begin to kick down (*d*). Your head will begin to come back up to break the surface as you kick down.
5. Break the surface with your head and repeat.
6. Your body will “stitch” the surface of the water. Your head, then your shoulders, then your hips, and finally your heels will break the surface in progression with each kick. Keep the motion fluid. You will break the surface in the following pattern: head, shoulders, hips, and heels.
7. Go as far as you can with one breath, breathe, and then repeat.
8. Then work on breathing every third kick with a consistency of rhythm.
9. After you breathe, bring your head into the water first—forehead first

Focus Points

- Be sure to keep your head moving at all times.
- Look down at the black line on the bottom of the pool. If you look forward, your hips cannot create enough power for a strong kick.
- Remember to move with your forehead first
- Develop a steady rhythm.

Tip

Work on being able to breathe in sync with this drill, once every three kicks. This breathing pattern will help you when you get to the other butterfly drills.



85 SUPERMAN FLY WITH BREATHING

Purpose

To develop the feel of the body action of the butterfly while in the extended position and to set up the body position for the pulling action of the stroke.

Procedure

This drill is the same as the previous drill, except that your arms are extended out in front.

1. Put on fins. Stretch your arms out in front with your hands shoulder-width apart, elbows straight, palms facing down and out at about 45 degrees, and shoulders relaxed.
2. Inhale deeply. As you exhale, push off the wall on your front side along the surface, keeping your hands stretched out in front of you and looking down at the bottom of the pool. Just the back of your head will break the surface (*a*). Your arms should stay extended throughout the drill with no pulling or sculling action.
3. Use your head to start the body action. Push downward with the forehead to start the whiplike action of the kick (*b*). Keep the head angle changing, but primarily look down. As you push your forehead down, allow the hips to come up (*c*). Then allow your heels to slide above the surface and begin to kick down. Your head will begin to come back up to break the surface as you kick down.
4. Break the surface with your head and repeat.
5. Your body will “stitch” the surface of the water. Your head, then your shoulders, then your hips, and finally your heels will break the surface in progression with each kick. Keep the motion fluid. You will break the surface in the following pattern: head, shoulders, hips, and heels.
6. Go as far as you can with one breath, breathe, and then repeat.
7. Then work on breathing every third kick with a consistency of rhythm.
8. After you breathe, bring your head into the water first—forehead first

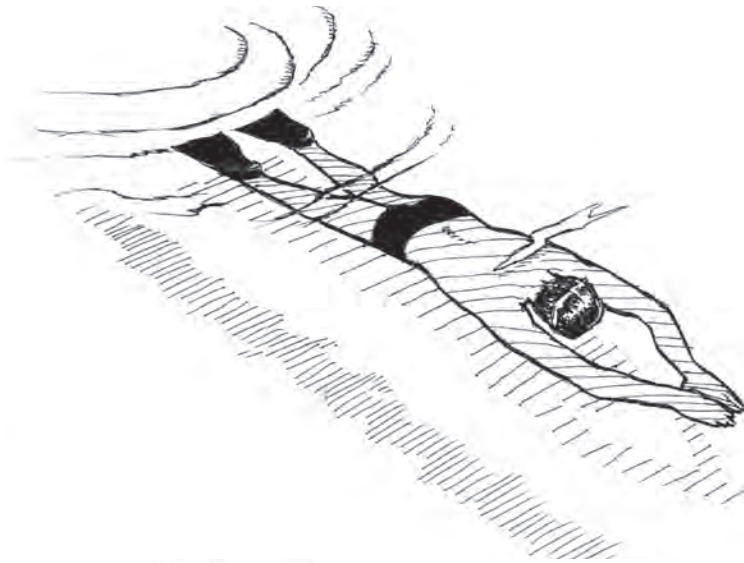
Focus Points

- Keep your head moving at all times.
- Look down at the black line on the bottom of the pool. If you look forward, your hips cannot create enough power for a strong kick.
- Remember to move with your forehead first
- Develop a steady rhythm.

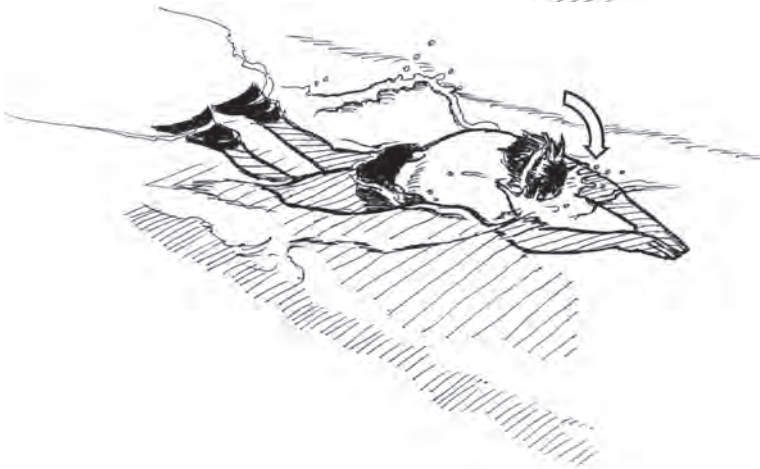
Tip

Work on being able to breathe in sync with this drill, once every three kicks, to help you when you get to the other butterfly drills

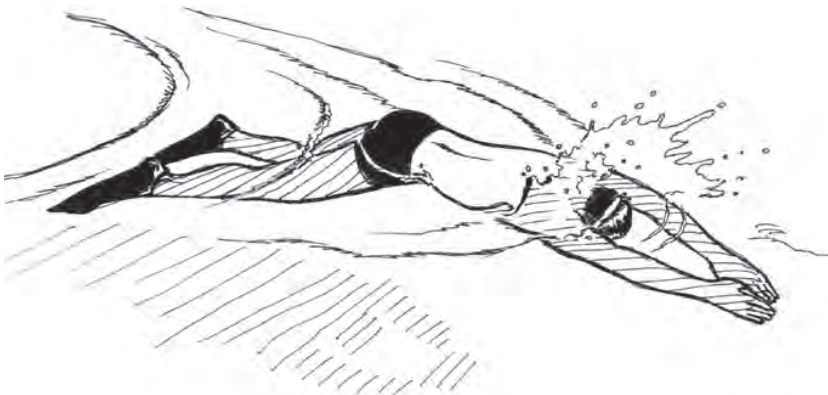
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86 SETUP OF BUTTERFLY DEVICE

Purpose

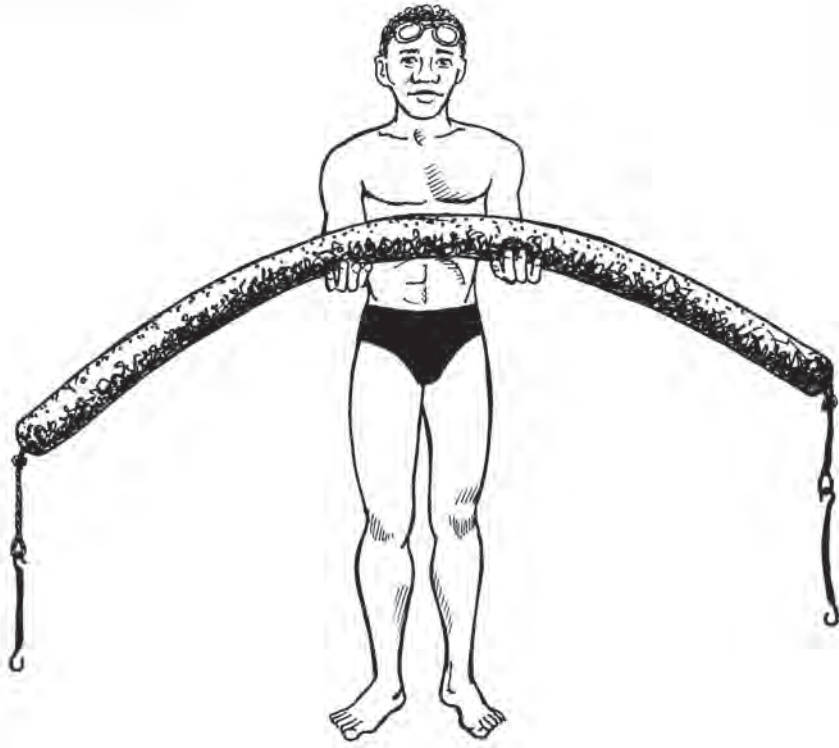
To set up a teaching tool that can safely enhance teaching the proper body action of the butterfly .

Procedure

Over the years, I have used all kinds of tools to teach the butterfly action. The following simple invention seems to work well and helps to correct sunken hips and inverted butterfly strokes.

Here's what you'll need to make your own butterfly device:

- A 9-foot (2.7 m) section of quarter-inch (65 mm) nylon rope
 - A pair of pliers
 - Two short bungee cords
 - A hollow, spongy water noodle with a smooth surface
1. Pass the rope through the middle of the noodle so that you have an even amount of rope on each end.
 2. Tie a cinch knot on each side of the noodle so that the knot is close to the noodle and keeps the noodle from sliding in either direction.
 3. Tie a loop knot on each end of the rope.
 4. Attach one end of a bungee cord on each loop and clamp down using some pliers. Now the butterfly device is ready for attachment.
 5. Place the device perpendicularly across a lane by hooking the bungee cords on the cable of the lane rope. Put it about 6 yards (5.5 meters) away from the wall.



87 OVER THE BARREL WITH DEVICE

Purpose

To develop the undulation and wave body action of the butterfly with the lift of the arm pull. This drill also helps to correct the inverted butterfly action that makes you drop your hips.

Procedure

For this drill, you want to imagine moving your body cleanly over a barrel that is barely submerged just below the surface of the water.

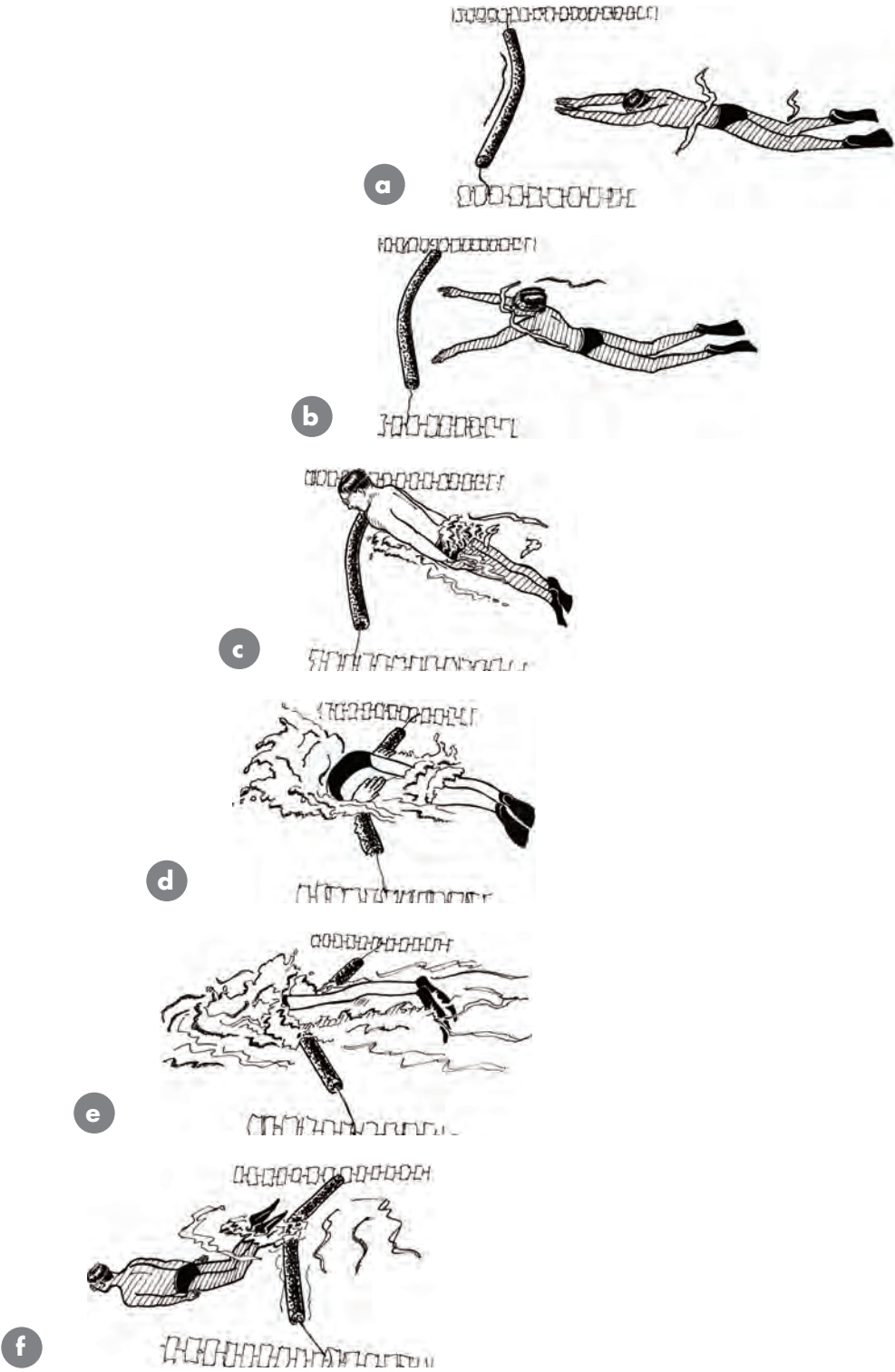
1. Position the butterfly device across the lane about 6 yards (5.5 meters) away from the wall. You can also place some sort of marker (such as a diving brick) directly under the device on the bottom.
2. Put on fins. Start at the wall facing into the lane.
3. Push off underwater on your front in the Superman fly position—about 2 or 3 feet (60 to 90 cm) deep. Start your dolphin kicking action (*a*).
4. When you get close to the butterfly device, start to angle yourself upward so that your hands are headed right for the device and your head breaks the surface just in front of the device (*b, c*).
5. Just as your hands almost touch the device, pull your arms down as hard as you can, all the way to your thighs. Create as much power as you can to lift your body over the noodle as cleanly as possible—preferably not even touching it. Go over the noodle headfirst and then curl your forehead down so that your forehead enters the water first. Follow with the hips and finally the legs (*d, e*).
6. After your body clears the noodle, kick downward with a dolphin kick (*f*).
7. Kick a couple more dolphin kicks while underwater and then stop.

Focus Points

- Be sure to start deep enough underwater so that you can create the necessary power from your pull.
- Breathe quickly.
- Remember to enter forehead first after you clear the noodle
- Relax your legs as you clear the noodle and then kick after you clear it.

Tip

Practice this drill until you can go over the noodle smoothly and easily.



88 POP AND STOP

Purpose

To develop power from the arm pull along with the timing of the body action of the butterfly.

Procedure

This drill is the same as the Over the Barrel With Device drill, except that you don't use the device and you repeat the action down the lane.

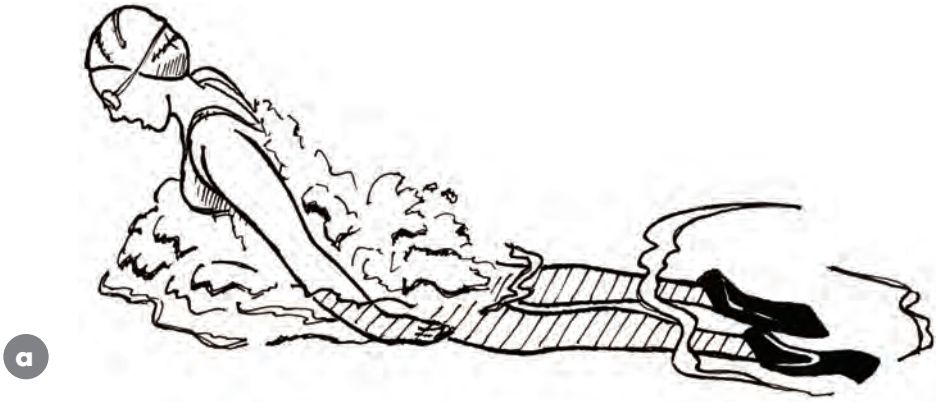
1. Put on fins. Start at the wall facing into the lane.
2. Push off underwater on your front in the Superman fly position—about 2 to 3 feet (60 to 90 cm) deep. Start your dolphin kicking action.
3. Do three or four dolphin kicks underwater and then start to approach the surface. When you get close to the surface, imagine the butterfly device being there. Start to angle yourself upward so that your hands are headed for the surface.
4. Just as your hands almost touch the surface, pull your arms down as hard as you can, all the way to your thighs. Create as much power as you can so that you can lift your body over the imaginary noodle as cleanly as possible (*a*). Break the surface headfirst and then curl your forehead down so that your forehead enters the water first (*b*). Follow with the hips and finally the legs (*c*).
5. Your hands should pop out of the water past the hips. The hands stop there; they do not recover around the side.
6. After your body clears the surface, kick downward with a dolphin kick.
7. Kick a couple more dolphin kicks while underwater, perform an underwater recovery, and extend your arms in front again.
8. Repeat the sequence down the lane.

Focus Points

- Start far enough underwater so that you can create sufficient power from your pull.
- Breathe very quickly.
- Enter forehead first after you break the surface.
- Relax your legs as you break the surface and then kick after your hips reenter the water.

Tip

Be relaxed underwater, and then explode through the surface with great power from your pull.



89 STANDING BUTTERFLY ARM ACTION

Purpose

To develop proper mechanics of the arm stroke, particularly the recovery and entry.

Procedure

The most common fault in the butterfly arm stroke is the hugging recovery. It occurs when the arms recover with the thumbs turned upward and the palms facing forward—just like giving a hug. Recovering this way makes the stroke less effective. This drill works to eliminate that type of entry.

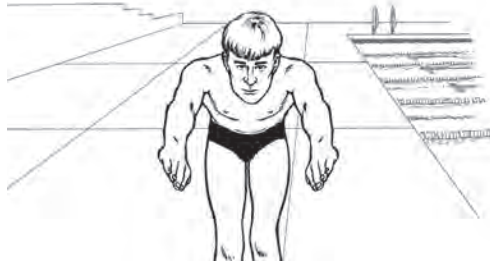
1. Lean forward a little, bending at the waist. Place your hands on your knees. Raise your arms so that the backs of the hands (knuckle side) are turned inward (*a*).
2. Simultaneously sweep both arms outward to about twice shoulder-width apart. Bend the elbows a little and rotate the hands inward to press back toward the waist (*b*). Continue to sweep the hands back, passing by the hips.
3. The arms will continue to press back until they are straight back and the palms are facing up (*c*). At this point, the hands should be as close together as possible.
4. Begin the recovery phase by first relaxing the wrists and turning the arms so that the wrists lead the motion and the thumbs are pointing downward and back.
5. Keeping the elbows straight and the arms level, move the arms forward until they are directly in front of each shoulder (*d*). This action completes the cycle.

Focus Points

- Maintain strength in the wrists during the pulling phase and keep them straight.
- Finish the pull with the palms facing up.
- Relax the wrists on the recovery.
- Let the wrists lead the recovery; the thumbs are pointing downward and back.
- Keeps the thumbs down and the elbows locked during the recovery.

Tips

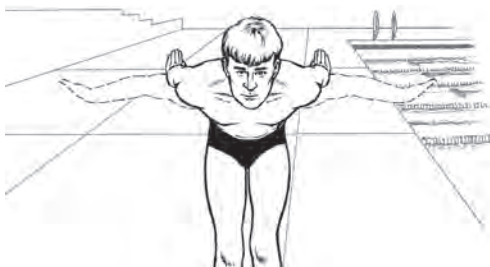
- Practice this drill slowly.
- Try practicing this drill in the water while standing up with your shoulders just above the surface.



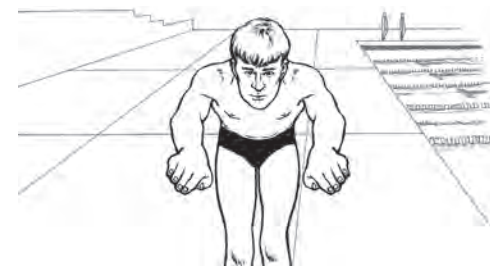
a



b



c



d

90 POWER FLY

Purpose

To add the arm pull and recovery to the butterfly body action

Procedure

This drill has the same action as the previous drill, but you use no device and you continue repeating the pull and recovery down the length of the pool.

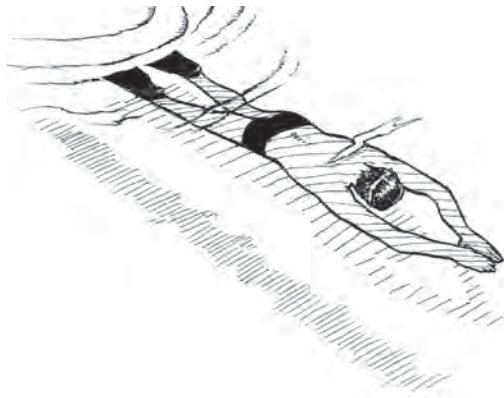
1. Put on fins. Start at the wall facing into the lane.
2. Push off underwater on your front in the Superman fly position—about 2 to 3 feet (60 to 90 cm) deep (*a*). Start your dolphin kicking action. Do three or four dolphin kicks underwater and then move toward the surface to breathe.
3. Just as you reach the surface with your hands, pull with both arms to lift your body (*b*). Breathe when you reach the peak of your lift (*c*). As you finish the pull and begin the butterfly recovery with the arms, return your head down into the water, entering forehead first
4. By the time you reach the dive, your arms are in front of you again and your head is down. Lock the thumbs up again right away. Get the hips up (*d*).
5. Finish the stroke with a strong kick. Look down while kicking under the water.
6. Repeat with three or four dolphin kicks underwater. Then, come to the surface and repeat the sequence. The sequence will now be pull, breathe, dive, kick.

Focus Points

- Remember this sequence: pull, breathe, dive, kick.
- Look down while kicking under the water.
- Get your forehead into the water first after breathing.
- After breathing, get your hips up above the surface.

Tips

- Perform this drill by going across the width of the pool over alternate loose lane ropes. Begin to pull just as you reach the lane rope. Do not touch the rope with your arms; swim over it. This drill is fun and gives you good practice. Try to touch the lane rope as little as possible.
- Training: If you are a beginning swimmer who is just learning or developing the butterfly, focus on performing this drill until you develop sufficient strength and stamina to swim butterfly properly for 25 yards (meters).



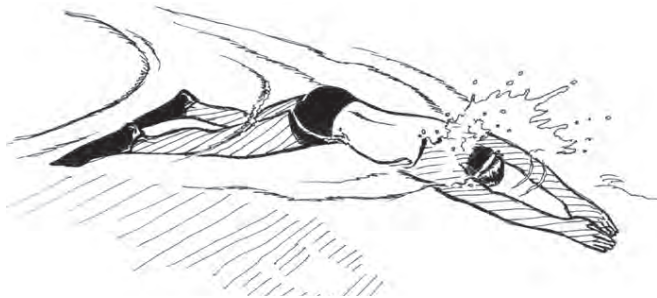
a



b



c



d

91 ONE-ARM BUTTERFLY

Purpose

To transition to the continuous body action of the butterfly at the surface while gradually incorporating the arm action.

Procedure

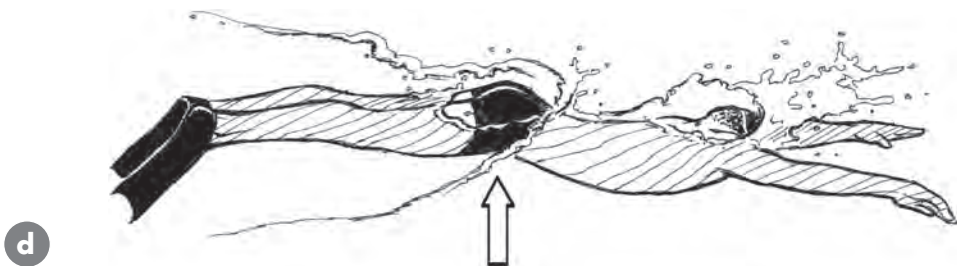
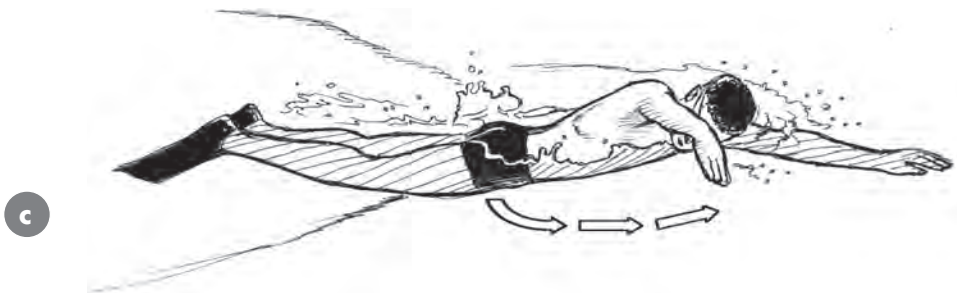
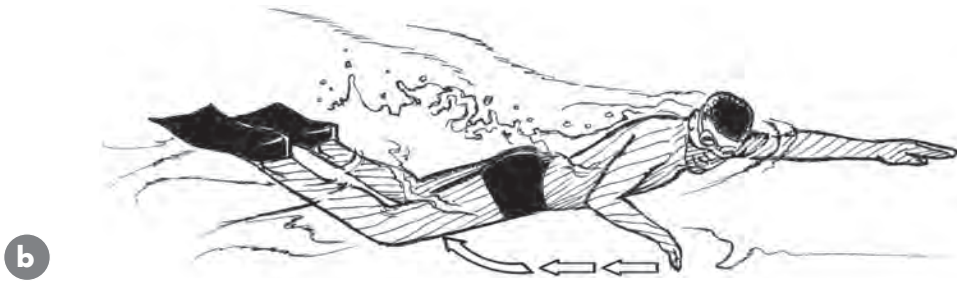
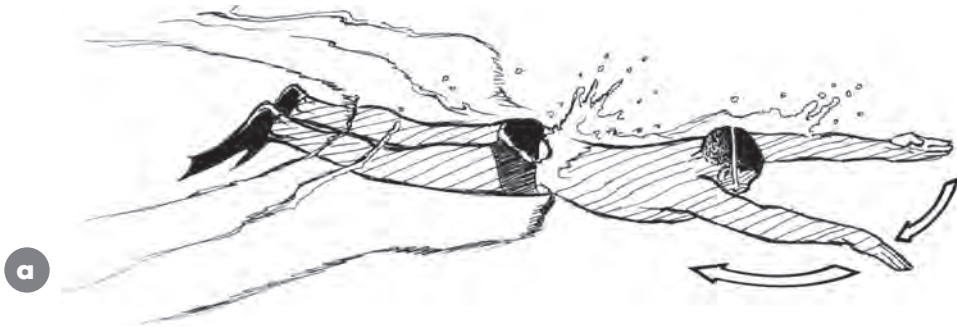
1. Put on fins. Keep one arm out in front of you at all times and use the other arm to pull (*a*).
2. Stay on the surface and keep the rhythm of pull, breathe, dive, kick in a continuous fashion.
3. Breathe to the side of the pulling arm (*b, c*). Briefly lock the thumbs each time you dive until you feel the kick.
4. Relax and go slowly. Look down when you dive. Lift up the hips after breathing (*d*).
5. Repeat the cycle for the other arm.

Focus Points

- Maintain the rhythm: pull, breathe, dive, kick.
- Look down after you breathe.
- Lift up your hips after breathing.
- Lock your thumbs each time until you feel the kick.

Tip

Alternate arms every lap and then every four strokes.



92 2 + 2 + 2

Purpose

To continue the transition to a complete butterfly by focusing on the body action.

Procedure

This drill combines the action of the One-Arm Butterfly drill with the two-arm recovery.

1. Put on fins.
2. Stay on the surface and concentrate on maintaining the rhythm of pull, breathe, dive, kick in a continuous fashion.
3. First, take two strokes (pull and recovery) with one arm (*a*), then two strokes with the other arm (*b*), and finally two strokes with both arms (*c*). Continue to repeat this cycle.
4. Try to breathe every other stroke. Breathe straight ahead when taking the two-arm stroke; breathe to the side when taking the one-arm stroke. Lock the thumbs up on each stroke when you dive until you feel the kick.
5. Relax and go slowly. Lift up the hips on each stroke as your hands come together in front.

Focus Points

- Concentrate on the rhythm: pull, breathe, dive, kick.
- Look down and lift up your hips as your hands come together.
- Lock your thumbs each time until you feel the kick.

Tips

- See how slowly you can do this drill with control. Try to be smooth.
- Training: The following training set can help build stamina and good technique. Do four sets of 75 in a butterfly drill series. The first 25 is 3 + 3 + 3 of this drill, the second 25 is 2 + 2 + 2, and the final 25 is 1 + 1 + 1

a



b



c



93 CONTROLLED BUTTERFLY

Purpose

To complete the transition to a controlled butterfly with excellent rhythm. The emphasis remains on the body action.

Procedure

This drill eliminates the one-arm action of the previous drill.

1. Put on fins. Use both arms for every stroke. Stay on the surface and work on keeping the rhythm of pull, breathe, dive, kick in a continuous fashion (*a, b*).
2. Try to breathe every other stroke. Lock your thumbs up briefly on each stroke when you dive. Relax and go slowly. Lift up your hips on each stroke as your hands come together.
3. As you become stronger, try using this rhythm: reach, kick. Your arms entering the water is the reach. Your feet kicking down is the kick (*c*). The timing between the reach and the kick should be even.

Focus Points

- Keep a nice, flowing rhythm: pull, breathe, dive, kick.
- Eventually use this rhythm: reach, kick.
- Look down after each breath.
- Lift up your hips on each stroke.
- Lock your thumbs on each stroke until you feel the kick.

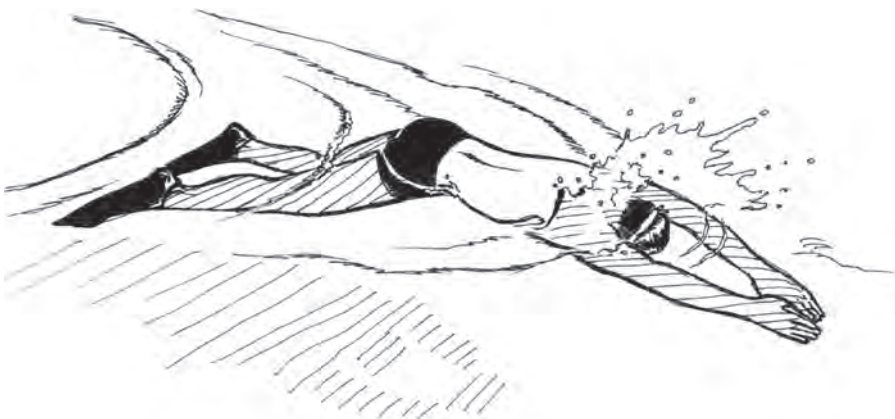
Tip

Stay relaxed. Let the stroke technique do the work for you. You may notice that as you swim a little faster, a second kick in the middle of each stroke will usually occur naturally. In doing this drill, however, you don't need to focus on the second kick. For most swimmers, this second kick is a minor kick that gives balance to the rhythm of the stroke. For some, the second kick can become very strong. The best approach is to focus first on a nice, fluid motion.

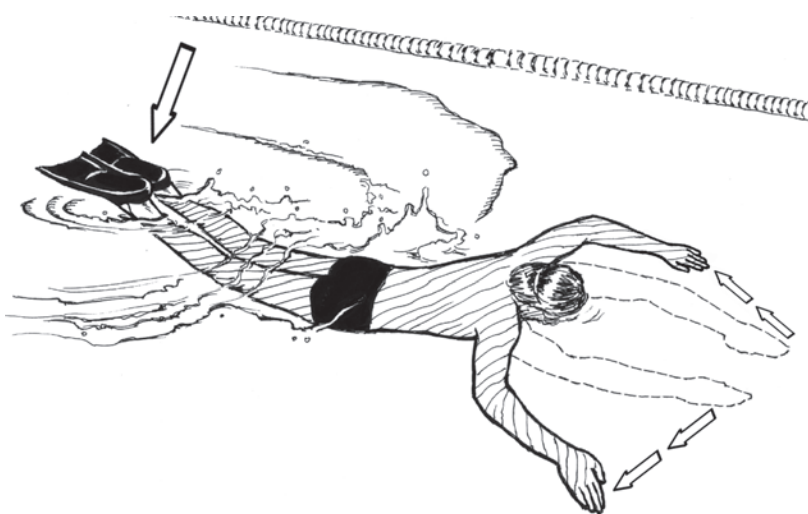
a



b



c



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Open-Water Swimming

Open-water swimming has become increasingly popular. But for those who do not have experience with open water, swimming in natural bodies of water can be both scary and exhilarating. Whether you are a recreational or competitive open-water swimmer, or a triathlete, the ability to navigate and swim effectively in lakes and oceans poses different challenges than swimming in a pool.

The best open-water swimmers

- breathe effectively and maintain a consistent rhythm,
- modify their stroke to deal with currents and waves,
- move around buoys efficiently,
- navigate effectively and stay on course,
- prepare for competition,
- deal with challenges well, and
- adapt to rough water with ease.

The drills and tips presented in this chapter are intended to help you adapt to swimming in the open-water environment. With preparation, open-water swimming can be lots of fun and quite exciting!

94 KICKING IN BREATHING POSITION

Purpose

Getting enough air while swimming in open water is critically important. This drill and the next two drills are designed to help you improve your head and body position so that you can breathe effectively in open water.

Procedure

1. Begin by kicking in a streamlined position with your head down in the water and exhaling (*a*).
2. Pull with your right arm so that you finish with your right hand at your side. Your left arm stays extended out in front.
3. As you are pulling with the right arm, roll your body and head to the right so that you can breathe.
4. Continue kicking while keeping your left arm extended forward and your right arm at your side (*b*).
5. Take at least three full breaths while on your right side.
6. Recover the right arm forward into a streamline position with your head down.
7. Pull with the left arm and repeat steps 3 through 6 on the left side.

Focus Points

- Keep your kicking rhythm steady at all times.
- Keep your front arm extended while breathing to keep your body position higher in the water and to make it easier to get air while you roll to breathe.
- Roll your body as much as you need to so that you can breathe easily.
- Keep your head in alignment. Swivel your head to breathe, don't lift it.

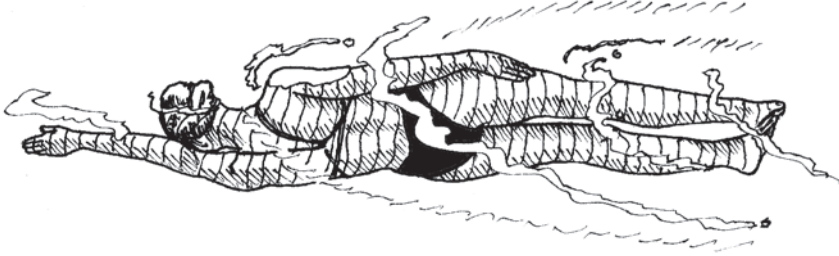
Tips

- Be sure to practice this drill on both sides so that you can be more comfortable with alternate breathing, which can come in handy in rough waters.
- If you are practicing in a pool, use the freestyler hand paddles to help you get the feel of keeping your body on keel with the extended arm while you breathe.

a



b



95 SWIM THREE, BREATHE THREE

Purpose

To help you improve your head and body position so that you can breathe effectively in open water.

Procedure

1. Swim three relaxed strokes with your head down in the water, exhaling on the first two strokes (*a*).
2. On the third stroke, roll your body to the side so that the pulling arm ends at your side.
3. As you pull your third stroke, rotate your head to breathe.
4. Hold this position for three breaths (inhalations) while kicking (*b*).
5. Roll your head back into the water and then swim three relaxed strokes.
6. Repeat the process but breathe on the other side.

Focus Points

- Keep your kicking rhythm steady at all times.
- While swimming, keep your head down in the water in a comfortable position. The head is heavy, and lifting it higher could become tiring over time. Try to keep your head in alignment so that the top of your head stays underwater and the back of your head breaks the surface.
- Keep your front arm extended while breathing to keep your body position higher in the water and make it easier to get air while you roll to breathe.
- Roll your body as much as you need to so that you can breathe easily.
- Keep your head in alignment. Swivel your head to breathe. Don't lift it.
- Keep your strokes nice and smooth.

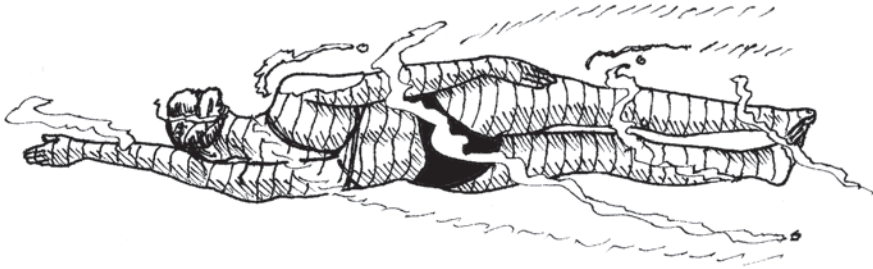
Tips

- Stay relaxed and perform this drill slowly so that you get the feel of the breathing position.
- If you are practicing in a pool, use the freestyler hand paddles to help you get the feel of keeping your body on keel with the extended arm while you breathe.

a



b



96 CATCH-UP AFTER BREATH

Purpose

To help you improve your arm extension during the breath so that your body position stays high while you breathe in open water.

Procedure

1. Begin by kicking in a streamlined position with your head down in the water and exhaling (*a*).
2. Pull with your right arm while keeping the left arm extended in front.
3. As you are pulling with the right arm, roll your body and head to the right so that you can breathe. Continue to keep the left arm extended (*b*).
4. Return your head back into the water as you recover the right arm.
5. Bring your right hand to touch on top of your left hand (catch-up).
6. Then, pull with your left arm while keeping the right arm extended in front.
7. As you pull with the left arm, roll your body and head to the left so that you can breathe. Continue to keep the right arm extended.
8. Return your head back into the water as you recover the left arm (*c*).
9. Bring your left hand to touch on top of your right hand (catch-up). Repeat.

Focus Points

- Keep the extended arm steady as you pull with the other arm.
- Keep your kicking rhythm steady at all times.
- While swimming, keep your head down in the water in a comfortable position. The head is heavy, and lifting it up higher could become tiring over time. Try to keep your head in alignment so that the top of the head stays underwater and the back of the head breaks the surface.
- Keep your front arm extended while breathing to keep your body position higher in the water and make it easier to get air while you roll to breathe.
- Roll your body as much as you need to so that you can breathe easily.
- Keep your head in alignment. Swivel the head, don't lift it.
- Keep your strokes nice and smooth.

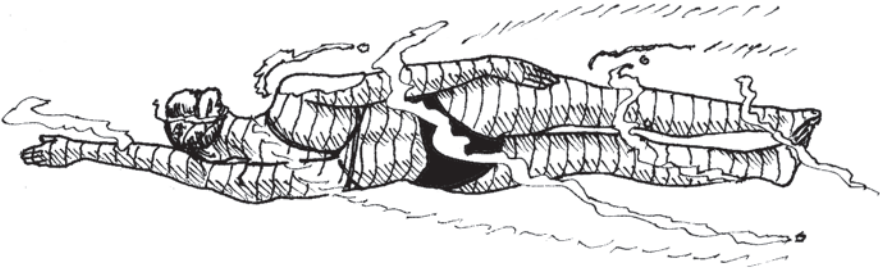
Tips

- Stay relaxed and perform this drill slowly so that you get the feel of the breathing position.
- Be sure to practice this drill breathing on both sides so that you can be more comfortable with alternate breathing, which can come in handy in rough waters.
- Another way to practice this drill is to hold on to a small kickboard or stick out in front.

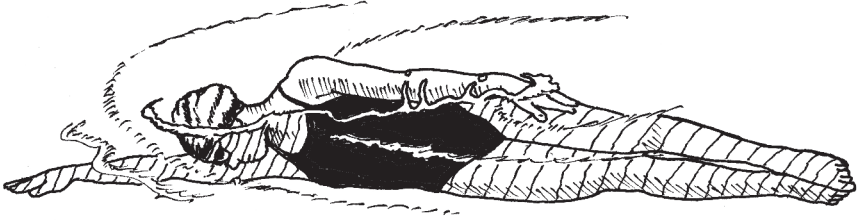
a



b



c



97 WIDER HAND ENTRY

Purpose

To develop a more stable and balanced stroke in an unstable environment that will allow you to swim straighter.

Procedure

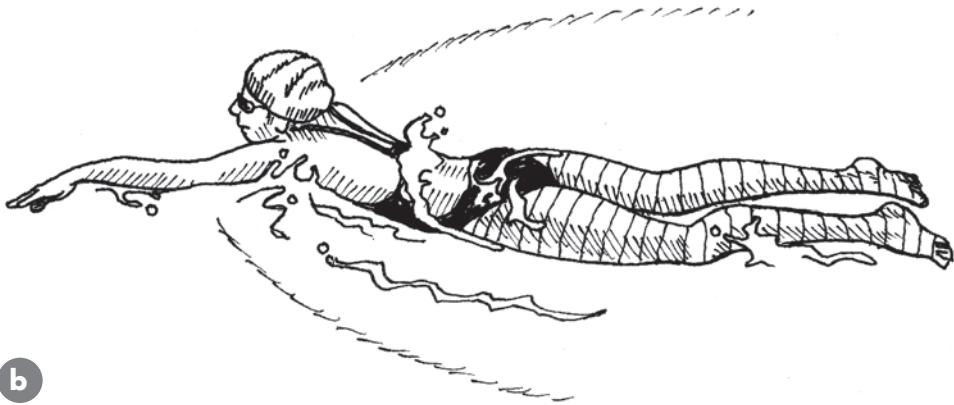
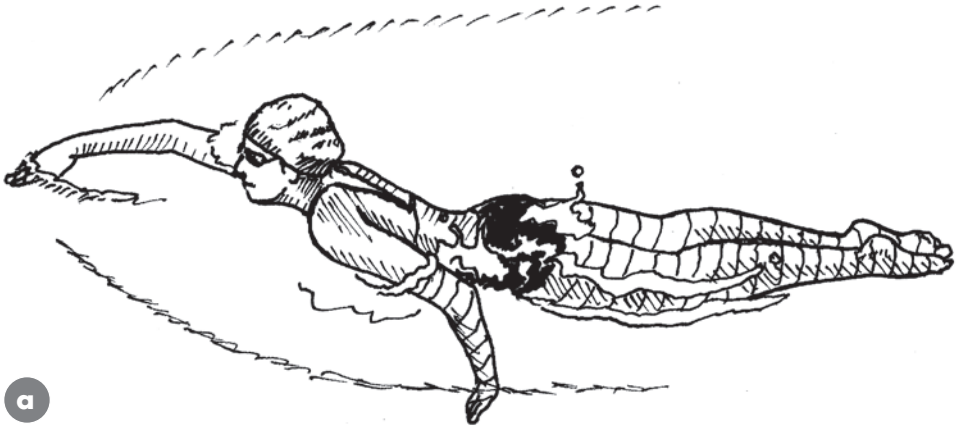
1. To get the feel of where to place your hands, begin by swimming freestyle with your head up and at least your eyes out of the water. If you have played water polo, this position will be familiar. Your arms enter into the water about shoulder-width apart (*a*). Swimming this wide with the head up should feel fairly comfortable.
2. Start swimming freestyle with your head in the water, but keep the arms entering the water at the same width as you did with your head up.
3. Breathe normally, but keep the arms entering the water in this wider position (*b*).

Focus Points

- Keep a nice, even rhythm as you swim. Swimming this way should feel fairly easy, even if you are not getting as much distance per stroke.
- Pay attention to how you are able to stabilize your body position with the movement of the waves.

Tip

Vary the width of your arm entry to find the ideal placement



98 CLEARING GOGGLES

Purpose

The goggles may occasionally catch a wave and fill up with water or get foggy. In these situations, you need to clear your goggles without losing much momentum or time.

Procedure

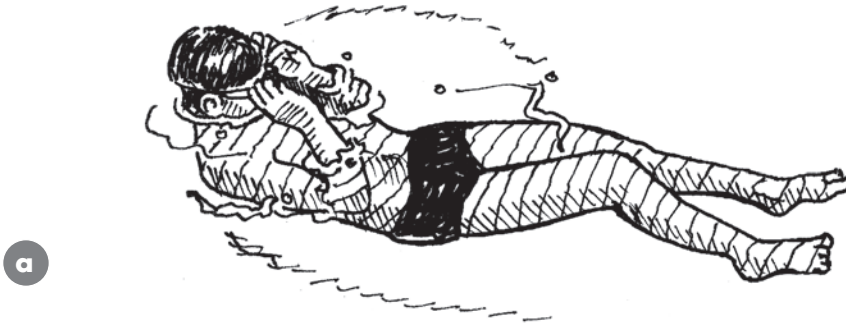
1. When you need to clear your goggles, roll onto your back while still kicking with an easy kick (*a*).
2. Relax to breathe.
3. Clear your goggles and replace.
4. Roll back over to restart swimming (*b*).

Focus Points

- Be sure to relax when you realize that you need to clear your goggles.
- After you roll over, keep your head back comfortably and maintain an easy kick.
- Take the time necessary to clear the goggles well and get a good seal when you replace them.

Tip

Practice doing this several times in the pool before you try it in open water.



99 TURNING DRILL 1: ARM-EXTENDED TECHNIQUE

Purpose

To navigate turning around a buoy quickly and efficiently.

Procedure

1. If you are turning to the left around a buoy, keep your left arm extended in front (*a*).
2. Paddle with your right arm and keep kicking.
3. Your body will turn to the left (*b*).
4. Restart your normal stroke after you have moved around the buoy (*c*).
5. Reverse the procedure if turning to the right around a buoy, keeping the right arm extended in front.
6. Paddle with your left arm and keep kicking.
7. Your body will turn to the right.
8. Restart your normal stroke after you have moved around the buoy.

Focus Points

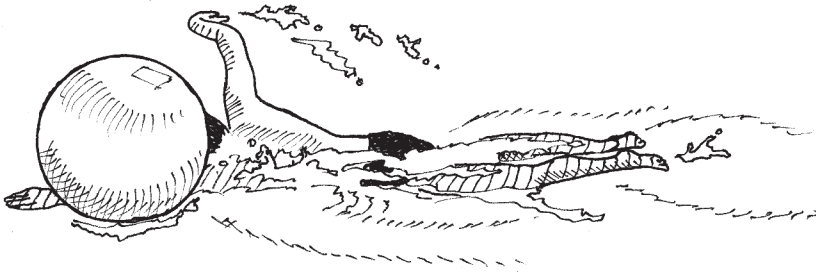
- Be sure to keep the extended arm fully stretched out in front.
- Kick rapidly to make the turn faster.
- Use quick, short strokes with the arm that is paddling around the buoy.
- Paddle hard.

Tips

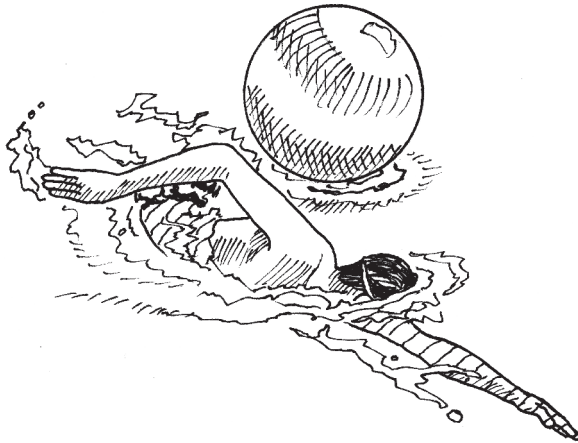
- Practice this technique in the pool to get the feel of how you can change the direction of your body quickly just by extending one arm.
- A good way to practice this technique is to take all the lane ropes out of the pool, set up buoys, and practice maneuvering the turns.
- This technique might be the easier way to turn when many other swimmers are going around the buoy at the same time.



a



b



c

100 TURNING DRILL 2: CORKSCREW STROKE TECHNIQUE

Purpose

To navigate turning around a buoy quickly and efficiently.

Procedure

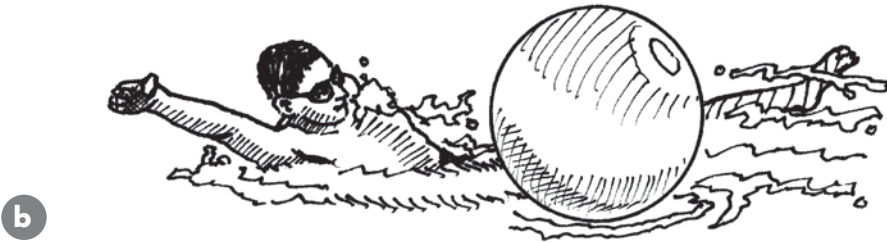
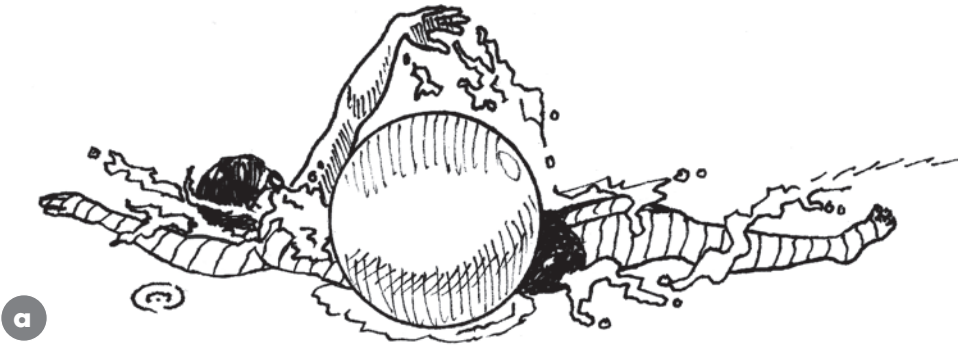
1. If you are turning to the left around a buoy, begin by extending your left arm as you get close to the buoy.
2. Roll your right shoulder up and back as you begin to corkscrew counterclockwise in toward the buoy (*a*).
3. Turn your body as you recover the right arm into the water (while on your back) (*b*).
4. Continue to corkscrew and turn your body as you pull with your right arm and recover with your left arm (returning to your front) (*c*).
5. Reverse the procedure to turn to the right around a buoy.

Focus Points

- Keep your stroke long and fluid as you roll and turn past the buoy.
- Keep a strong, steady kick.

Tips

- This technique can be a fast and fluid way to get around the buoy quickly when no other swimmers are near you.
- A good way to practice this technique is to take all the lane ropes out of the pool, set up buoys, and practice maneuvering the turns.



101 PEER FORWARD AND THEN BREATHE

Purpose

To help you sight and navigate so that you can stay on course with the least amount of disruption to the stroke. The idea with this drill is to peer forward just before you would normally turn your head to the side to breathe.

Procedure

1. If you will be breathing to the right, begin to lift your head forward as your right arm enters the water.
2. Lift your head just enough to see forward while your mouth is still in the water (*a*).
3. Lift your head quickly, and then, bring your eyes back down in the water.
4. Then, roll your head and body to the right as you pull with your right arm and breathe (*b*).

Focus Points

- Keep your stroke smooth and steady.
- Think of sneaking a peek forward.
- Lifting your head forward should not disrupt your stroke.
- Look for objects in the background that can help you sight and stay on course.

Tips

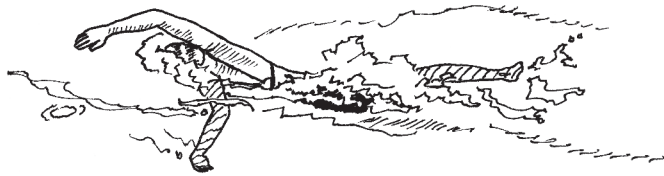
- Keep your line of sight from the buoy to an object in the background. The sighting object should be higher than the buoy.
- If nobody is around you and you can't see the buoy, stop. Use one of the next techniques to regain your line of sight.



a



b



102 SCULL AND KICK

Purpose

To help you regain your line of sight if you are not able to do so by just peering forward. This technique will give you a slightly higher line of sight.

Procedure

1. Extend both arms out in front while continuing your kick (*a*).
2. Begin to scull with your hands out in front just beneath the surface, pressing the water down and raising up your head (*b*).
3. Look for your markers or buoy.
4. Readjust your direction as necessary.
5. Put your head back down in the water and resume swimming freestyle.

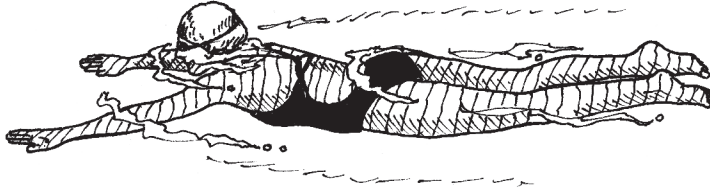
Focus Points

- Keep your kicking constant to help keep your body position high.
- Scull with your hands back and forth quickly to help you raise your head high enough to regain your line of sight.
- Scull only long enough to help you regain your direction.

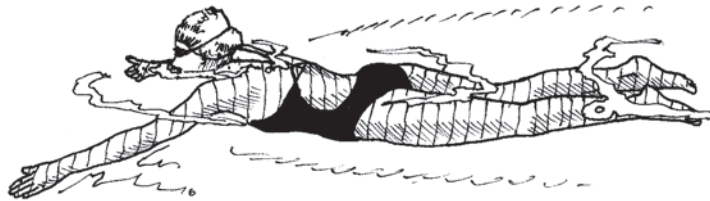
Tips

- Practice this drill in the pool frequently.
- If you're out in choppy water, try to do this along the axis of the waves or with the waves behind you. Try to avoid sculling directly into the face of the waves; otherwise, you may get a mouthful of water!

a



b



103 BREASTSTROKE WITH HEAD UP

Purpose

To help you regain your line of sight if you are not able to do so by just peering forward. This method usually allows you to get your head higher than the scull and kick does.

Procedure

1. Extend both arms out in front.
2. Begin to swim breaststroke, but allow the hips to sink a little so that you can lift your head high as you sweep the hands in (*a*).
3. Look for your markers or buoy (*b*).
4. Readjust your direction as necessary.
5. Put your head back down in the water and resume swimming freestyle.

Focus Points

- Use a strong breaststroke kick but keep the hips low to help you get your head up high.
- Sweep with your arms to help you raise your head high enough to regain your line of sight.
- Swim head-up breaststroke only long enough to help you regain your direction.

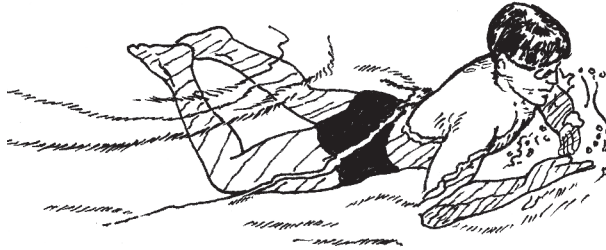
Tips

- Practice this drill in the pool frequently.
- If you're out in choppy water, try to do this along the axis of the waves or with the waves behind you. Try to avoid swimming breaststroke directly into the face of the waves; otherwise, you may get a mouthful of water!

a



b



104 EGGBEATER TO TREAD WATER

Purpose

To help you regain your line of sight if you are not able to do so by the three previous methods. This method can usually get your head even higher than using breaststroke with the head up.

Procedure

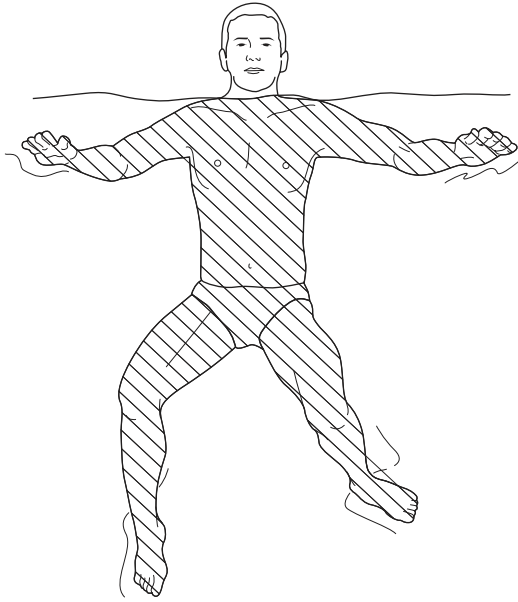
1. Stop swimming and move to a sitting position with your head up above the water and your shoulders at or slightly below the surface.
2. With your knees wide and your knees bent, rotate your feet in a circular kick. The right foot moves counterclockwise, and the left foot moves clockwise. Time the kick so that the left foot is out when the right foot is in and the left foot is in when the right foot is out (*a*).
3. Use your hands to scull underneath the surface to stabilize your upper body and to help in gaining lift (*b*).
4. Look for your markers or buoy.
5. Readjust your direction as necessary.
6. Put your head back down in the water and resume swimming freestyle.

Focus Points

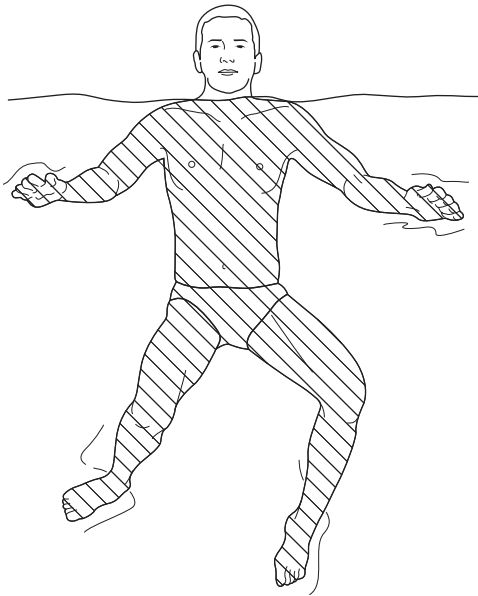
- Make sure that the kicks are alternating and not simultaneous like in the breaststroke.
- Use a strong kick along with sculling to help you get your head high enough to regain your line of sight.
- Tread water only long enough to help you regain your direction.

Tips

- Practice this drill in the pool frequently.
- Treading water can be a lifesaving tool.
- If you're out in choppy water, try to do this along the axis of the waves or with the waves behind you. Try to avoid treading water directly into the face of the waves; otherwise, you may get a mouthful of water!



a



b

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Starts

“Swimmers, take your mark. . . .” Then the gun or horn sounds! Watching a swimmer perform a great start is like watching an act of true beauty: quick release, tremendous launch through the air, smooth entry, tight streamline, rapid travel through a great distance underwater, and then coming up well ahead of the pack. For competitive swimmers, the start is by far the fastest part of the race. If it is performed well, the start can make a significant difference in the outcome, especially in the sprint races. Conversely, a poor start can leave a swimmer well behind.

These drills concentrate on

- teaching you how to dive,
- teaching different kinds of dives,
- developing leg strength and power,
- discovering your balance point when starting from the blocks, and
- attaining a tight streamline position and controlling the depth of your dive.

The drills in this chapter help you make stronger and faster starts. All these drills are fun as well. Swimmers always seem to like practicing starts!

105 JUMPING FROM THE BLOCKS

Purpose

To develop explosive leg power for the starts from the blocks.

Procedure

The two main positions for setting up on the blocks are the traditional start with both feet forward and the track start with one foot forward and the other foot back a little. Either setup can be effective, depending on the swimmer.

1. Place your feet at the edge of the block. For this drill, the traditional start with both feet forward is usually better than the track start.
2. Bending your knees and using your arms to swing forward, jump from the block into the pool and land feetfirst as far into the pool as you can (*a, b*).
3. Extend your feet as you leave the block so that you spring off your toes.

Focus Points

- Keep your head forward.
- Get as much distance as possible. Use those legs.

Tips

- Practice jumping rope and performing standing broad jumps to increase your leg strength and jumping ability.
- Have someone measure your distance.
- Give yourself a target to jump to.
- Variation: Try jumping over a noodle.



a



b

106 STANDING STREAMLINE JUMP

Purpose

To develop the mechanics of quickly extending the body into the streamline position. This drill prepares you to make a clean entry into the water from the blocks.

Procedure

1. Stand on the deck or in the water. Position your feet 2 to 4 inches (5 or 10 cm) apart.
2. Bend your knees and bring your hands down your legs below your knees. Keep the arms straight (*a*).
3. Begin the movement of the jump by bringing the arms together in front of you and swinging them upward as you jump up into a streamline position (*b*). Jump as high as you can.
4. When you jump, push and point your toes. A cue we use with little kids is *ballerina toes*.
5. Hold the streamline position as you land safely (*c*).
6. Repeat at least 10 times.

Focus Points

- Swing your arms forward and upward while keeping them straight. The bigger the arm swing is, the more momentum you build for the jump.
- Stay balanced and return to the same spot that you left.

Tip

Stand in shallow water underneath the flags so that you can jump up and touch them. But, don't look for the flags when you jump; make sure that your head stays in the streamline position—arms tight behind the ears with streamline locked in.



107 STREAMLINE JUMP FROM THE BLOCKS

Purpose

To take the next step in developing the start and practice getting into a streamline position quickly off the blocks.

Procedure

This drill uses the same action as the standing streamline jumps, except that you are on the blocks and jump up and out so that you land in the water.

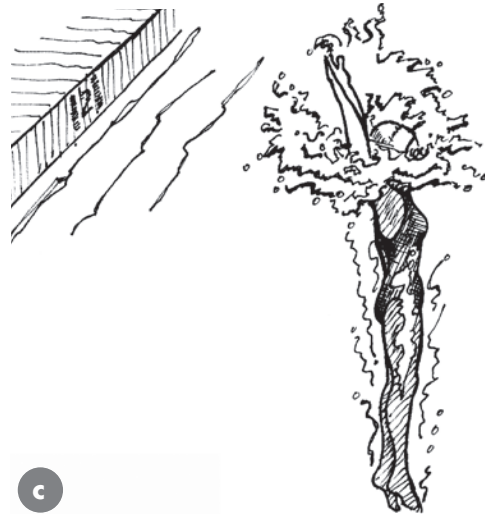
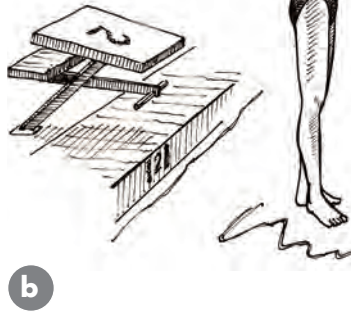
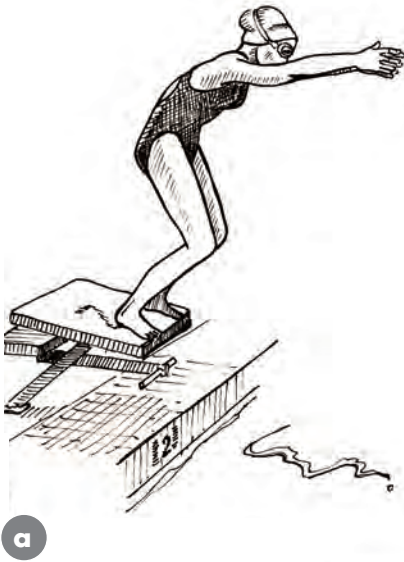
1. Stand on the blocks. Position your feet 2 to 4 inches (5 or 10 cm) apart with the toes over the edge.
2. Bend your knees and bring your hands down your legs below your knees. Keep the arms straight.
3. Begin the movement of the jump by bringing the arms together in front of you and swinging them upward as you jump up into a streamline position (*a*). Jump forward and as high as you can.
4. Hold the streamline position as you land safely. Try to have a clean entry so that your body is completely straight (*b, c*).
5. As you enter the water, keep your toes pointed down toward the water to make a cleaner entry and get you used to pointing your toes during a dive.
6. Repeat at least 10 times.

Focus Points

- Swing your arms forward and upward while keeping them straight. The bigger the arm swing is, the more momentum you build for the jump.
- Get completely stretched out into a streamline and land feetfirst. Keep the toes pointed.
- Keep your head looking forward only.

Tip

Have a coach use a shepherd's crook or pole to attach a target of some sort that you can jump up to and touch safely. But don't look for the target when you jump; make sure that your head stays in the streamline position.



108 STREAMLINE JUMP PLUS NOODLE

Purpose

To provide a sensory target to aid in the movement of quickly setting up the streamline off the blocks.

Procedure

This advanced drill requires the assistance of a coach. You perform the same action you did in the previous drill, but you knock away the noodle with your arms as you jump.

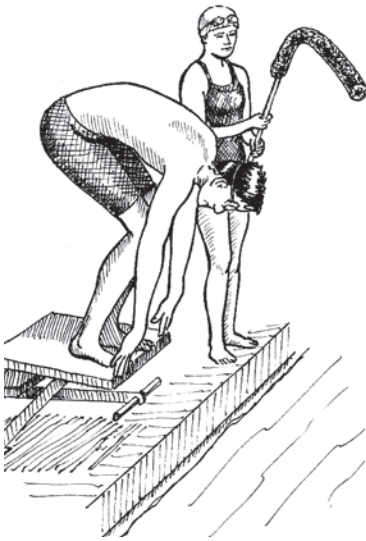
1. Stand on the blocks. Position your feet 2 to 4 inches (5 to 10 cm) apart with the toes over the edge.
2. Bend your knees and bring your hands down your legs below your knees. Keep the arms straight (*a*).
3. Your coach will hold a noodle about waist height and about 2 feet (60 cm) in front of you.
4. Begin the movement of the jump by bringing the arms together in front of you and swinging them upward as you jump up into a streamline position (*b, c*). Knock away the noodle as you jump. Jump forward and as high as you can.
5. Hold the streamline position as you land safely. Try to have a clean entry so that your body is completely straight.
6. Repeat at least 10 times.

Focus Points

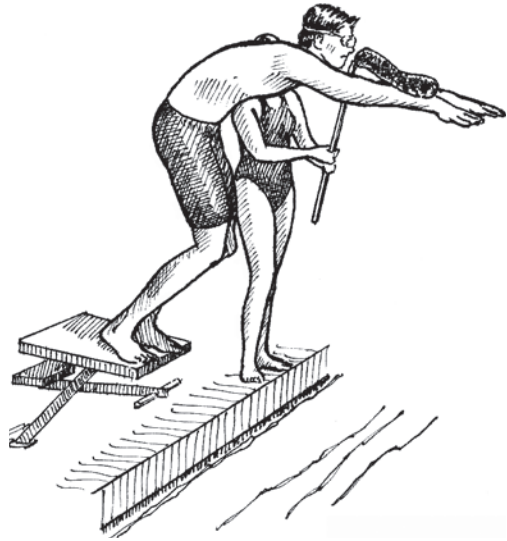
- Swing the arms forward and upward while keeping them straight. The bigger and faster the arm swing is, the more momentum you build for the jump. Knock away the noodle with a hard swing.
- Get completely stretched out into a streamline and land feetfirst
- Keep the head looking forward only.

Tip

For the coach: Stand on the side of the deck and attach the noodle to a pole so that you can position it properly, and be prepared to get wet!



a



b



c

109 PUSH-OFF START FROM THE WALL

Purpose

To teach the mechanics of the release and body entry. If done properly, this start is just like a butterfly entr .

Procedure

1. Position yourself in the water facing away from the wall. Your hands are behind you holding the gutter wall, and your feet are up high on the wall (*a*).
2. Lunge forward and slightly above the surface as you release from the wall. Your arms will travel forward just as they do in a butterfly recovery (*b*).
3. As your hands come forward and together, get your forehead down and dive into the water, just as you would for the butterfly (*c*).
4. Immediately reach a tight streamline position. You should have a clean entry.
5. If you time it properly, you can perform a small dolphin kick as your feet enter the water.

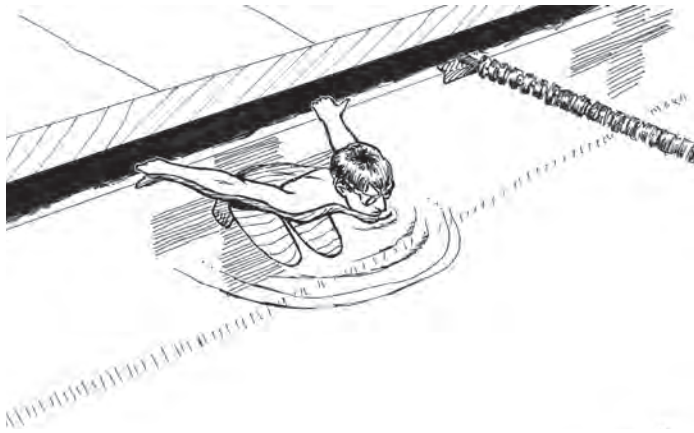
Focus Points

- Get your head down quickly as you enter the water.
- Punch a clean hole into the water as you enter.
- Get into a tight streamline right away.

Tip

Try diving over a noodle or some other soft obstacle.

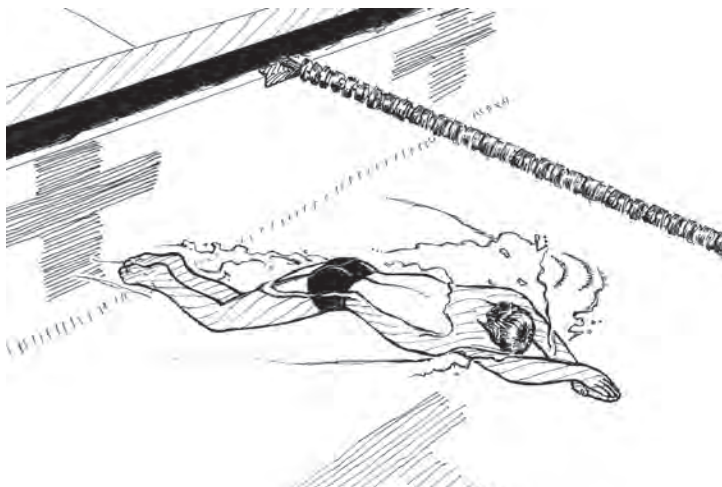
a



b



c



110 DIVE FROM THE DECK

Purpose

To combine the mechanics from the two previous drills to perform a basic dive.

Procedure

1. Stand on the edge of the deck and come down to take your mark. You can either have both feet forward or use a track start with the feet staggered (*a*).
2. Roll forward slowly until you can no longer stay on the deck.
3. Release and dive forward by extending over the water, throwing your arms forward and reaching a tight streamline position as you enter the water (*b, c*).
4. Try to punch a clean entry into the water.

Focus Points

- Roll forward and then release: Roll, roll, roll, push!
- Reach the streamline as you enter the water.
- Push and point your toes.
- Punch a clean entry.

Tip

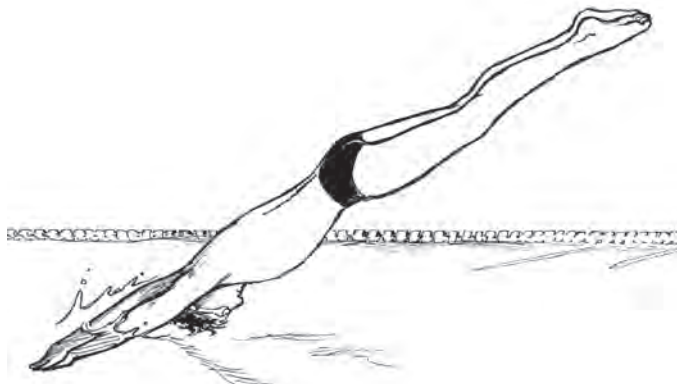
Practice diving over a noodle or through a hula-hoop on the surface of the water.



a



b



c

111 DIVE FROM THE DECK PLUS NOODLE

Purpose

To provide a sensory target to aid in the movement of quickly setting up the streamline as you dive.

Procedure

This advanced drill requires the assistance of a coach. You perform the same action as you did in the previous drill, but you knock away the noodle with your arms as you dive.

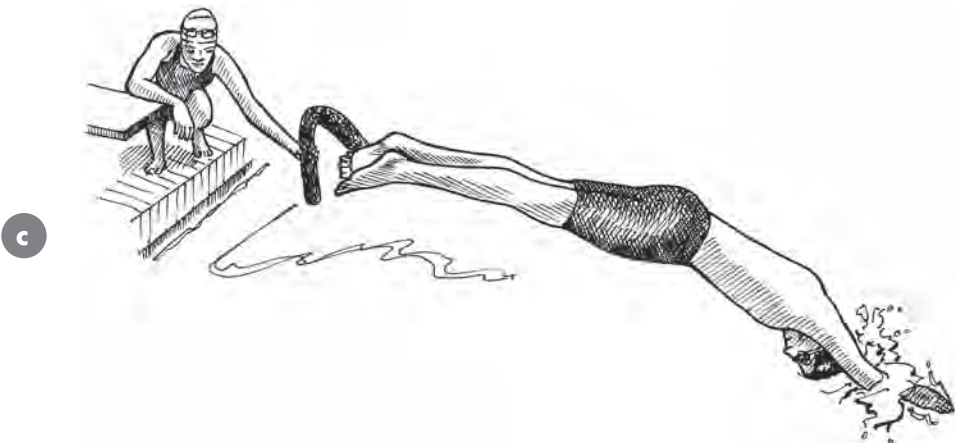
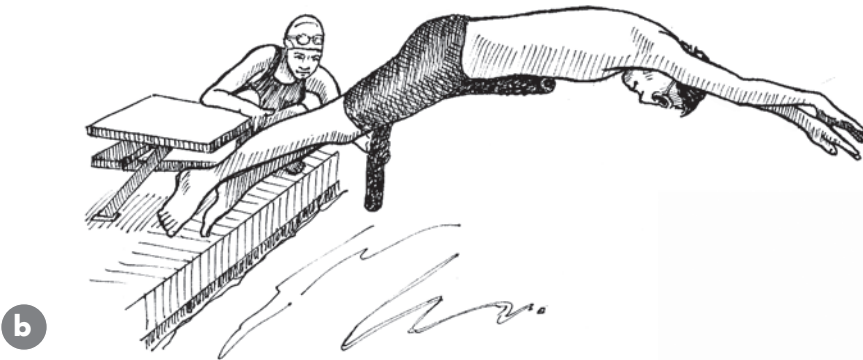
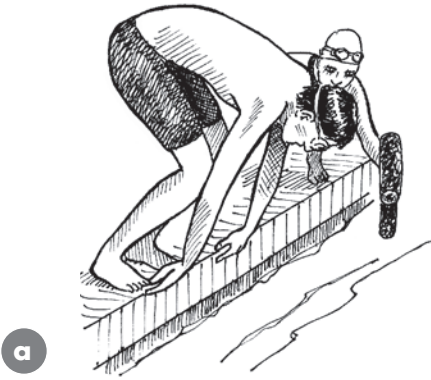
1. Stand on the edge of the deck and come down to take your mark. You can either have both feet forward or use a track start with the feet staggered (*a*).
2. Roll forward slowly until you can no longer stay on the deck.
3. Release and dive forward by extending over the water, throwing your arms forward, knocking away the noodle, and reaching a tight streamline position as you enter the water (*b, c*).
4. Try to punch a clean entry into the water.

Focus Points

- Roll forward and then release: Roll, roll, roll, push!
- Knock away the noodle as hard as you can.
- Reach the streamline as you enter the water.
- Push and point your toes.
- Punch a clean entry.

Tip

For the coach: Stand on the side of the deck, and attach the noodle to a pole so that you can position it properly. Again, be prepared to get wet!



112 SETUP ON THE BLOCKS

Purpose

To establish getting into good body position on the blocks in preparation for the dive.

Procedure

You can do this drill with either the traditional setup or the track start setup, depending on your preference. (Most swimmers and coaches prefer a track start because it tends to produce a faster reaction time off the blocks.)

Traditional start setup (*a*):

1. Step forward to the front of the block and place your feet wide with your big toes curled over the edge.
2. With your knees slightly bent, reach down with your hands until your fingertips are just under the front bottom edge of the block. Barely grab the edge of the block so that your grip is like a finger hold in rock climbing. Make sure that your hands grab the block outside your feet.
3. Be sure to balance your body so that you are leaning forward without falling in. Your hips should be up and forward.

Track start setup (*b*):

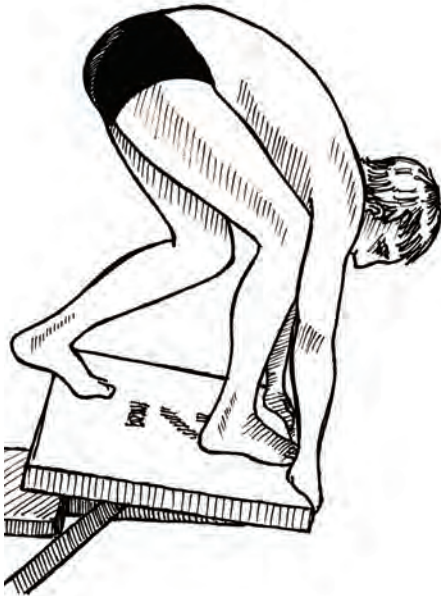
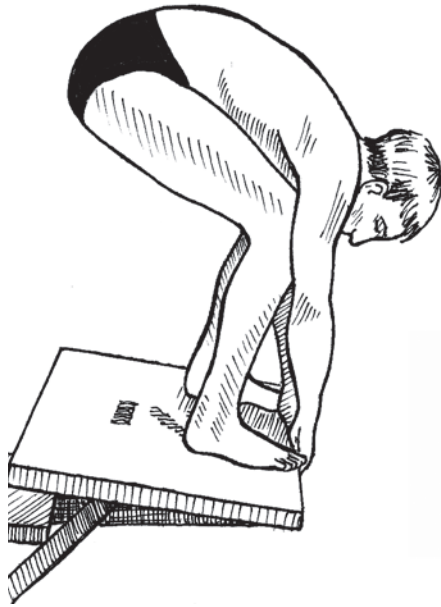
1. Stand with your heels at the back edge of the block.
2. Step forward with one foot only and place that foot with your big toe curled over the edge.
3. With the forward knee slightly bent, reach down with your hands until your fingertips are just under the front bottom edge of the block. Barely grab the edge of the block so that your grip is like a finger hold in rock climbing.
4. Push the heel of the back leg up and keep the knee of the back leg only slightly bent.
5. Be sure to balance your body so that you are leaning forward without falling in. Your hips should be up and forward. Your weight should be evenly distributed between both legs.

Focus Points

- Barely grab the block outside the feet to allow you to release quickly.
- Balance forward to set up the quickest release and launch from the block.

Tip

Practice getting into position smoothly and consistently. Have a coach give the command, "Take your mark," and get your body into a stable position right away. Be steady and ready!



113 DIVE FROM THE BLOCKS

Purpose

To combine the setup with the launch and get into a streamline position before entry into the water.

Procedure

In this drill, you set up first and then launch from the blocks.

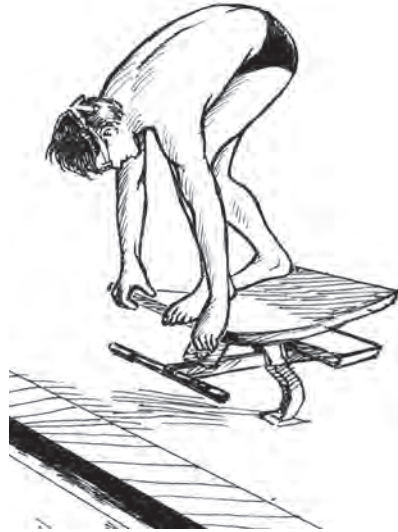
1. Stand on the edge of the blocks and come down to take your mark (*a*).
2. Stay in position until the command to go (or the horn) is given.
3. Release and dive forward by extending over the water (*b*).
4. Recover your arms forward and reach a tight streamline position as you enter the water (*c*). Try to punch a clean entry into the water. Keep your toes pointed on entry.

Focus Points

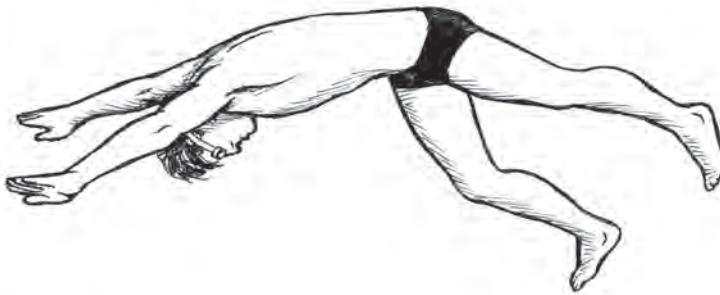
- Reach forward with your arms to get into a tight streamline quickly.
- Reach the streamline as you enter the water. Point the toes.
- Punch a clean entry.

Tip

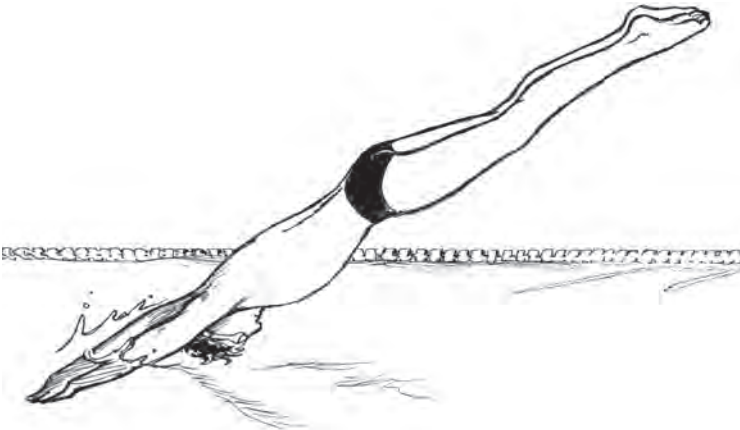
Practice diving over a noodle or other soft obstacle or through a hula-hoop on the surface.



a



b



c

114 DIVE FROM THE BLOCKS PLUS NOODLE

Purpose

To provide a sensory target to aid in the movement of quickly setting up the streamline as you dive.

Procedure

This advanced drill requires the assistance of a coach. You will be doing the same action as you did in the previous drill, but you will be knocking away the noodle with your arms as you dive.

1. Stand on the edge of the blocks and come down to take your mark (*a*). You may either have both feet forward or use a track start with the feet staggered.
2. Stay in position until the command to go (or the horn) is given.
3. Release and dive forward by extending over the water (*b*).
4. Throw your arms forward, knocking away the noodle and reaching a tight streamline position as you enter the water (*c*). Try to punch a clean entry into the water.

Focus Points

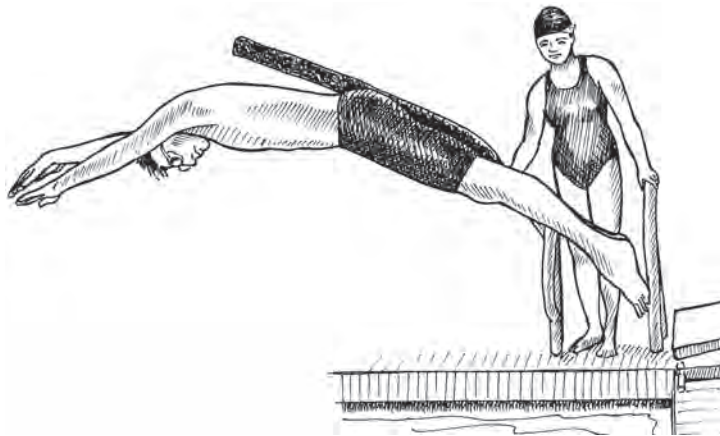
- Be completely stable when you take your mark.
- Knock away the noodle as hard as you can.
- Reach the streamline as you enter the water.
- Punch a clean entry.

Tip

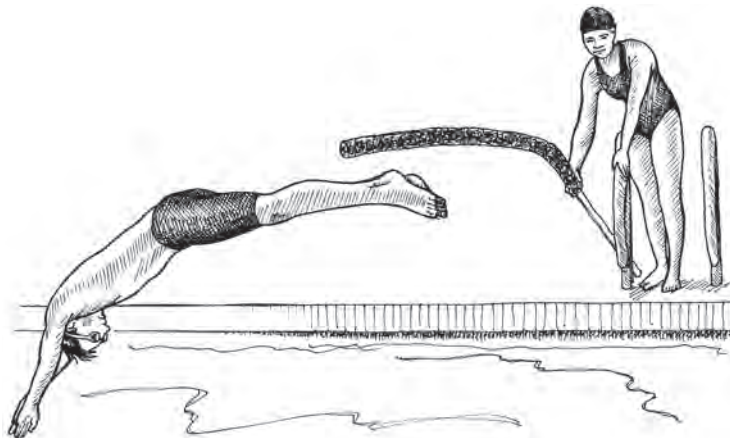
For the coach: Stand on the side of the deck, and attach the noodle to a pole so that you can position it properly. Again, be prepared to get wet!



a



b



c

115 STREAMLINE DIVING

Purpose

To develop the proper path in the air and in the water to gain the greatest speed for racing starts.

Procedure

The start is the fastest part of the race, and the fastest part of the start occurs when you travel through the air. The second fastest part of the start is the streamline on entry into the water.

1. Set up on the blocks (*a*).
2. Take your mark (*b*).
3. Launch on command.
4. Enter the water in a streamline and hold the streamline position without kicking or pulling (*c*). If you time it properly, however, you can have one dolphin kick as you enter the water. Continue traveling through the water as far as you can go until you break the surface. Then stop (*d*).
5. Measure how many sections of the lane rope past the flags you were able to travel. The greater the number is, the better your streamline entry is.

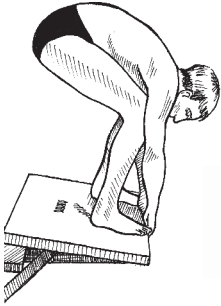
Focus Points

- Get a great launch.
- Be in a streamline by the time you enter the water.
- Hold the streamline and slice through the water.
- Try to dive in with no splash.

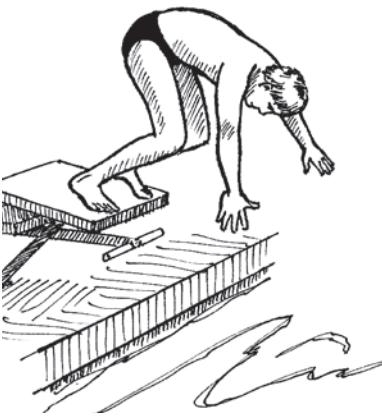
Tips

- Have a contest to see who can travel the farthest in a streamline off the start.
- For the coach: Stand on the side of the pool and send off your swimmers. Time them for 7 (younger) to 10 (older) yards (meters). Every 1/10 of a second matters!

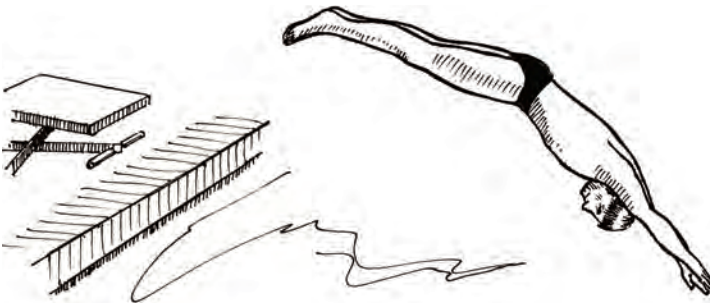
a



b



c



d



116 BUTTERFLY START

Purpose

To add the butterfly breakout to the dive and entry.

Procedure

This start is a medium-depth entry.

1. Come down and take your mark. This time, hold steady at the balance point.
2. On the command “Go,” release and enter the water (*a*).
3. After you enter the water, begin your butterfly breakout with a few (five to eight) dolphin kicks to the surface (*b*).
4. Come to the surface and break out from under the water. Do not take a breath on the breakout (*c*).

Focus Points

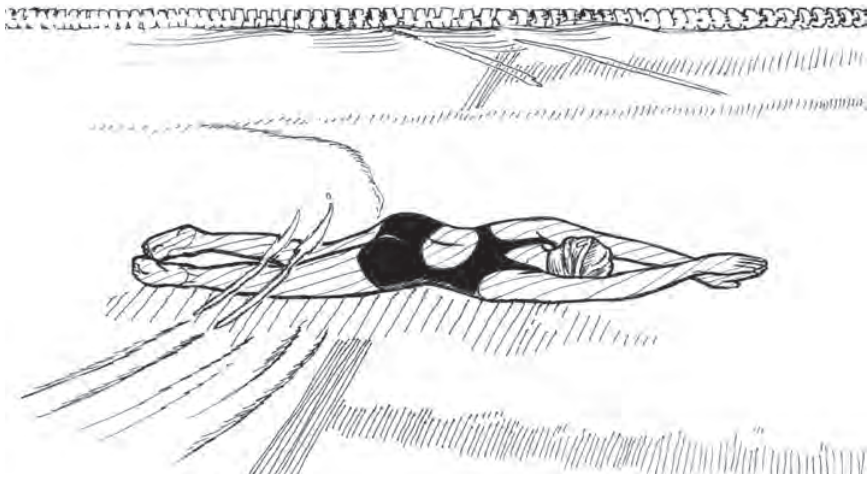
- Aim for a tight streamline on entry.
- Control your breathing for the first two or three strokes.

Tip

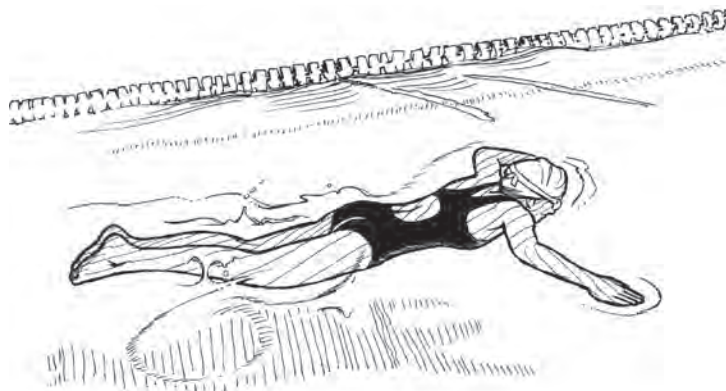
Do a dolphin kick as you enter the water.



a



b



c

117 BREASTSTROKE START

Purpose

To add the breaststroke pullout to the dive and entry. Many changes have occurred in the rules of the pulldown. The current interpretation allows a dolphin kick while still in streamline.

Procedure

This start is the deepest of the dives. Generally, swimmers should reach a depth of about 3 feet (90 cm).

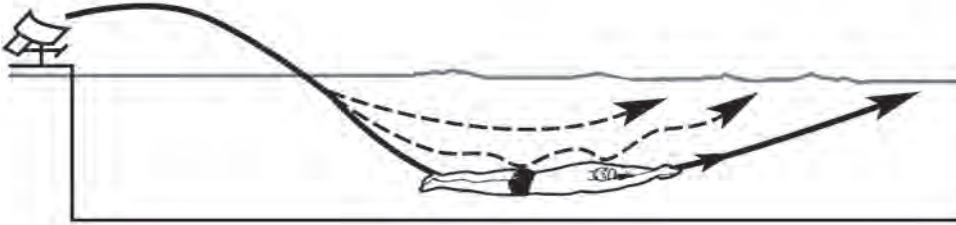
1. Come down and take your mark. Hold steady at the balance point.
2. On the command "Go," release and enter the water (*a*).
3. After you enter the water, begin your breaststroke pullout by holding the streamline for a count of three.
4. Dolphin kick while still in streamline. Hold for a count of two.
5. Pull down and then hold for another count of two (*b*).
6. Bring your hands up along your body until they are in front of your eyes. Then breaststroke kick up and stretch for a count of one before starting the breaststroke (*c*).

Focus Points

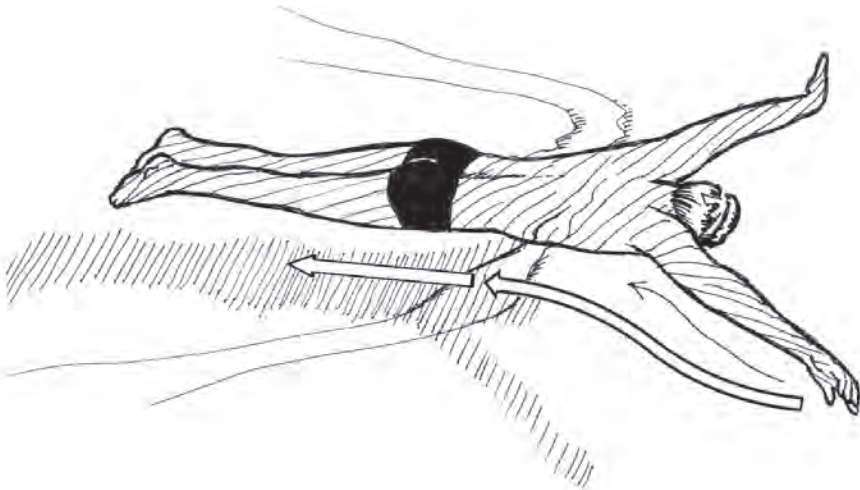
- Aim for a tight streamline on entry.
- Control the gliding for the pullout. Be patient.
- The longer the initial glide is, the farther your pulldown will be.

Tip

See how far you can go underwater until you break the surface. Then, have someone time how fast you can get to the same point on repeated efforts.



a



b



c

118 FREESTYLE START

Purpose

To add the freestyle breakout to the dive and entry.

Procedure

This start is the shallowest of the dives. You should reach the surface fairly quickly after you are in the water, especially on the shorter sprint races.

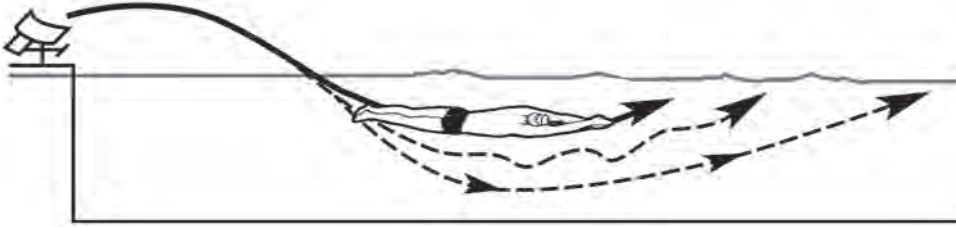
1. Come down and take your mark. Hold steady at the balance point.
2. On the command “Go,” release and enter the water.
3. After you enter the water, dolphin kick to the surface and then switch to flutter kick in a tight streamline position (*a*). Bring your head up fairly quickly.
4. Begin the freestyle by pulling down with the arm that is on the bottom of the streamline and breaking the surface (*b*).
5. Control your breathing for at least the first four strokes (*c*).

Focus Points

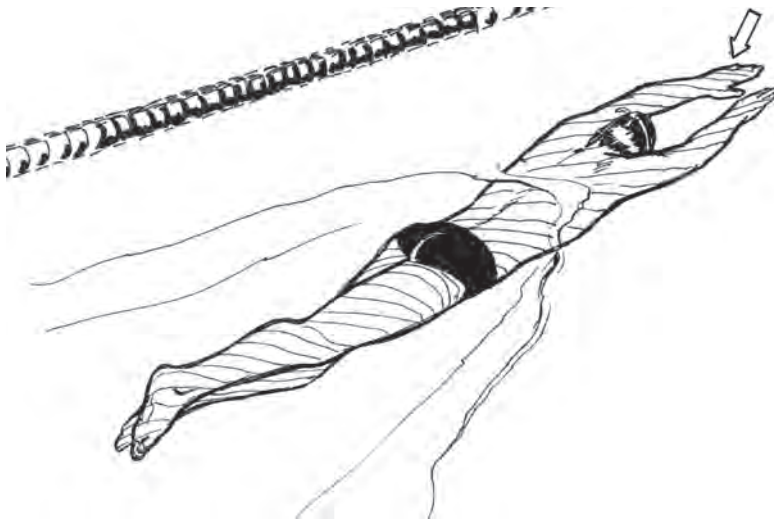
- Aim for a tight streamline entry.
- Kick hard and quickly.
- Come up to the surface quickly.
- Control your breathing.

Tip

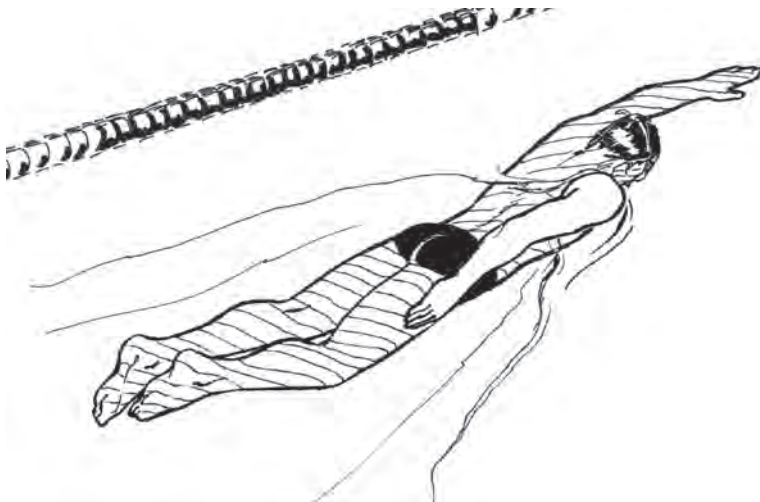
Many swimmers now add several quick dolphin kicks during the underwater streamline. Many coaches ask swimmers to perform five to eight dolphin kicks in practice to build the skill into their strokes. Learning this skill early is vital to developing the underwater dolphin kick. Having a strong dolphin kick can be a distinct advantage. Test to see how many dolphin kicks help with your underwater speed.



a



b



c

119 SIMPLE RELAY START

Purpose

To develop the mechanics and timing for a well-executed relay exchange.

Procedure

This process is for the start of the second, third, and fourth legs of the medley relay or freestyle relay.

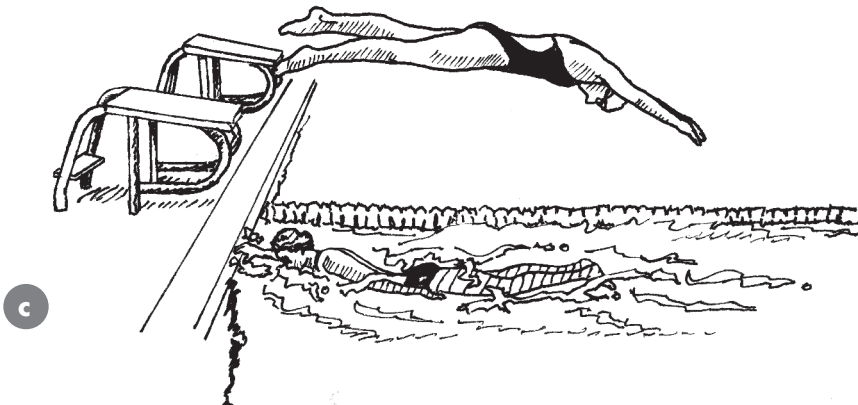
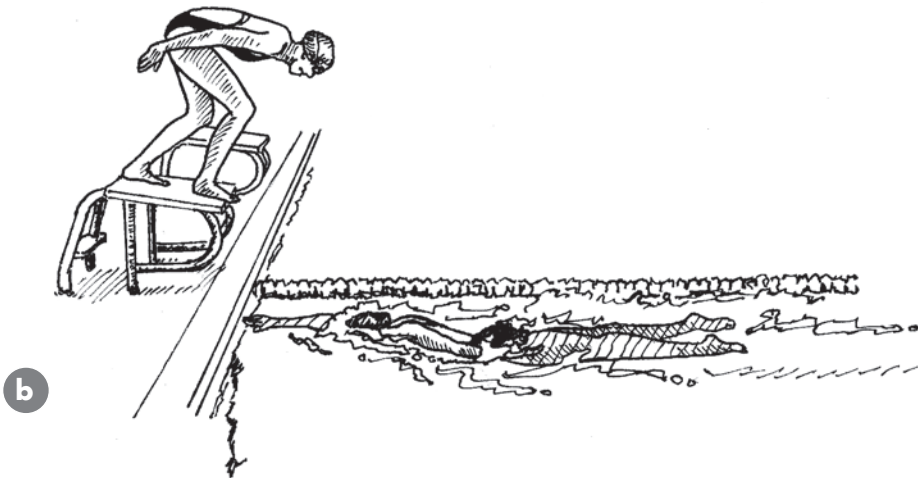
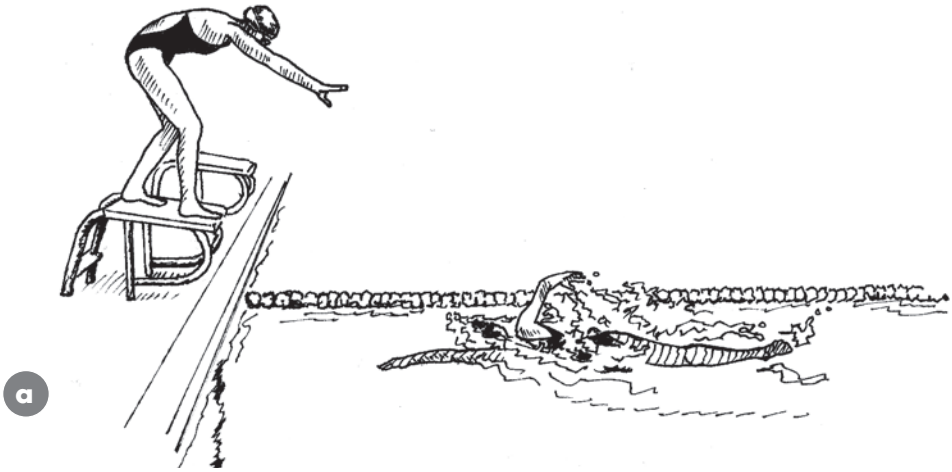
1. Set up on the blocks in either the traditional or track start foot placement.
2. Practice with your teammate sprinting in from about 12 yards (meters) out.
3. As your teammate gets to about 10 yards (meters) away, extend your arms forward so that they are directed at your teammate's head (*a*).
4. Continue to follow your teammate with your eyes and your arms. Bend over as your teammate approaches (*b*).
5. When your teammate is one stroke away from touching the wall, quickly swing your arms all the way back.
6. Then quickly swing your arms forward as you launch off the blocks and into your dive (*c*).

Focus Points

- For the relay exchange to be legal, your toes must still be touching the blocks when your teammate touches the wall. If your feet have left the block when your teammate touches, your relay will be disqualified
- Practice the timing with your teammates in the order that you will be swimming in the race.

Tip

Practice this drill with a coach on the side who can tell you whether your exchanges are legal or not. The coach can also let you know whether you need to make your exchange sooner.



120 ADVANCED RELAY START

Purpose

To develop the mechanics and timing for a well-executed relay exchange for more advanced swimmers.

Procedure

This process is for the start of the second, third, and fourth legs of the medley relay or freestyle relay.

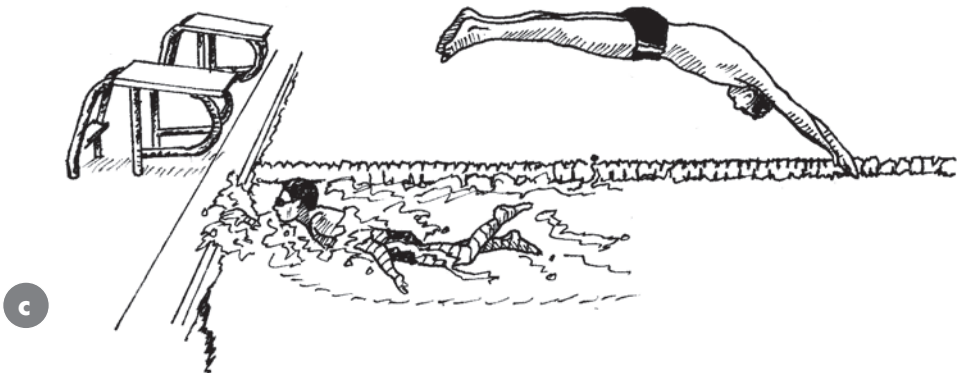
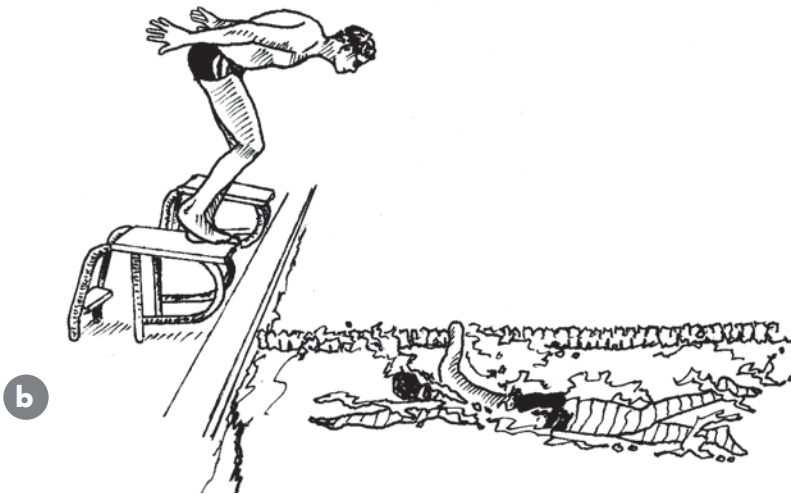
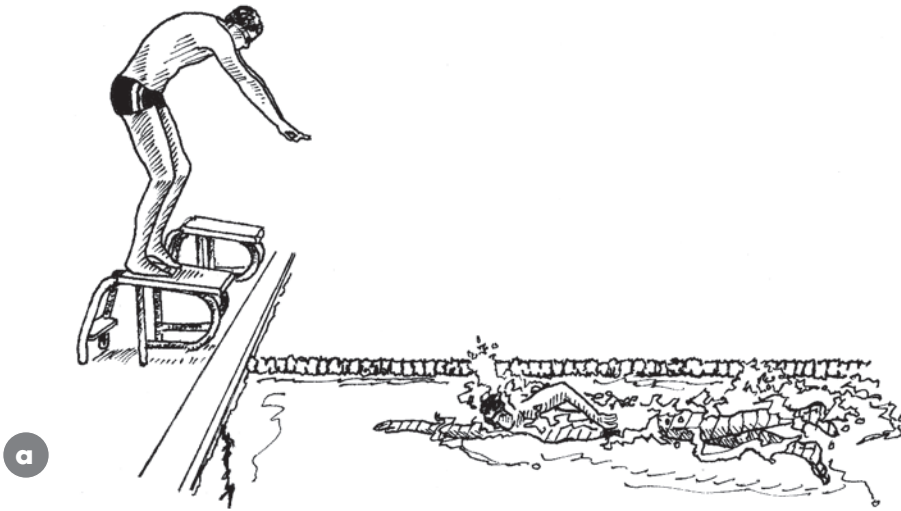
1. Set up on the blocks by standing at the back of the block.
2. Practice with your teammate sprinting in from about 12 yards (meters) out.
3. As your teammate gets to about 10 yards (meters) away, extend your arms forward so that your arms are directed at your teammate's head (*a*).
4. Continue to follow your teammate with your eyes and your arms. Bend over as your teammate approaches.
5. When your teammate is one stroke away from touching the wall, start to take a double-arm backstroke.
6. As your arms rise at the start of the stroke step forward with the first foot, and as the arms complete the double-arm backstroke step forward with the second foot so that both feet are at the front of the block as you dive in (*b*).
7. Then quickly throw your arms into streamline as you launch off the blocks and into your dive (*c*).

Focus Points

- For the relay exchange to be legal, your toes must still be touching the blocks when your teammate touches the wall. If your feet have left the block when your teammate touches, your relay will be disqualified
- Practice the timing with your teammates in the order that you will be swimming in the race.

Tip

Practice this drill with a coach on the side who can tell you whether your exchanges are legal or not. The coach can also let you know whether you need to make your exchange sooner.



121 BACKSTROKE START, SETUP, LAUNCH, AND ENTRY

Purpose

To develop the mechanics for an effective backstroke start.

Procedure

Focus on getting your hips up high above the water as you leave the wall.

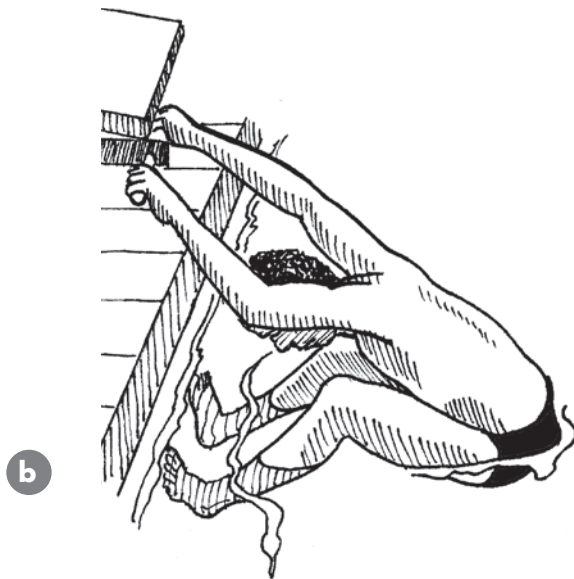
1. To learn to arch your back properly, practice in shallow water (4 to 5 feet [120 to 150 cm] deep). From the wall, push off and immediately perform a back dive into a handstand position. Try to hit the handstand just a few feet (a meter) away from the wall.
2. Next, have someone hold a noodle at the surface about 3 to 5 feet (90 to 150 cm) from the wall (depending on your size). Try to dive backward over the noodle without letting your hips touch it. Immediately reach a streamline position and kick.
3. To set up for the backstroke start, hold on to the gutter. Place your feet on the wall about shoulder-width apart, approximately 2 feet (60 cm) deep (*a*).
4. Keep your hips out, away from the wall; do not tuck them in toward the wall.
5. On the command "Take your mark," bend your elbows and bring your head in toward your hands but keep your hips out and keep your back as straight as you can (*b*).
6. On "Go," push with your hands, throw your hands and head back into streamline, and spring off the wall. Push your hips up above the surface and punch a clean streamline on the entry.

Focus Points

- Set up properly. Keep your hips out, away from the wall.
- Arch your back so that your hips clear the surface.
- Get into a tight streamline right away.

Tip

Practice taking off from the wall with your hands holding the gutter handles before moving up to the handles on the blocks.



122 BACKSTROKE START

Purpose

To add the backstroke breakout to the launch and entry.

Procedure

Having a strong dolphin kick for the underwater work in this start is an advantage. The rules prohibit traveling more than 15 meters underwater, so you'll need to come up sooner than that distance.

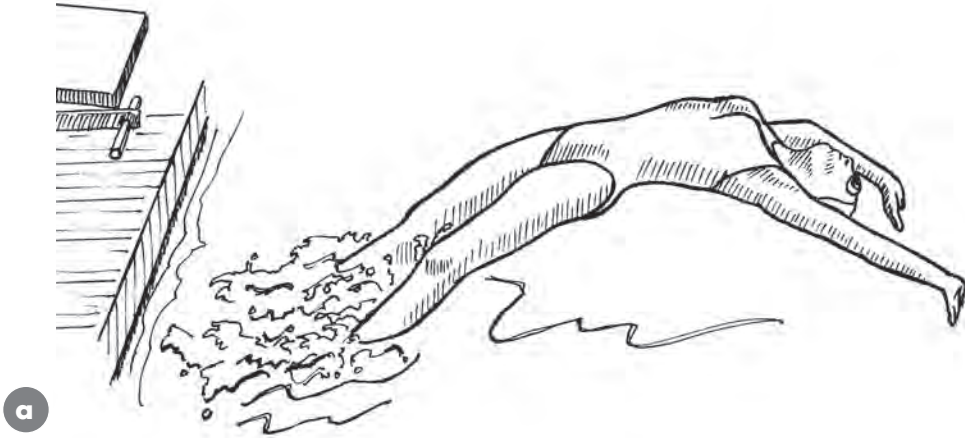
1. Set up on the wall with your hands holding the gutter or the handles of the blocks.
2. On the command "Take your mark," bend your elbows and bring your head in toward your hands but keep your hips out.
3. On "Go," release your hands, throw your head back, and spring off the wall. Push your hips up above the surface and punch a clean streamline on the entry (*a*).
4. Kick for a count of at least eight (*b*) and then pull one arm down to your side to begin the backstroke arm action (*c*).
5. Control your depth so that you break the surface just as you finish your first arm pull.
6. Complete about three strokes.

Focus Points

- Perform a clean entry.
- Control your depth.
- Hold a tight streamline for a count of eight or more while kicking.
- Pull only one arm down first before starting your backstroke.

Tip

After you master this drill with the flutter kick, you should add dolphin kicking in the streamline position and try to get a lot more distance and speed. Generally, five to eight dolphin kicks are ideal, but be sure to control your depth. Remember, you cannot travel more than 15 meters underwater.



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Freestyle and Backstroke Turns

Approximately one-quarter of a race involves starts, turns, and finishes. These maneuvers require skill, precision, and speed. Even small errors in execution can separate the champion from the average swimmer. Swimmers must consistently practice good starts, turns, and finishes.

These drills teach you how to

- perform a proper flip (somersault) for both the freestyle and backstroke turns,
- control your breathing while approaching the wall on the freestyle turn,
- approach the wall smoothly and accurately for the backstroke turn, and
- land your feet properly at the wall and push off to a streamline position.

This chapter addresses the most frequently performed turn, the freestyle turn, as well as the most troublesome turn, the backstroke turn. The following drills provide a systematic approach to mastering the fundamentals of these turns. Spending a fair amount of time to improve and practice these turns is a worthwhile investment. Whether you are an age-group competitor, a national-level competitor, a masters swimmer, or even an open-water swimmer, these turns require a consistent amount of dedicated time in practice.

123 STREAMLINE JUMPS

Purpose

To develop the quickness needed to get into a proper streamline position in preparation for the streamline push-offs from the wall.

Procedure

1. Stand in shallow water at least waist deep, but not more than shoulder deep.
2. Lift your arms so that your hands are at your sides near your shoulders and bend your knees in preparation for a jump (*a*).
3. Jump straight up. As you jump, extend your arms upward into a streamline position (*b*). You should reach the streamline by the time you reach the peak of your jump. Hold the streamline as you land (*c*) and then release.
4. Repeat at least 10 times.

Focus Points

- Jump straight up and as high as you can.
- Work on getting into a perfect streamline quickly.

Tips

- Do this drill facing a partner and have a third person or coach tell you when to jump. Challenge each other to get into the streamline more quickly.
- Stand underneath the backstroke flags if the depth works for you. When you jump, see whether you are going straight up and touching the flags each time.



a



b



c

124 JUMP AND SOMERSAULT

Purpose

To develop speed in performing the somersault and to get a sense of how to somersault more quickly through the air.

Procedure

You should be able to do a basic somersault before attempting this advanced drill. But, it's lots of fun!

1. Stand in shallow water so that you are at least waist deep, but not more than shoulder deep.
2. Bend your knees in preparation for a jump (*a*).
3. Jump straight up. As you jump, drive your head down between your knees as you perform a complete somersault (*b-e*). Try to do the somersault as high out of the water as possible. Land on your feet.
4. Repeat at least 10 times. Be sure to pause between jumps so that you don't get too dizzy!

Focus Points

- Your body will travel faster through the air than it will through the water. Work on having your body somersault through the air as much as possible.
- The faster your body flips over, the better.

Tip

Do this drill while facing a partner and have a third person or coach tell you when to jump. Have plenty of space between you and your partner. Challenge each other to go faster.



125 PUSH-OFF AND SOMERSAULT

Purpose

To develop control of the body position going into the turn and to use the head and abdominals in performing the flip

Procedure

Before beginning this drill, you may want to review the Gliding in Streamline drill in chapter 1.

1. Start at the wall with one hand on the wall, ready to push off.
2. Push off the wall at the surface on your front. Your nose should be down and your arms should be down at your sides (*a*). Travel along the surface for 4 to 5 yards (meters).
3. Using your head to start the action, drive the head down and under you to perform a complete somersault (*b-e*).
4. Come to a stop and breathe.
5. Return to the wall and repeat as necessary.

Focus Points

- Absolutely do not lift your head to breathe until after you complete the somersault.
- Drive your head down quickly to start the somersault. Your somersault should be in a fairly tight tuck position. Do the somersault as high as possible so that your body travels mostly through the air rather than through the water.

Tip

As you perform the somersault, exhale and squeeze the abdominals.

a



b



c



d



e



126 ONE-ARM EXTENSION AND FLIP

Purpose

To develop the next step in the sequence—performing the flip starting from an extended position.

Procedure

This drill is the same as the previous one except that you extend one arm.

1. Start at the wall with one hand on the wall, ready to push off.
2. Push off the wall at the surface on your front. Your nose should be down, one arm should be extended forward, and the other arm should be down at your side (*a*). Travel along the surface for 4 to 5 yards (meters).
3. Using your arm to start the action, pull the arm and head down and under you to perform a complete somersault (*b–e*).
4. Come to a stop and breathe.
5. Return to the wall and repeat as necessary. Switch arms.

Focus Points

- Absolutely do not lift your head to breathe until after you complete the somersault.
- Drive your arm and head down quickly to start the somersault.
- Drive the arm and head at the same time. Avoid the common pitfall of pulling the arm first and then driving the head
- Keep plenty of lift and speed!

Tip

As you perform the somersault, exhale and squeeze the abdominals.

a



b



c



d



e



127 PLUS KICKING

Purpose

To develop the next step in the sequence—adding the flutter kick

Procedure

This drill is the same as the previous one except that you add the flutter kick

1. Start at the wall with one hand on the wall, ready to push off.
2. Push off the wall at the surface on your front. Your nose should be down, one arm should be extended forward, and the other arm should be down at your side. Kick along the surface for 5 to 6 yards (meters) (*a*).
3. Using your arm to start the action, drive the arm and head down and under you to perform a complete somersault (*b-e*).
4. Come to a stop and breathe.
5. Repeat, going back toward the wall. Switch arms.

Focus Points

- Absolutely do not lift your head to breathe until after you complete the somersault.
- Drive your arm and head down quickly to start the somersault.
- Drive the arm and head at the same time. Avoid the common pitfall of pulling the arm first and then driving the head. Keep kicking all the way into the somersault.
- Keep plenty of lift and speed!

Tip

As you perform the somersault, exhale and squeeze the abdominals.

a



b



c



d



e



128 PLUS THREE STROKES, PLUS THREE-COUNT STRETCH

Purpose

To develop the next step in the sequence—adding freestyle swimming before the flip

Procedure

This drill is the same as the previous one, except that you add three freestyle strokes and a three-count hold. The three-count hold, with kicking, is important to setting up a stretched position before the turn. When the body is stretched, it is higher and therefore able to flip more through the air, which translates to more speed.

1. Start at the wall with one hand on the wall, ready to push off.
2. Push off the wall at the surface on your front. Your nose should be down. Swim three strokes of freestyle, counting each time your hand enters the water as one (*a*). Then, hold the extended position and kick along the surface for a count of three (*b*).
3. Using your arm to start the action, drive the arm and head down and under you to perform a complete somersault (*c–f*).
4. Come to a stop and breathe.
5. Repeat, going back toward the wall. Switch arms.

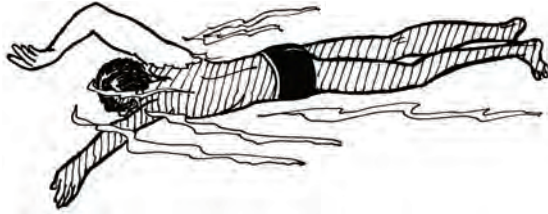
Focus Points

- Absolutely do not lift your head to breathe until after you complete the somersault.
- Be completely stretched out on the surface after your three strokes.
- Drive your arm and head down quickly to start the somersault.
- Drive the arm and head at the same time. Avoid the common pitfall of pulling the arm first and then driving the head. Keep kicking all the way into the somersault.
- Keep plenty of lift and speed!

Tip

As you perform the somersault, exhale and squeeze the abdominals.

a



b



c



d



e



f



129 BACKSTROKE BREAKOUT

Purpose

To develop the next step for flip turns and to teach the proper method of beginning the backstroke after a start or turn.

Procedure

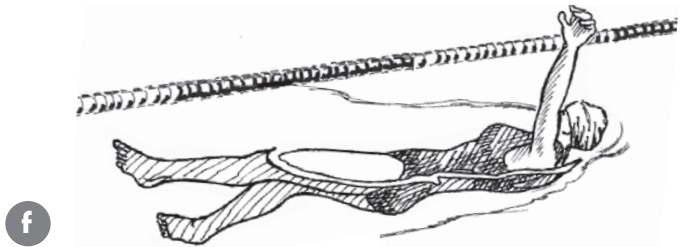
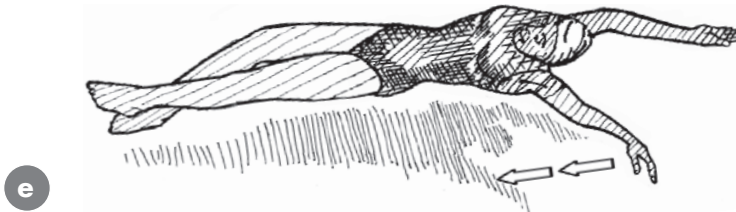
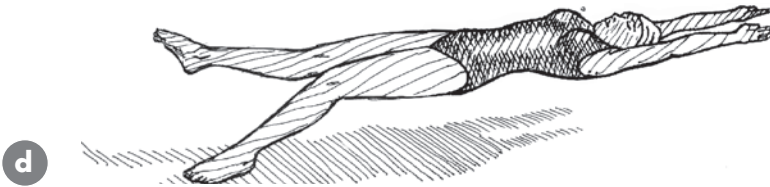
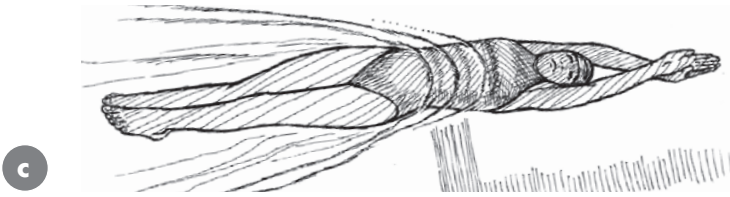
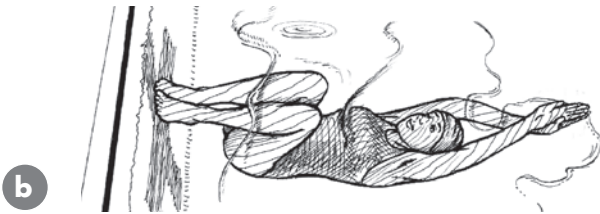
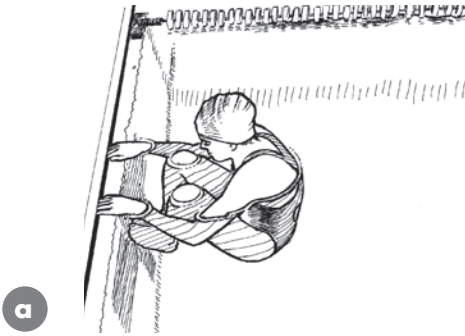
1. Start by pushing off the wall underwater in a streamline position on your back, about 2 feet (60 cm) deep (*a-c*). As you clear the wall, begin a flutter kick (*d*).
2. Kick for a count of at least eight and then pull one arm down to your side to begin the backstroke arm action (*e*).
3. Control your depth so that you break the surface just as you finish your first arm pull (*f*).
4. Complete about three strokes.
5. Repeat.

Focus Points

- Control your depth.
- Hold a tight streamline for a count of eight or more while kicking.
- Pull only one arm down first before starting your backstroke.

Tip

After you master this drill with the flutter kick, you can add dolphin kicking in the streamline position and try to get a lot more distance and speed. But, be sure to control your depth. The dolphin kick is used mostly with the butterfly and the backstroke start, but it is also effective for some swimmers in the free-style push-off.



130 FOOT TOUCH

Purpose

To develop the next step for the flip turn. This drill reinforces breathing control on the approach and teaches accurate landing of the feet at the wall.

Procedure

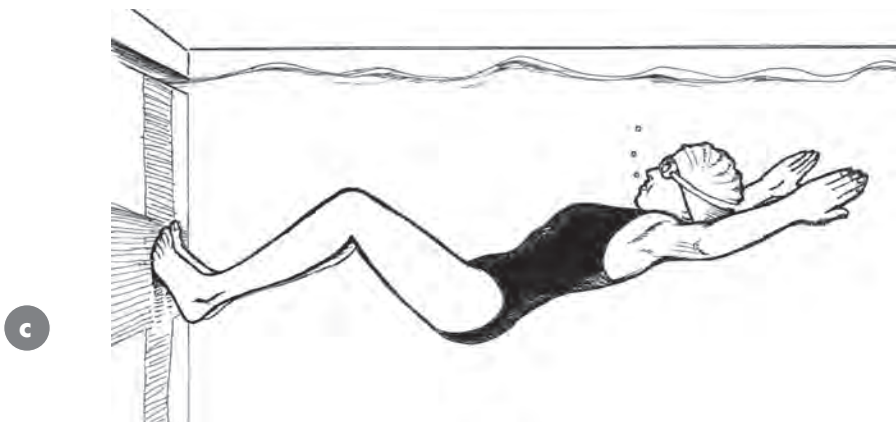
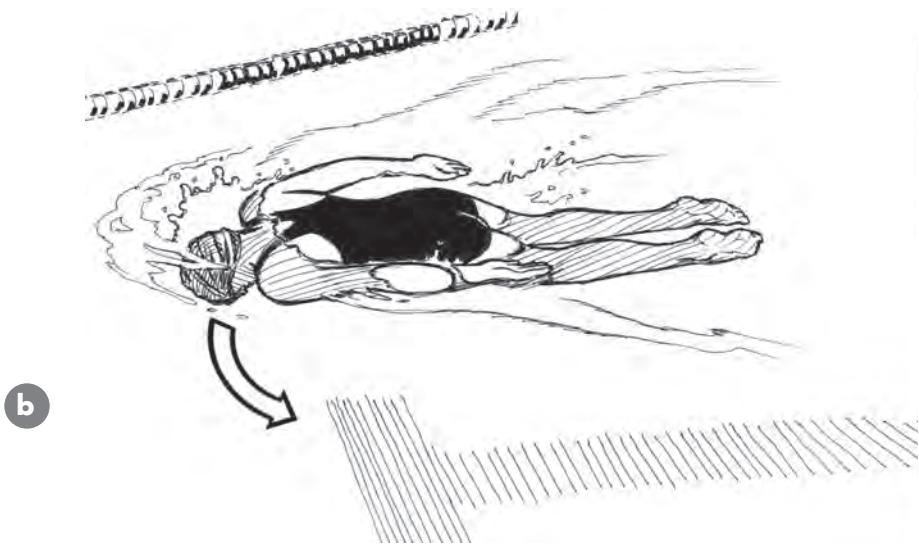
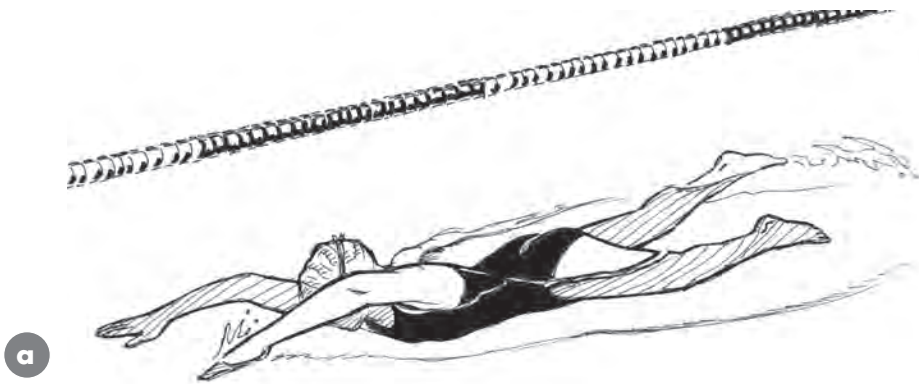
1. Begin about 10 to 12 yards (meters) from the wall. Swim freestyle toward the wall (*a*). Control your breathing from the flags (5 yards [meters]) on in.
2. When you are at least two strokes from the wall, perform your somersault and land your feet on the wall about 1 foot (30 cm) below the surface (*b*). If you are too far away, continue to repeat the approach and gradually turn closer to the wall until you find the right distance for your turn.
3. Do not push off; just land your feet. You should be able to look at your feet while underwater to see where they land on the wall.
4. When your feet land properly on the wall, your body will be in a lounge chair position underwater (on your back with the hips and knees slightly bent) and your hands will be just above your head. Your feet will land about 1 to 2 feet (30 to 60 cm) deep, depending on your size (*c*). (If you are smaller, your feet will be higher; if you are larger, your feet will be lower.)

Focus Points

- Control your breathing so that you can focus on the wall.
- Perform a quick, high flip
- Look to see where your feet land.

Tip

Master the ability to pull through the turn with either arm.



131 FREESTYLE TO BACKSTROKE TURN

Purpose

To practice the proper mechanics of the turn and work on achieving the greatest speed possible. This important drill should be practiced frequently.

Procedure

Now you combine the approach, the foot touch, and the backstroke breakout to perform a freestyle to backstroke turn. This important drill will help you learn to control your approach, push-off, and, eventually, speed. Practice doing it correctly several times before you try to increase your speed.

1. Swim freestyle to the wall with proper breath control (*a*).
2. Perform your flip and land your feet on the wall, just as you did in the Foot Touch drill (*b*).
3. Push off underwater into the streamline position (*c*) and start your backstroke breakout (*d*).

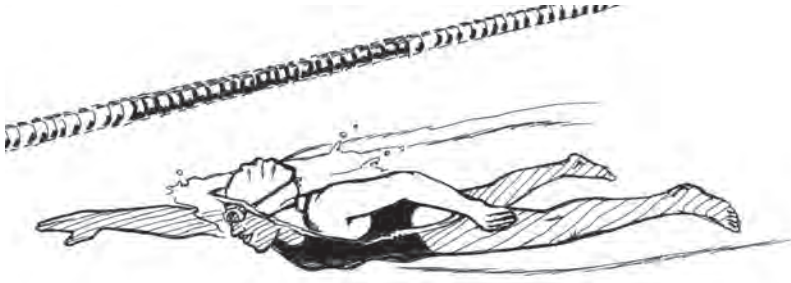
Focus Points

- Be in control.
- Look to see where you land before you push off.
- Don't rush it. Practice being accurate first

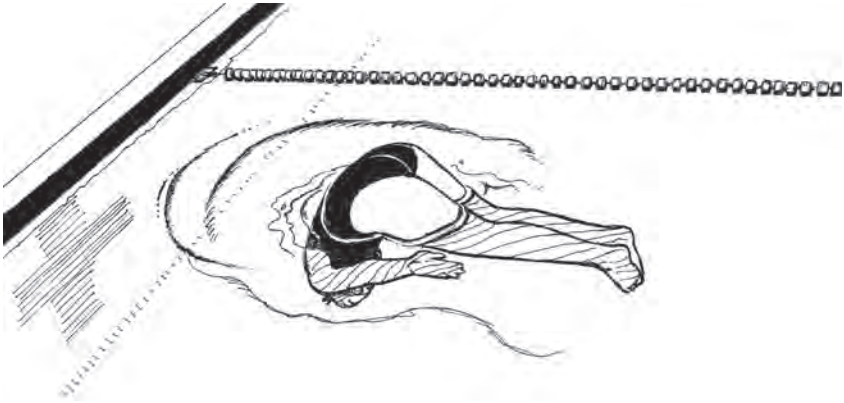
Tip

After you master the mechanics of this drill and consistently place your landing correctly, try to anticipate the wall and begin to push off just before your feet land. This way you will punch off the wall quickly, which will help you develop the fastest turn possible.

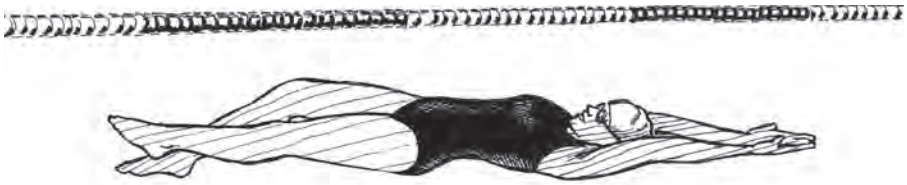
a



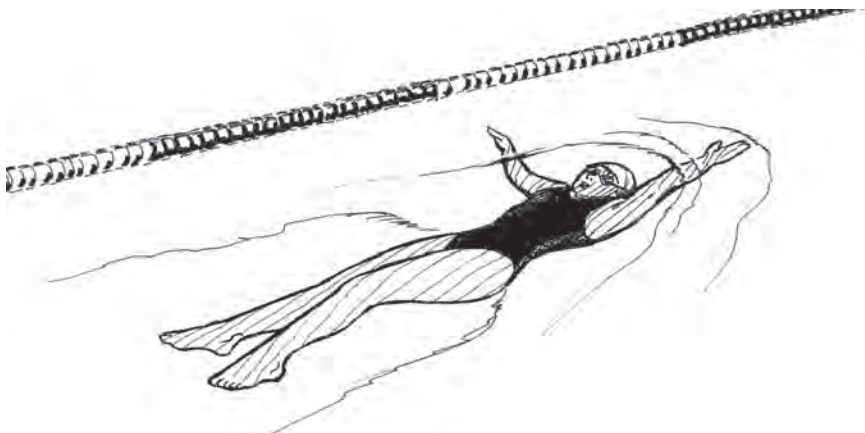
b



c



d



132 CORKSCREW FREESTYLE BREAKOUT

Purpose

To develop the next step for the freestyle flip turn by teaching an effective method for getting off the wall with the fastest mechanics possible.

Procedure

1. Start by pushing off the wall underwater in a streamline position on your back, about 2 feet (60 cm) deep. As you clear the wall, begin a flutter kick (*a-c*).
2. Kick for a count of four while holding the streamline position on your back. Then, still holding the streamline, begin to corkscrew (a one-quarter twist) slowly to your side while counting another four (*d-f*). Then, start to come to the surface and pull the lower arm down in a freestyle stroke as your body rotates to your front.
3. Control your depth so that you break the surface just as you finish your first arm pull.
4. Complete about three strokes of freestyle.
5. Repeat.

Focus Points

- Control your depth.
- Hold a tight streamline for a count of four on your back and for another count of four as you corkscrew while kicking.

Tip

After you master this drill with the flutter kick, you can add dolphin kicking in the streamline position and try to get a lot more distance and speed, but be sure to control your depth. The dolphin kick is used mostly with the butterfly and the backstroke start, but is also effective for some swimmers in the freestyle push-off. You may want to use a combination of a few dolphin kicks followed by flutter kicking



a



b



c



d



e



f

133 FREESTYLE TURN WITH KICKBOARD

Purpose

To learn how to finish the turn in streamline for the freestyle and backstroke turns.

Procedure

The rules do not require you to be on your front when you leave the wall. Because twisting on the wall slows the turn, this drill focuses on finishing in the streamline body position before you push off the wall. Review the Freestyle to Backstroke Turn drill.

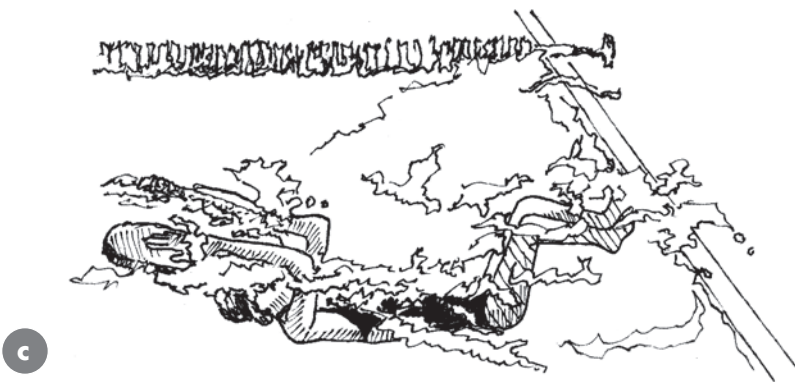
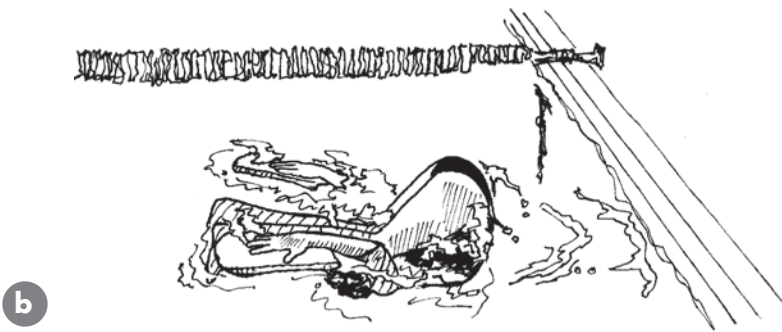
1. Start out about 10 to 12 yards (meters) from the wall.
2. Hold two kickboards at the sides of your hips, one in each hand, with the palms facing down (*a*).
3. Perform your flip and land your feet on the wall (*b, c*). Do not push off.
4. As you flip, do not move the boards. They will start at the hip at the beginning of the flip. By not moving them at the end of the flip, they will end up above your head.
5. This drill is only for practicing the setup of the streamline when finishing the flip. You do not need to push off to do this drill correctly.

Focus Points

- Keep the boards still and in position as you perform the flip
- Finish the flip with the arms extended above your head to simulate the streamline.
- Be sure to finish the flip on the back. This drill can be used for both freestyle and backstroke.

Tip

Focus on the mechanics first. You do not need to perform this drill quickly.



134 FREESTYLE TURN

Purpose

To complete the process for the freestyle turn.

Procedure

The rules do not require you to be on your front when you leave the wall. Because twisting on the wall slows the turn, this drill focuses on rotating the body after the push-off from the wall during the streamline portion of the turn. Review the Freestyle to Backstroke Turn drill.

1. Start out about 10 to 12 yards (meters) from the wall.
2. Swim freestyle to the wall with proper breath control (*a*).
3. Perform your flip and land your feet on the wall (*b, c*).
4. Push off underwater into a streamline position on your back (*d, e*).
5. Kick for a count of four while holding the streamline position on your back. Then, still holding the streamline, begin to corkscrew (a one-quarter twist) slowly to your side while counting another four (*f*). Then start to come to the surface and pull the lower arm down in a freestyle stroke as your body rotates to your front (*g*).
6. Control your depth so that you break the surface just as you finish your first arm pull.
7. Complete about three strokes of freestyle.

Focus Points

- Push off while still on your back.
- Rotate your body after you clear the wall, not while on the wall.

Tips

- Focus on the mechanics first before trying to increase your speed.
- Try to control your breathing for the first two or three strokes after your turn as well.
- Advanced: Add a few quick dolphin kicks as you come off the wall in your streamline. The best swimmers are able to get several kicks in this position to add speed before they start their stroke.



a



b



c



d



e



f



g

135 BACKSTROKE FINISH

Purpose

To teach you a safe method to determine the stroke count from the flags to the wall for the backstroke finish. This stroke count is important for both the finish and the turn.

Procedure

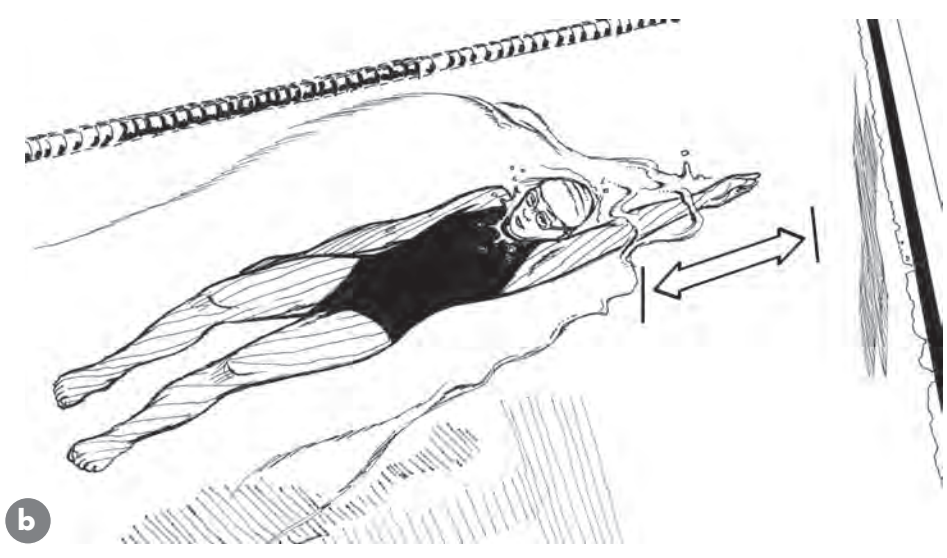
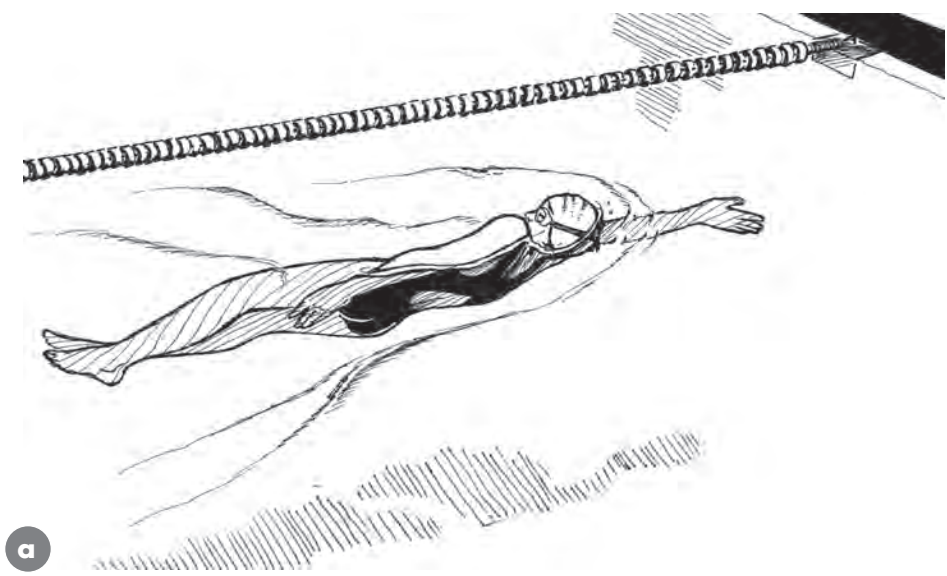
1. Start at the middle of the pool. Swim backstroke at full speed toward the wall.
2. Just as you pass directly underneath the backstroke flags, begin to count your strokes. At first, take just two strokes past the flags and then kick in the rest of the way, with your arm extended (*a*).
3. Finish by letting your hand touch the wall with your fingers pointing down. Bend the elbow of the up arm just a little as you kick in on your last stroke (*b*). You should not have to look back for the wall at all. Just focus on the flags and your stroke count.
4. If you have plenty of room, add one more stroke the next time. As long as you have a safe amount of room remaining, continue to add one stroke at a time until you reach a safe number of strokes.
5. Be consistent in how you count the number of strokes you take from the flags. Ideally, on your last stroke, your hand will enter the water between 1 and 3 feet (between 30 and 90 cm) from the wall. This finish will be safe.

Focus Points

- Practice this drill at full speed.
- Kick in hard.
- Focus on the flags, not the wall
- Be consistent in how you count your strokes.
- Know your stroke count!

Tips

- Taking fewer, more powerful strokes with lots of strong kicking is better than taking than a greater number of choppy, short strokes. Try to establish the lowest number of strokes with great speed and complete safety.
- Advanced: Try adding a dolphin kick to the last stroke into the wall, but be sure not dive underwater because doing so would result in disqualification



136 CORKSCREW SWIMMING

Purpose

To practice rolling properly onto the abdomen before performing the backstroke flip turn. This action is called corkscrew swimming because you twist and spiral through the water just as a corkscrew twists through a cork.

Procedure

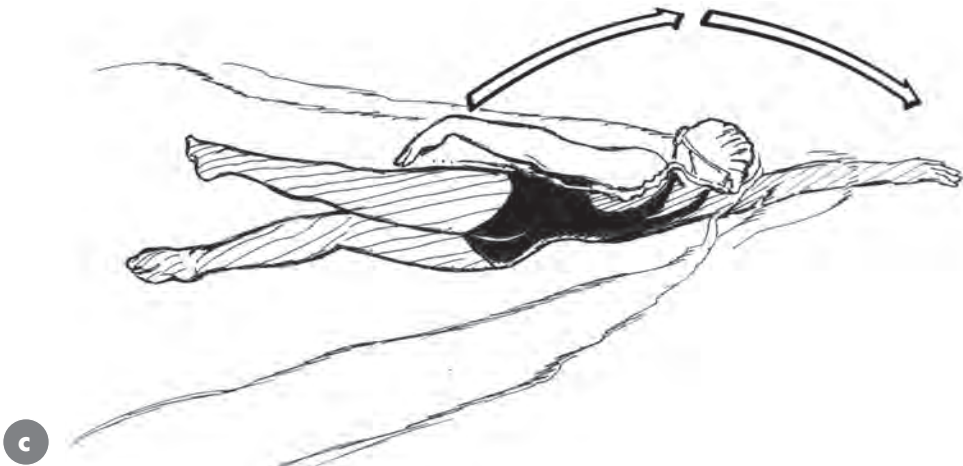
1. Start by swimming one arm stroke of freestyle on your front (*a*).
2. While flutter kicking, turn your head to breathe and keep turning your head and body so that you are on your back (*b, c*).
3. Recover the down arm using a backstroke recovery and pull with the up arm.
4. Continue to turn your head and body in the same direction until you are completely on your front side. This completes one corkscrew stroke.
5. Taking smooth and controlled strokes, swim the corkscrew stroke in one direction for four strokes and then swim the corkscrew stroke in the other direction. Repeat this several times.

Focus Points

- Keep the stroke smooth.
- Keep a steady kick.

Tips

- See how few corkscrew strokes you can take per lap. The fewer you need to do, the better.
- This drill can be used as a game in which swimmers swim an entire lap. They end up pretty dizzy, so it can be fun.



137 BACKSTROKE TURN

Purpose

To complete the process for the backstroke turn.

Procedure

Now you will be able to complete the backstroke turn. Remember what your stroke count is for the backstroke finish. It should be the same total number of strokes that you will take for the turn, but you might need to make a minor adjustment to the number of strokes you take for the turn.

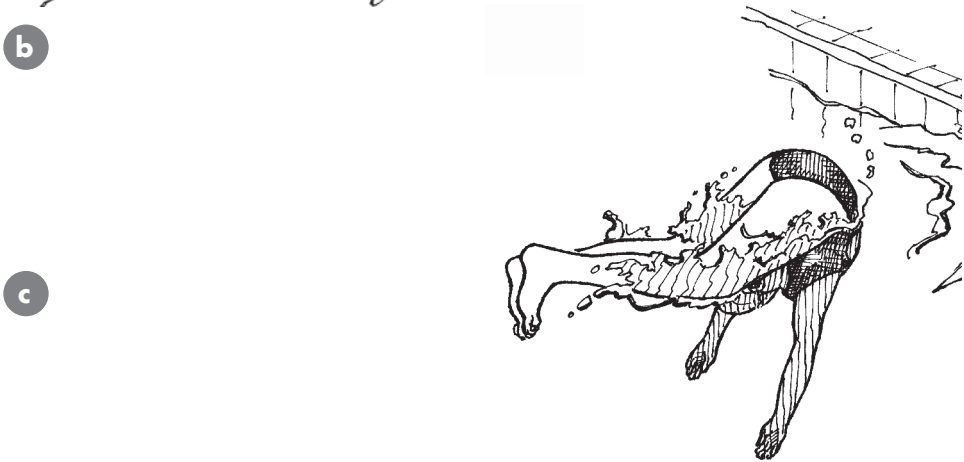
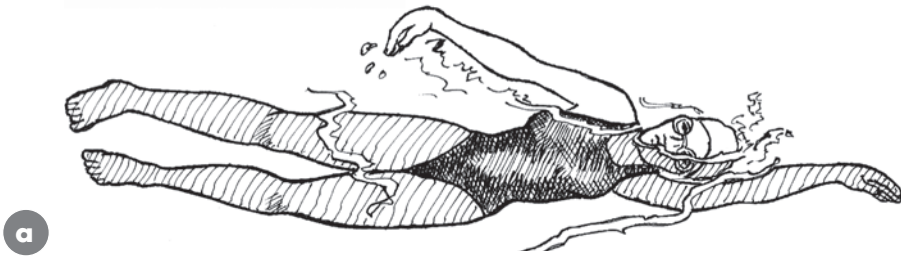
1. Subtract one from your stroke count for the backstroke finish. This number will be the number of backstroke arm strokes you will take from the flags while still on your back
2. After your arm enters the water for the last arm stroke, you roll to that same side. Then, with the other arm, take one corkscrew stroke (freestyle recovery) to get to your abdomen (*a, b*).
3. Now you are in position to do your flip, just as in the Freestyle to Backstroke Turn drill (*c-e*). The total number of strokes for your turn should be the same as for your finish.
4. Practice this drill first in the open water before trying it at the wall. Keep the strokes smooth.
5. If you find that you are consistently too far from the wall, you may need to add a stroke. If you find that you are consistently too close, you should subtract a stroke. After you push off, complete the backstroke breakout.

Focus Points

- Keep a steady stroke rhythm.
- Keep a strong kick.
- Focus on consistency.

Tips

- Roll smoothly and gradually. Remember that the action must be continuous after your shoulders are past the vertical position.
- Advanced: Add a few quick dolphin kicks as you come off the wall in your streamline. The best swimmers are able to do five to eight dolphin kicks in this position to add speed before they break out into their stroke.



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Other Turns and Finishes

Four of the seven turns in competitive swimming require a simultaneous two-hand touch at the wall followed by the turning of the body and a pushing off into the next segment of the race. Many swimmers have difficulty making these complex turns in a smooth manner. You need specific skills to make these turns quickly and efficiently. Mastering certain details and correcting faults can make a significant difference. This chapter addresses the basic mechanics necessary to make these turns effectively and then covers each one specifically.

These drills focus on

- touching and releasing quickly from the wall,
- developing the proper sequence of steps in making an effective turn,
- attaining a streamline position off the wall, and
- finishing into the wall or touch pad in a streamline position.

This chapter also addresses the backstroke to breaststroke turn, which requires only a one-hand touch. Although considerable variation is possible in the execution of this turn, the basic style, the reverse flip, and the new crossover turn are all presented. After you master this approach, you can then consider more advanced styles.

138 BREASTSTROKE FINISH

Purpose

To finish the breaststroke properly.

Procedure

The most common error for this turn is taking more short strokes when approaching the wall instead of taking fewer strokes and performing a strong kick and glide into the wall.

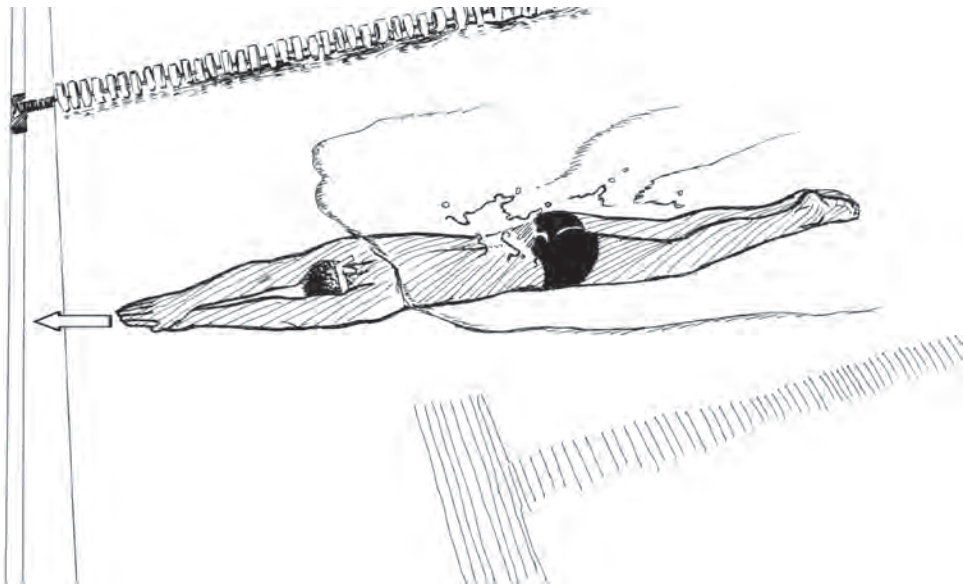
1. Start from 10 to 12 yards (meters) from the wall. Swim breaststroke at full speed toward the wall (*a*). When you reach the flags, try to take fewer strokes to the wall.
2. On the last stroke, get your arms completely stretched out in front of you in a streamline position as you kick and glide into the wall.
3. Drive your head down into the streamline as you finish into the wall. Your fingertips should touch the wall underwater (*b*). Remember that your hands must touch the wall at the same time. Otherwise, you could be disqualified from a race.

Focus Points

- Finish in a streamline.
- Touch the wall underwater.

Tips

- Practice the breaststroke kick underwater while holding a streamline position with your arms. See how far you can glide for each kick.
- Practice kicking into the wall underwater from about 5 to 10 yards (meters) away. Get a feel for how much distance you can cover with each kick.



139 BASIC TWO-HAND OPEN TURN

Purpose

To understand the basic mechanics for the two-hand touch turn. This drill applies to four turns: butterfly to butterfly, butterfly to backstroke, breaststroke to breaststroke, and breaststroke to freestyle.

Procedure

All these turns require you to roll a little to the side after you have touched the wall with both hands together. You should never release both hands from the wall at the same time. You should use a two-step release of the hands. The first hand to release goes underwater; the second hand to release travels over the water. Follow these steps:

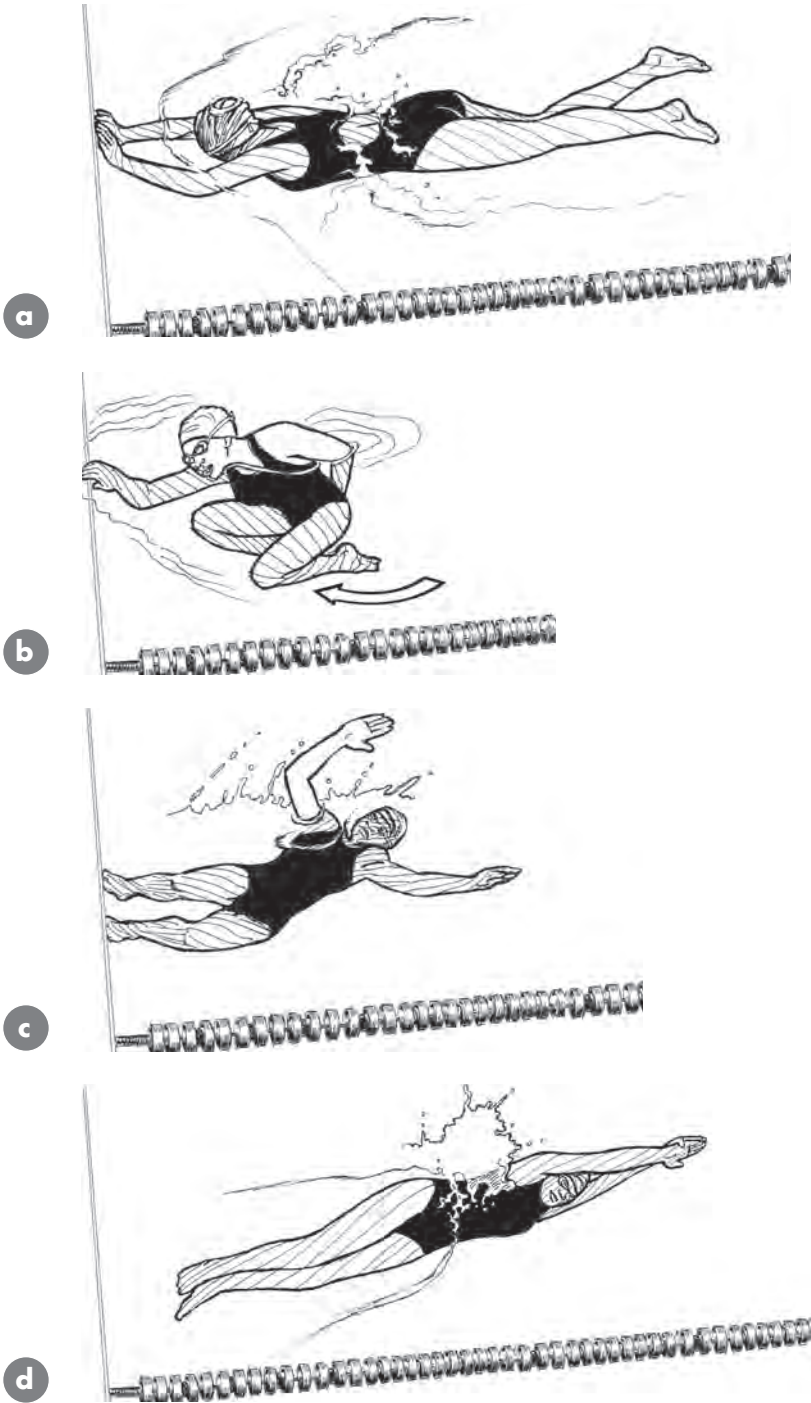
1. Touch the wall with both hands (*a*), bring your knees in under your chest (*b*), and place your feet on the wall.
2. With one arm, pull an imaginary ripcord from the wall and turn to the side. Roll the same shoulder back (*c*).
3. Push your head underwater.
4. Throw the trail arm past your head so that your hands come together (*d*).
5. Push off underwater and streamline.

Focus Points

- Practice the steps slowly and in order.
- On the butterfly to backstroke turn, drive the arm back directly over your head. On the other turns, throw more to the side and in front of your face, similar to a freestyle recovery.
- Remember the pattern: touch, turn, under, throw, push.

Tip

As you increase speed, try to release the first hand as quickly as possible



140 BASIC TWO-HAND OPEN TURN WITH BACKSTROKE PUSH-OFF

Purpose

To develop the basic mechanics of the two-hand touch turn.

Procedure

This drill is only for practice, but it will help you develop the basic mechanics. It is the simplest way to practice the turn mechanics.

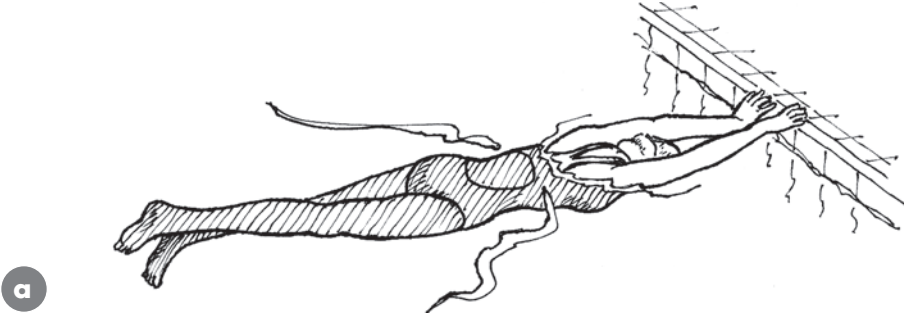
1. Start from 10 to 12 yards (meters) from the wall. Swim breaststroke at full speed toward the wall. When you reach the flags, try to take fewer strokes to the wall.
2. On the last stroke, get your arms completely stretched out in front of you in a streamline position as you kick and glide into the wall (*a*).
3. Drive your head down into the streamline as you finish into the wall. Your fingertips should touch the wall underwater.
4. Touch the wall with both hands, bring your knees in under your chest, and place your feet on the wall (*b, c*).
5. With one arm, pull an imaginary ripcord from the wall and turn to the side. Roll the same shoulder back (*d*).
6. Push your head underwater.
7. Throw the trailing arm past your head so that your hands come together.
8. Push off underwater on your back and streamline (*e*).
9. Kick and do a backstroke breakout.

Focus Points

- Remember the pattern: touch, turn, under, throw, push.
- Remember, the most important part of any turn is the streamline! Make sure you set yourself up to get an excellent streamline push-off.

Tip

As you increase speed, try to release the first hand quickly. Then, try to pounce off the wall into the streamline.



141 BREASTSTROKE PULLOUT

Purpose

To perform a proper breaststroke pullout for the starts and turns. This instruction gives a general guide for good timing in the sequence. A well-executed pullout is a distinct advantage in a race.

Procedure

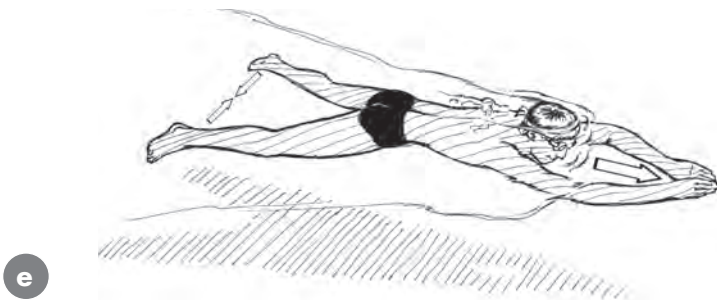
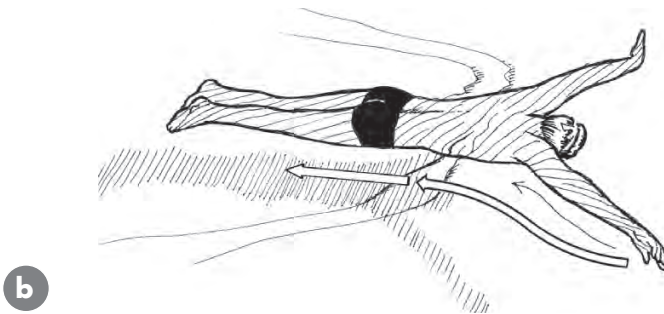
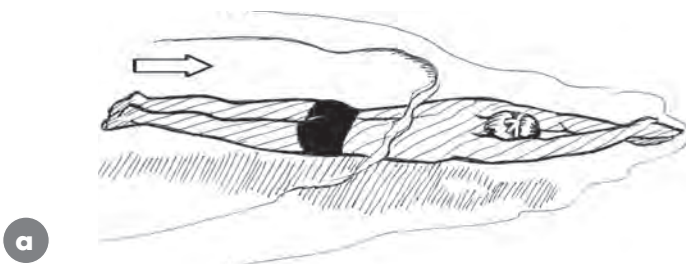
1. Push off the wall on your abdomen, underwater, into a streamline position, facing down toward the bottom (*a*). Hold this position for a count of three.
2. Pull your arms down underneath you until your hands finish on your legs just above your knees. Pull deeply, with your fingers pointing downward (*b, c*). Hold the finish position for a count of two. You should still be facing down.
3. Bring your hands up to your abdomen and bring your heels in to prepare for the breaststroke kick (*d*).
4. Kick your legs and extend your arms directly forward into a streamline position (*e, f*).
5. Hold the streamline position for a count of one.
6. Begin your breaststroke.

Focus Points

- Remember this pattern of gliding: three, two, one.
- Practice all the steps.
- Maintain consistent depth.

Tips

- This turn has several steps. Practice by adding one step at a time.
- For an advanced variation, see how far you can travel underwater when you perform this drill correctly.



142 BREASTSTROKE TURN

Purpose

To perform a proper breaststroke turn. Proper execution is a matter of putting together three parts—the approach, turn, and pullout.

Procedure

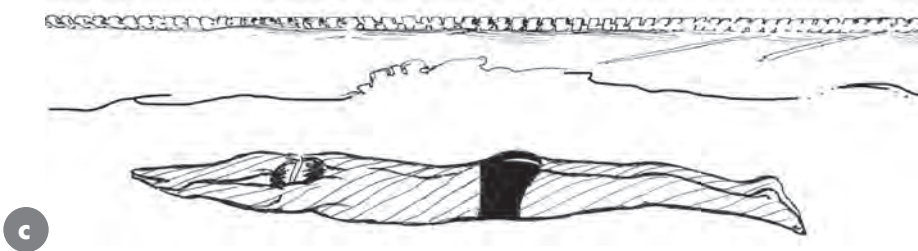
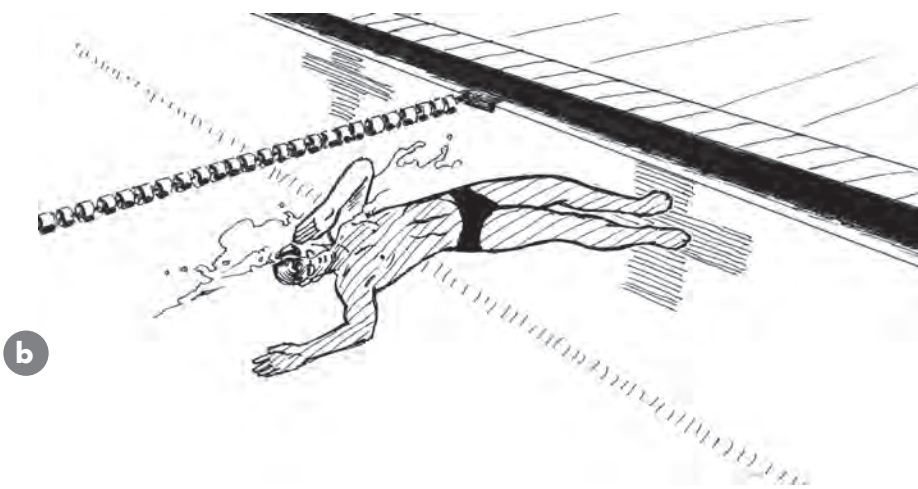
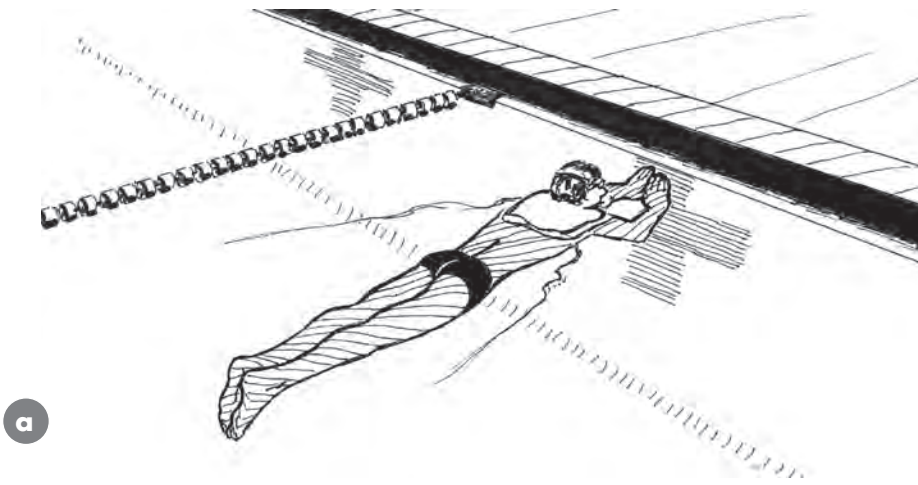
1. Swimming the breaststroke, approach the wall.
2. Unlike with the finish, let your hands touch next to each other on the wall or on the gutter (*a*).
3. Perform the two-hand touch turn. Remember the pattern: touch, turn, under, throw, push (*b*).
4. Hold the streamline position for a count of three and continue the rest of the pullout (*c*).

Focus Points

- Keep your head low on the turn.
- Make your shoulders level before you do the pulldown. Otherwise, the turn is illegal.

Tip

Bring your knees in as fast as you can after you touch to give you a faster turn.



143 BUTTERFLY FINISH

Purpose

To perform a proper finish for the butterfly.

Procedure

Swimmers commonly shorten their strokes as they approach the wall, but taking fewer strokes and kicking in while holding a streamline position is faster.

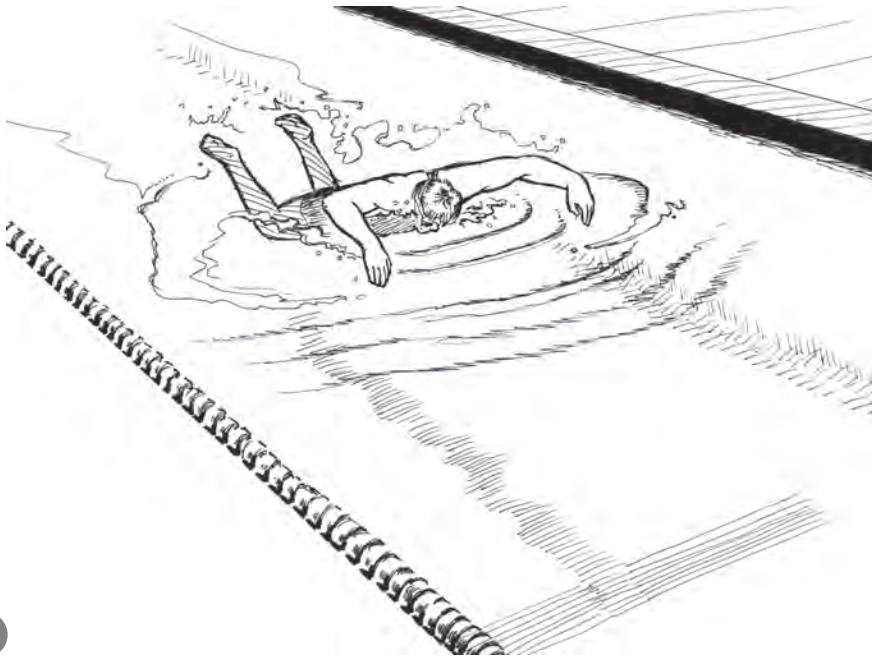
1. Start from 10 to 12 yards (meters) from the wall.
2. Swim the butterfly at full speed toward the wall (*a*). After you get to the flags, try to take fewer strokes to the wall and control your breathing.
3. On your last stroke, get your arms completely stretched out in front of you in a streamline position as you dolphin kick to the wall (*b*).
4. Drive your head down into the streamline as you finish to the wall. Your fingertips should touch the wall underwater. Remember, the hands must touch at the same time. Otherwise, you could be disqualified from a race.

Focus Points

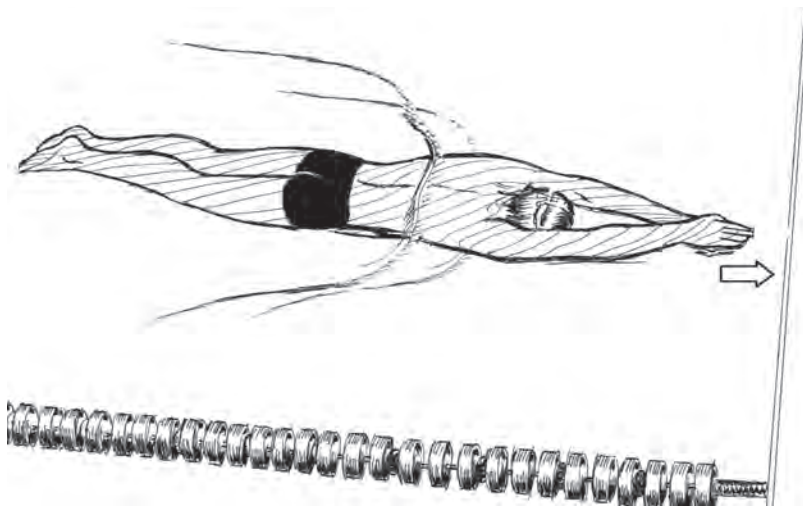
- Finish in a streamline position.
- If you are a little too far to touch right away, kick in.
- Touch underwater.
- Try to take the fewest number of strokes possible for the finish

Tip

If you have to kick in, accelerate your kick to hyperspeed; make it very quick.



a



b

144 BUTTERFLY BREAKOUT DRILL

Purpose

To perform a proper butterfly breakout for the starts and turns.

Procedure

Swimmers often fail to streamline and dolphin kick underwater for a sufficient distance.

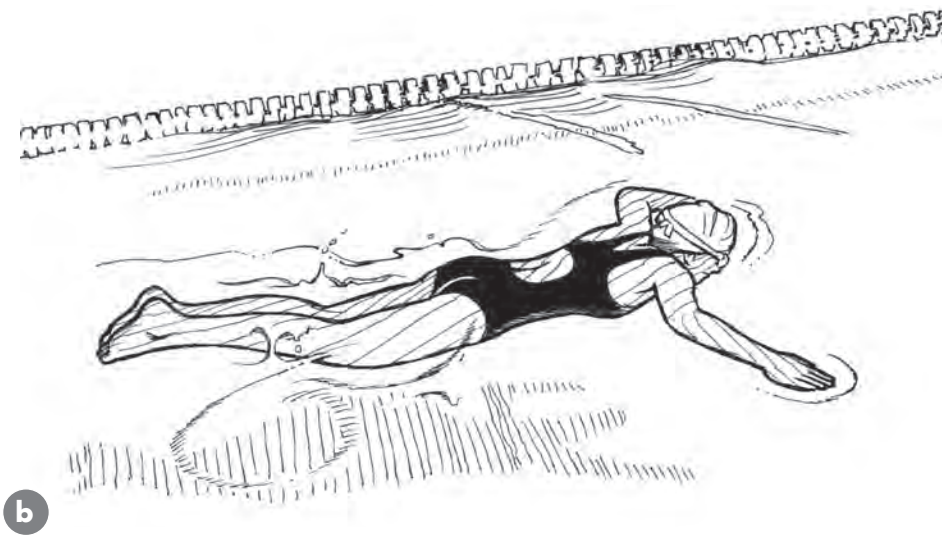
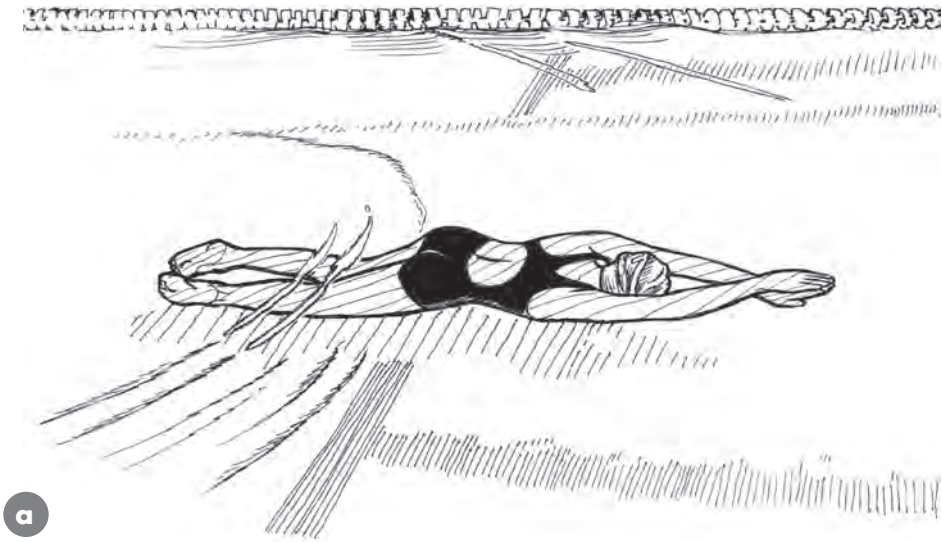
1. Start from the wall. Push off in a streamline position and be sure to control your depth (*a*).
2. As soon as you reach the fully extended streamline, begin to dolphin kick at a quick pace.
3. Get in at least three kicks before beginning your pulling action to start the stroke.
4. Control your depth so that you break the surface just as you finish pulling on the first stroke (*b*). Also, control your breathing for the first two or three strokes.

Focus Points

- Keep a tight streamline.
- Maintain quick kicking.
- Travel 5 to 10 yards (meters) underwater as quickly as you can.

Tip

Practice dolphin kicking underwater in a streamline as far as you can go. Building up your breath control during the breakout will help.



145 BUTTERFLY TURN

Purpose

To perform a proper butterfly turn. You need to put together three parts—the approach, the turn, and the breakout.

Procedure

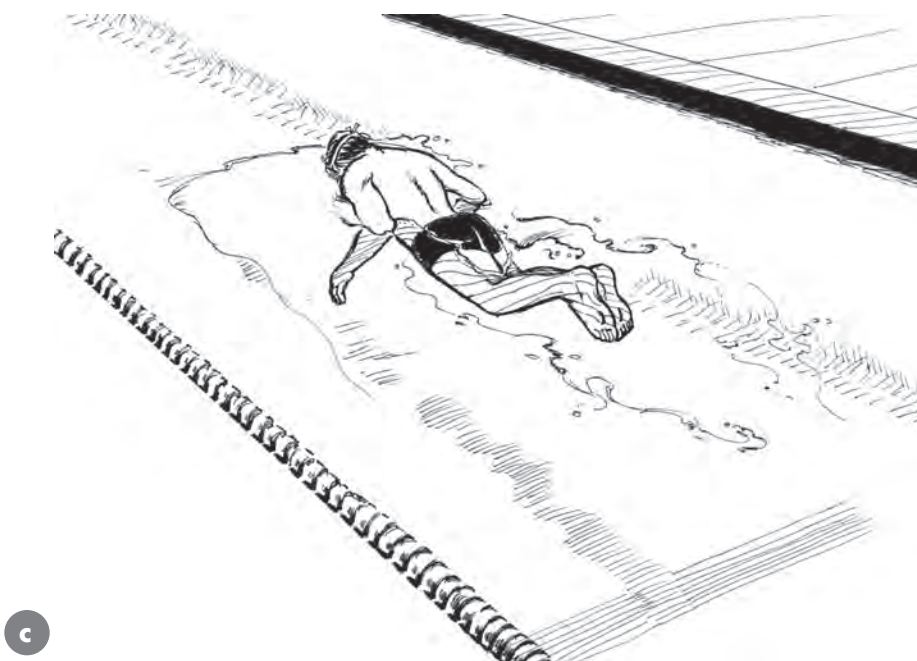
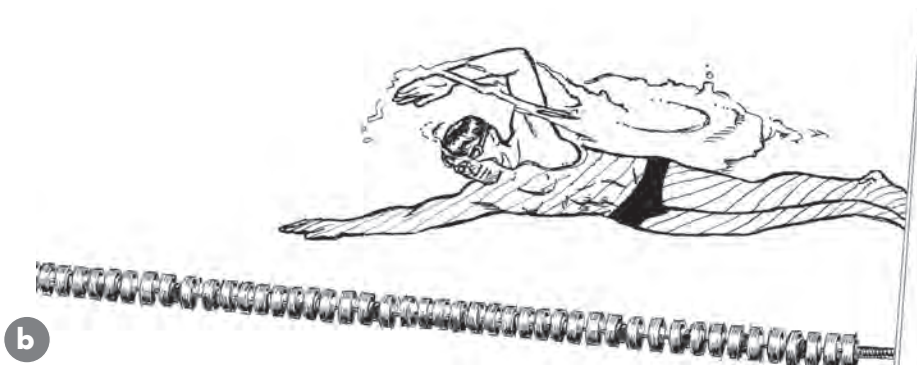
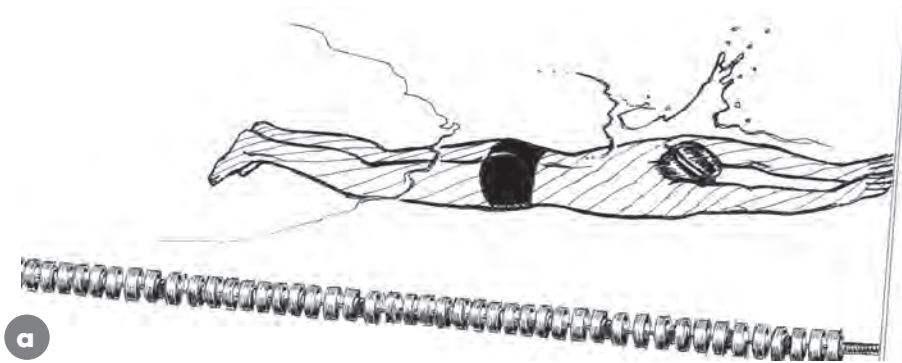
1. Start 10 to 12 yards (meters) from the wall. Swim the butterfly at full speed toward the wall.
2. Unlike with the finish, let your hands touch next to each other on the wall or on the gutter (*a*).
3. Perform the two-hand touch turn (*b*). Remember the pattern: touch, turn, under, throw, push.
4. Get into the streamline position and perform the breakout (*c*).

Focus Points

- Keep your head low on the turn.
- Be sure that your shoulders are level before you do the pulldown on your first stroke. Otherwise, the turn is illegal.

Tip

Bring the knees in as fast as you can after you touch the wall to give you a faster turn.



146 FLY TO BACK TURN

Purpose

To perform a proper butterfly to backstroke turn.

Procedure

The most common error in the butterfly to backstroke turn is releasing both hands from the wall at the same time. The mechanics for the turn are the same as those for the other two-hand touch turns.

1. Start 10 to 12 yards (meters) from the wall. Swim the butterfly at full speed toward the wall.
2. Let your hands touch next to each other on the wall or on the gutter (*a*).
3. Perform the two-hand touch turn (*b*). Remember the pattern: touch, turn, under, throw, push (but this time remember to throw directly overhead). On this turn, the feet do not need to twist on the wall, just the shoulders.
4. Get into the streamline position and perform the backstroke breakout (*c*).

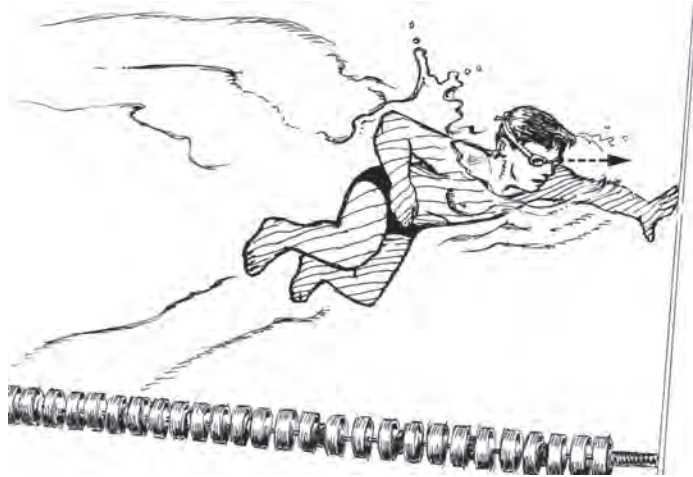
Focus Points

- Keep your head low on the turn.
- Lean your head straight back after the touch.
- Roll your shoulders so that you push off a little on your side.
- Drive the arm back directly over your head.

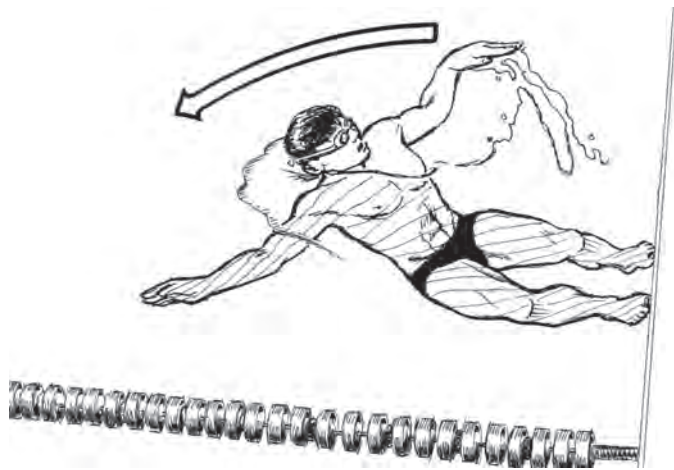
Tips

- Bring your knees in as fast as you can after you touch to give you a faster turn.
- Watch your hand release from the wall and drive over your head.

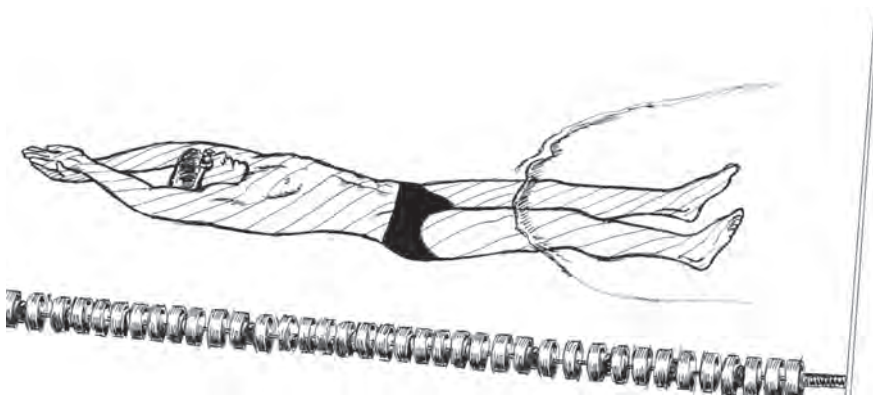
a



b



c



147 BACKSTROKE TO BREASTSTROKE TURN

Purpose

To perform a proper backstroke to breaststroke turn.

Procedure

The backstroke to breaststroke turn has several variations. The open turn, described next, is the simplest, and it is quite effective.

1. Start 10 to 12 yards (meters) from the wall. Swim the backstroke at full speed toward the wall.
2. If there is a gutter, rotate your hand on the final stroke so that your palm is facedown and your thumb extends downward. The fingers will then slide over the gutter wall.
3. Grab the wall with one hand and pull in your feet underneath you so that you can place your feet on the wall (*a*).
4. Drop your head underwater, throw your arm, and streamline into your breaststroke pullout (*b*).
5. If there is no gutter, position your hand on the final stroke so that your fingers are pointing to the opposite side and your thumb is pointing up. Use your hand to push away from the wall as you position your body for the push-off.

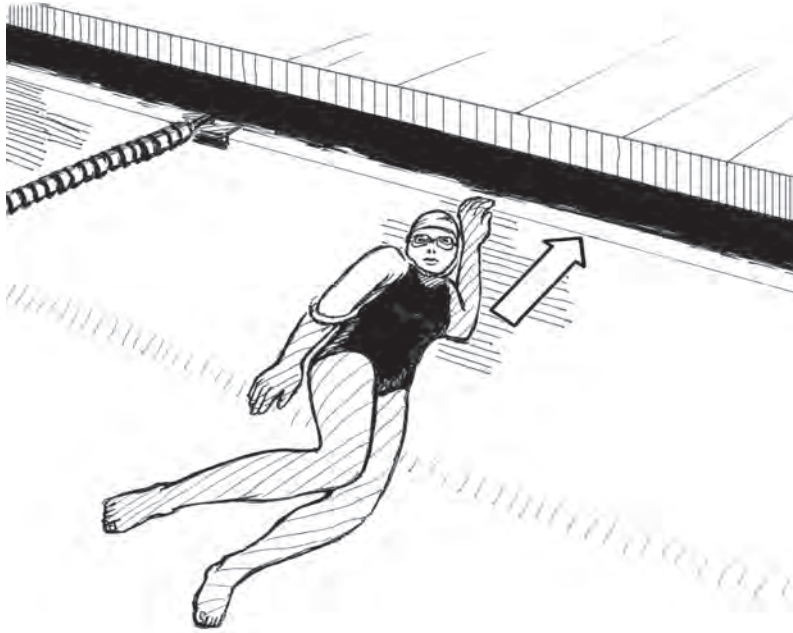
Focus Points

- Keep your head low on the turn.
- Use just one arm to perform the turn.

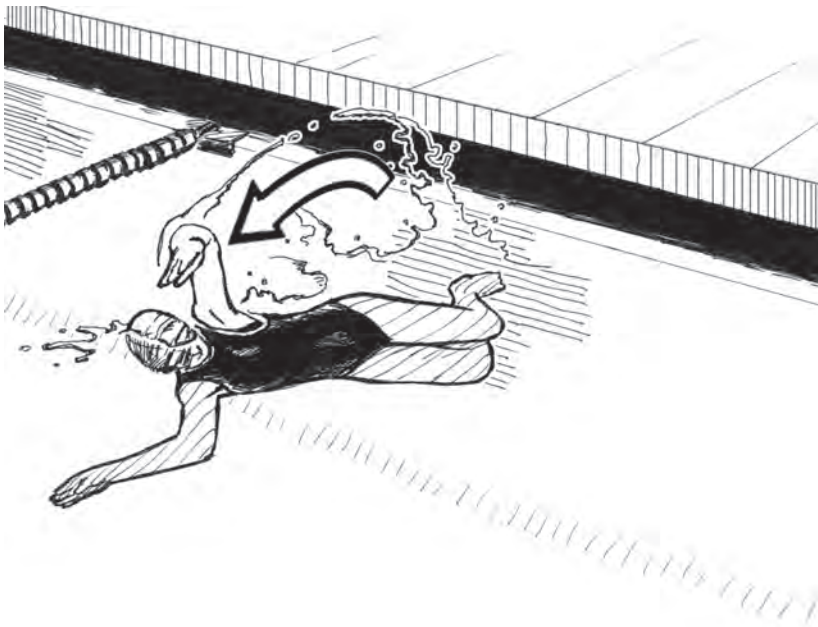
Tips

- Bring your knees in as fast as you can after you touch to give you a faster turn.
- Try not to twist too much on the wall. Being a little on your side is all right; in fact, it is a lot faster. Just remember that your shoulders have to be level by the time you do your pulldown.

a



b



148 ADVANCED BACKSTROKE TO BREASTSTROKE TURN, BACK FLIP

Purpose

To perform the reverse flip turn for backstroke to breaststroke.

Procedure

This advanced turn, if executed properly, can be remarkably faster—usually by 0.8 to 1.1 seconds!

1. Start 10 to 12 yards (meters) from the wall. Swim the backstroke at full speed toward the wall (*a*).
2. On the final stroke, drive the hand down low to place the palm on the wall about 1 or 2 feet (30 to 60 cm) below the surface. Your fingers will be pointing downward. As you take this last stroke, push your head underwater as well.
3. As soon as your hand reaches the wall, push away from the wall and begin to do a reverse somersault in a tuck position, driving the knees in toward the chest (*b*). Flip all the way over to place your feet against the wall. Your body will now be prepared to push off into a streamline (*c*).
4. Push off the wall into a streamline and perform a breaststroke pullout (*d*).

Focus Points

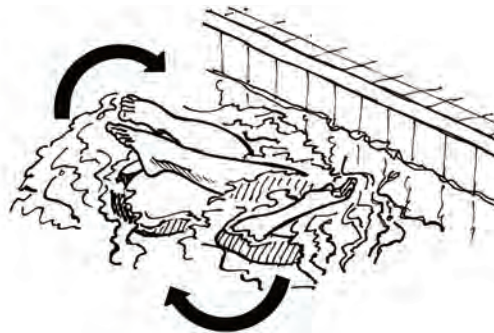
- Drive the hand low on the last stroke of the backstroke so that your hand placement is low enough to aid in the flip
- Get your head underwater on the last stroke.
- Be sure to drive the knees in hard in doing the somersault.

Tips

- Bring your knees in as fast as you can after you touch to give you a faster turn.
- Anticipate the wall after you flip over so that you can punch off the wall quickly.



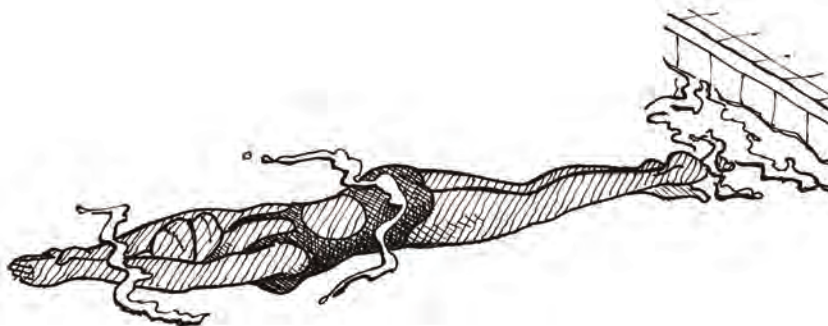
a



b



c



d

149 ADVANCED BACKSTROKE TO BREASTSTROKE TURN, CROSSOVER

Purpose

To perform the crossover turn for backstroke to breaststroke.

Procedure

This advanced turn, if executed properly, can be even faster than the back flip

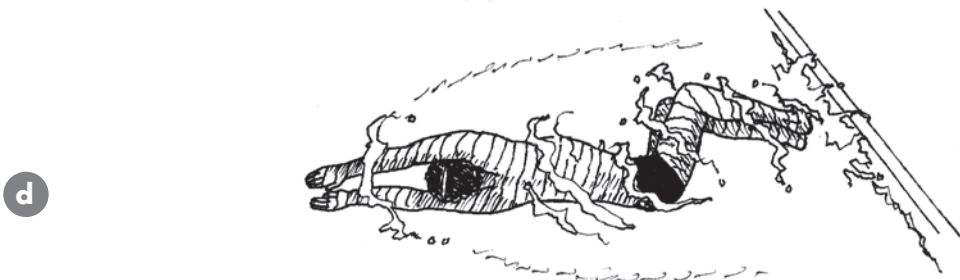
1. Start 10 to 12 yards (meters) from the wall. Swim the backstroke at full speed toward the wall.
2. On the final stroke, reach your hand behind your ear while staying on your back (*a*).
3. As soon as your hand reaches the wall, roll onto your abdomen and begin to do a forward somersault in a tuck position, driving the knees in toward the chest (*b*). Flip all the way over to place your feet against the wall. Your body will now be prepared to push off into a streamline (*c*).
4. Push off the wall into a streamline, roll onto your abdomen, and perform a breaststroke pullout (*d*).

Focus Points

- Stay on your back while reaching behind your ear to touch the wall. This step is the most common time when swimmers make a mistake with this turn.
- Be fully extended when reaching for the wall.
- Be sure to drive the knees in hard in doing the somersault.

Tips

- Flip as fast as you can so that you can push off quickly to perform the flip turn
- Anticipate the wall after you flip over so that you can punch off the wall quickly.
- A common mistake is to flip too close to the wall when doing the forward somersault.



150 BREASTSTROKE TO FREESTYLE TURN

Purpose

To perform a proper breaststroke to freestyle turn.

Procedure

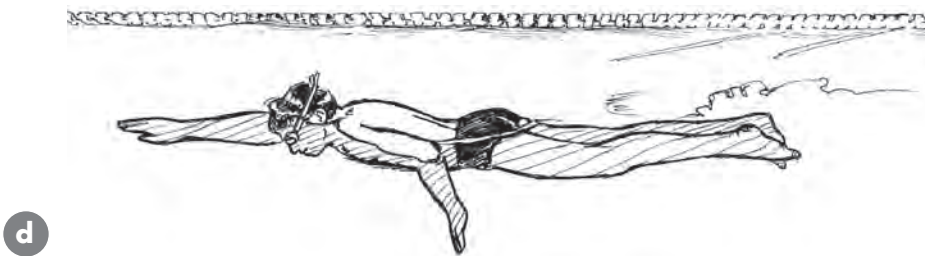
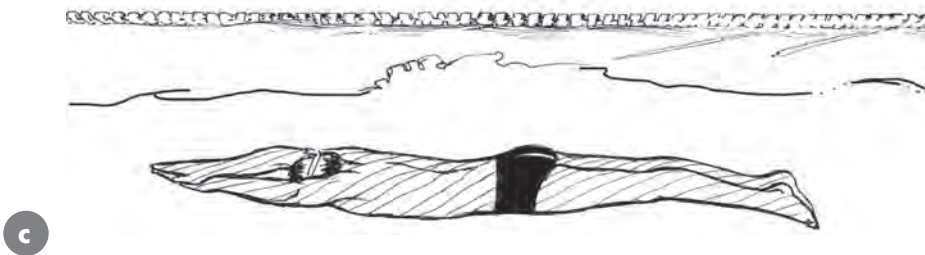
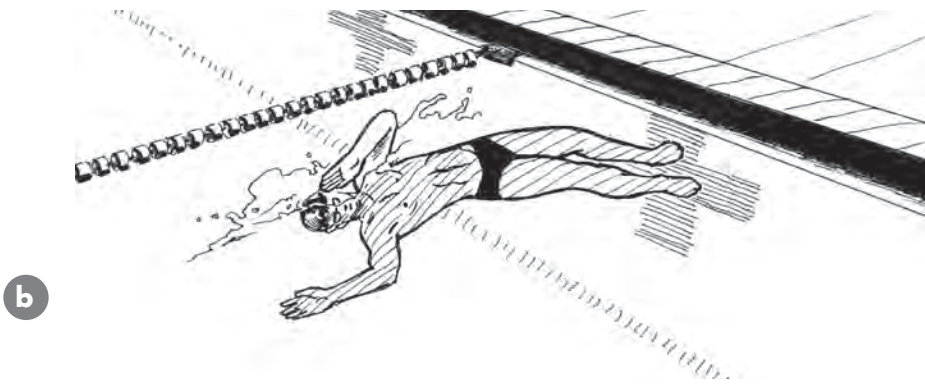
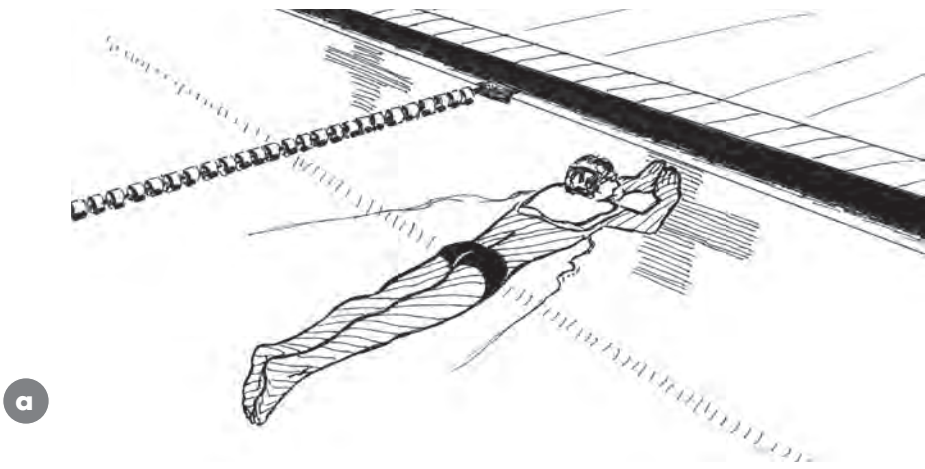
1. Start 10 to 12 yards (meters) from the wall. Swim the breaststroke at full speed toward the wall.
2. Let your hands touch next to each other on the wall or on the gutter (*a*).
3. Perform the two-hand touch turn (*b*). Remember the pattern: touch, turn, under, throw, push. Try to push off mostly on your side.
4. Get into the streamline position and do the freestyle breakout (*c, d*). Control your breathing for at least two strokes.

Focus Points

- Keep your head low on the turn.
- Control your breathing for the first two strokes of the freestyle.

Tips

- Bring in your knees as fast as you can after you touch to give you a faster turn.
- The most common error for this turn is failing to perform a streamline. This turn starts the final leg of the individual medley when most swimmers are tired. A great streamline here yields a distinct advantage.



151 FREESTYLE FINISH

Purpose

To perform a proper freestyle finish

Procedure

The most common errors made by swimmers include breathing inside the last 5 yards (meters), lifting the head before the finish, gliding into the wall, and finishing on top of the wall instead of into the wall or touch pad

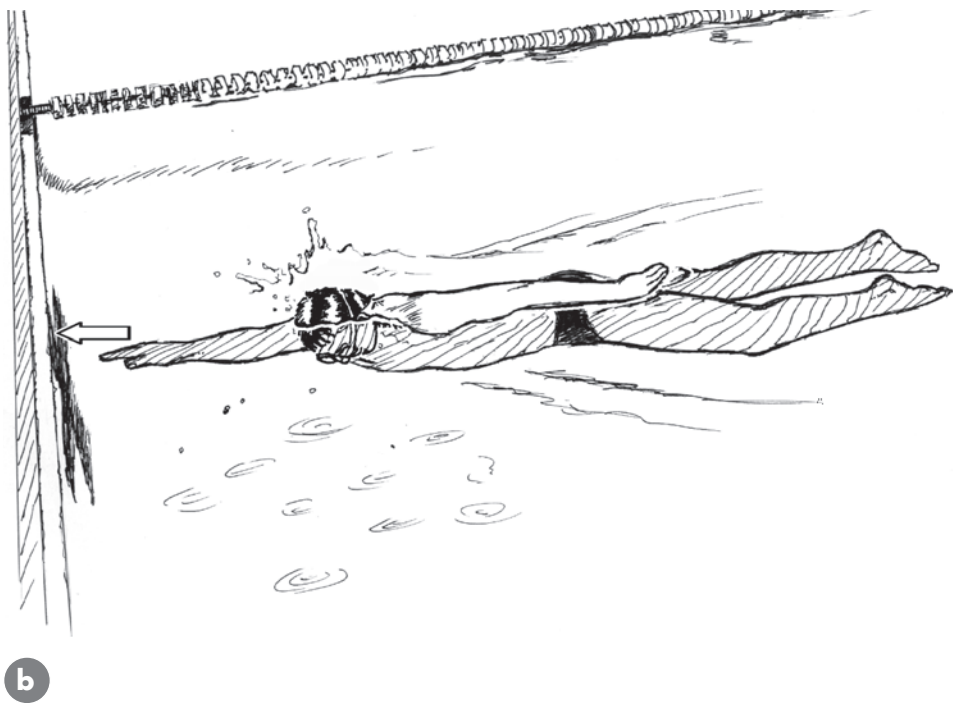
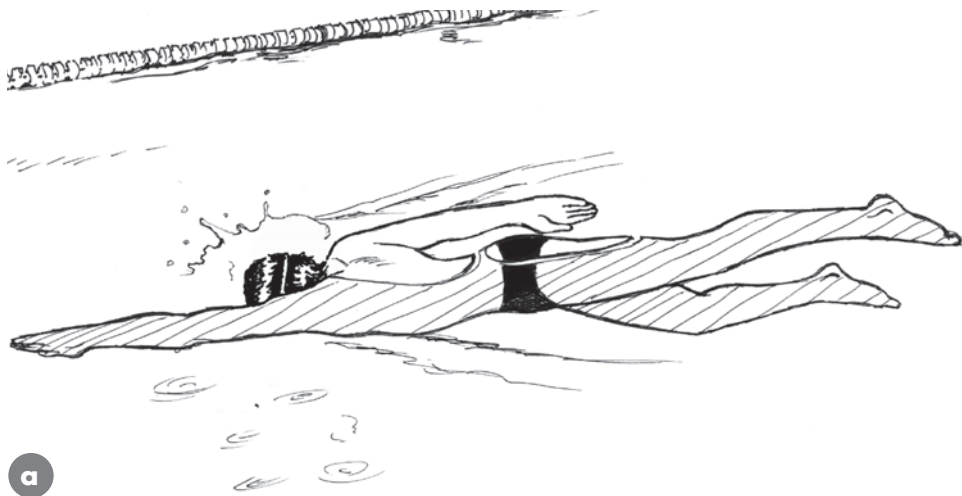
1. Start 10 to 12 yards (meters) from the wall. Swim freestyle at full speed toward the wall.
2. Keep your eyes focused down. Control your breathing from at least the time you pass the flags to the wall.
3. On the last stroke, extend and reach for the wall with one hand touching it underwater. Don't stop kicking. Your fingertips should touch first. Keep your eyes focused down (*a, b*).

Focus Points

- Control your breathing.
- Kick aggressively.
- Touch underwater.
- Keep your head down.

Tip

If you focus on your competitors during the finish, you lose focus on your own finish. Stay focused



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Strength Band Exercises

Sport scientists and coaches of the most successful swimmers recommend that an extensive dry-land program be introduced at the earliest stages of a swimmer's development. Strength training in the beginning of a swimming career is crucially important because it encourages mastering of swimming technique. Strength training has become a powerful way both to develop anaerobic abilities and to strengthen the muscles used during propulsion. A blend of strength and swimming training may be more productive than only swimming.

Strength bands have become popular with swimmers and coaches alike. Bands are versatile. Depending on the type you choose, you can focus on upper-body pulling and pushing exercises to strengthen the muscles around the shoulders, or you can target the underused muscles in the lower body to help improve hip stability. You can even work your entire body as a unit by establishing a link between the lower body, the core, and the shoulders.

Strength band exercises and drills are a great choice for swimmers for several reasons:

- Bands primarily cause you to train in a standing position, meaning that you'll engage more muscle mass and require more core activation than you would with other forms of resistance.
- Bands allow you to train at varying speeds, something that is not always advisable when working with free weights.
- Bands are better suited for adding resistance when attempting to mimic specific stroke mechanics.

Strength bands can be an excellent addition to your dry-land program because they offer convenience and versatility.

152 DRY-LAND SWIMMING

Purpose

To warm up the muscles of the shoulders, particularly the upper back and the rotator cuff, using a swimming-like motion.

Procedure

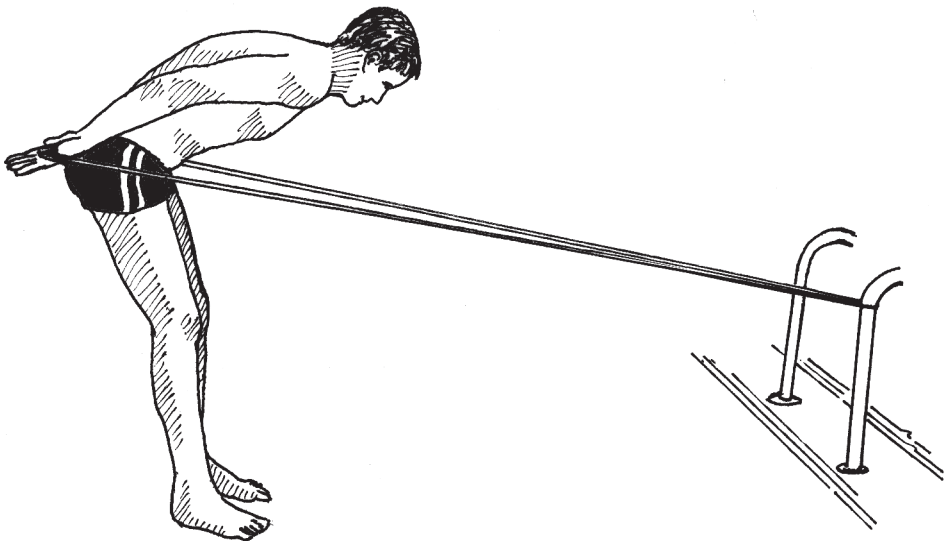
1. Attach a piece of elastic tubing (of low to moderate resistance) to a fence or other stationary object and loop one end around each hand.
2. Lean forward at the waist so that your upper body is parallel to the ground.
3. Perform arm pulls that mimic the swimming strokes.

Focus Point

Take care to maintain proper technique while pulling throughout the exercise.

Tip

Use this exercise to warm up the joints and muscle groups important to swimmers.



153 SQUAT

Purpose

To build strength in the gluteal muscles as well as muscles throughout the lower body.

Procedure

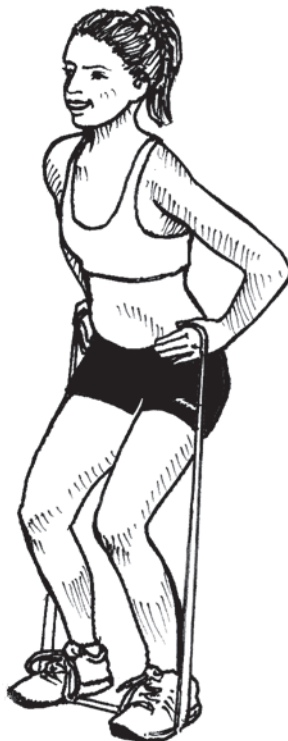
1. Stand on a piece of heavy-resistance elastic band so that your feet are approximately shoulder-width apart or slightly wider.
2. Grasp one end of the band with each hand and hold your hands at your hips.
3. Lower yourself into a squat position so that your knees are bent to 90 degrees.
4. Drive with the legs and return to the starting position.

Focus Point

Make sure you maintain normal curvature of the spine. Push the chest out and up, and do not let the knees come forward past the toes.

Tip

Although you should use weights or elastic bands, you can also use your body weight for resistance when starting out.



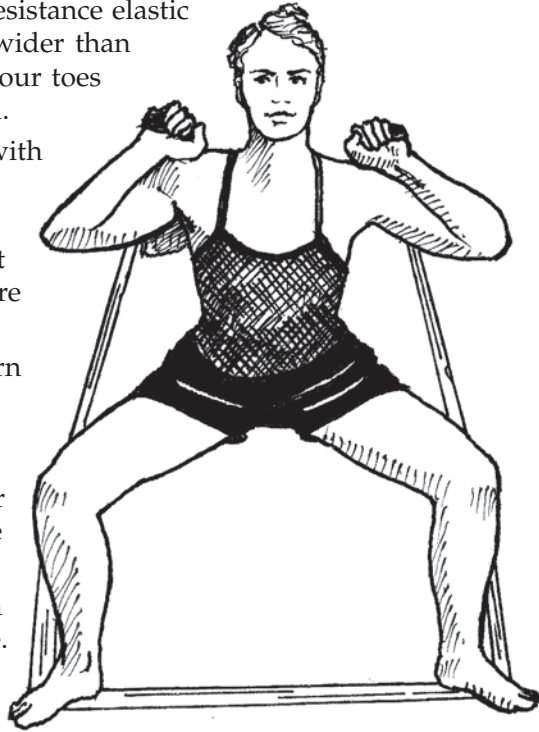
154 SUMO SQUAT

Purpose

To build strength in the inner thigh and in the gluteal muscles. You perform this exercise the same way you did the classic squat, except that the foot position places demands on the muscles of the inner thigh.

Procedure

1. Stand on a piece of heavy-resistance elastic band so that your feet are wider than shoulder-width apart and your toes are pointed slightly outward.
2. Grasp one end of the band with each hand and hold your hands at shoulder level.
3. Lower yourself into a squat position so that your knees are bent to 90 degrees.
4. Drive with the legs and return to the starting position.



Focus Points

- The band should be under strong tension when you are in the starting position.
- Make sure you maintain normal curvature of the spine.
- Push the chest out and up.
- Do not let the knees come forward past the toes.

Tip

You can also perform this exercise using a barbell and a squat rack. Load the barbell with an appropriate weight and step under the bar so that it lies across your upper back. Stand and step away from the rack to perform the squat.

155 MONSTER WALK

Purpose

To build strength and stability in the muscles on the outside of the hip.

Procedure

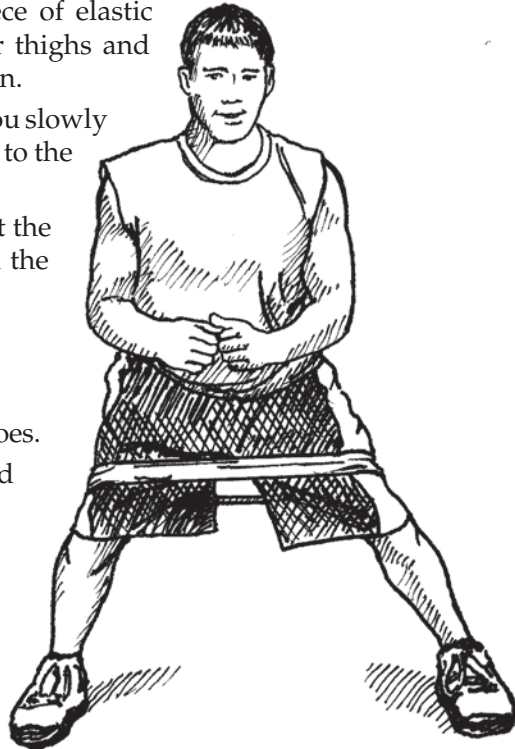
1. On the pool deck, loop a piece of elastic tubing around your ankles or thighs and get into a good athletic position.
2. Maintain this position while you slowly step 3 to 6 inches (7.6 to 15 cm) to the side with the right foot.
3. While controlling the band, lift the left foot and step back toward the right foot.

Focus Points

- Keep your knees bent slightly.
- Don't let the knees go over the toes.
- Keep your body upright and facing forward.
- Keep your feet slightly wider than shoulder-width apart.

Tip

Continue this pattern while walking 15 to 20 steps across the pool deck. Reverse direction and walk back to your starting position.



156 ELASTIC BAND KICK

Purpose

To improve strength and stability in the hips and core.

Procedure

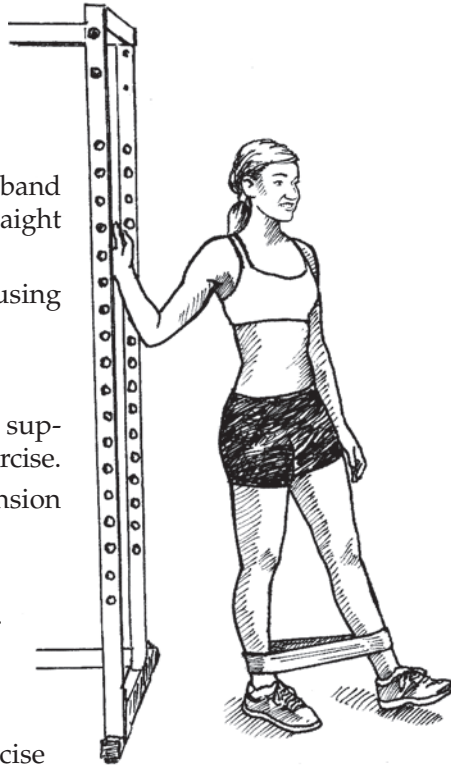
1. Stand with your feet about shoulder-width apart. Loop an elastic band around both of your lower legs, near the ankle. Use additional support for balance, if needed.
2. Kick one leg forward against the band repeatedly while keeping the knee straight for 15 to 30 seconds.
3. Rest, and then repeat the exercise using the other leg.

Focus Points

- All your weight should be on your supporting leg when performing this exercise.
- The band should be under slight tension when you start this exercise.
- Maintain good posture.
- Keep a slight bend in the stance leg.
- Keep the moving leg straight.

Tip

You can increase the demands of the exercise by standing on a foam stability pad.



157 ANKLE FLEX

Purpose

To improve strength in the muscles in the front of your calf, the muscles that provide ankle stability and contribute to kicking power.

Procedure

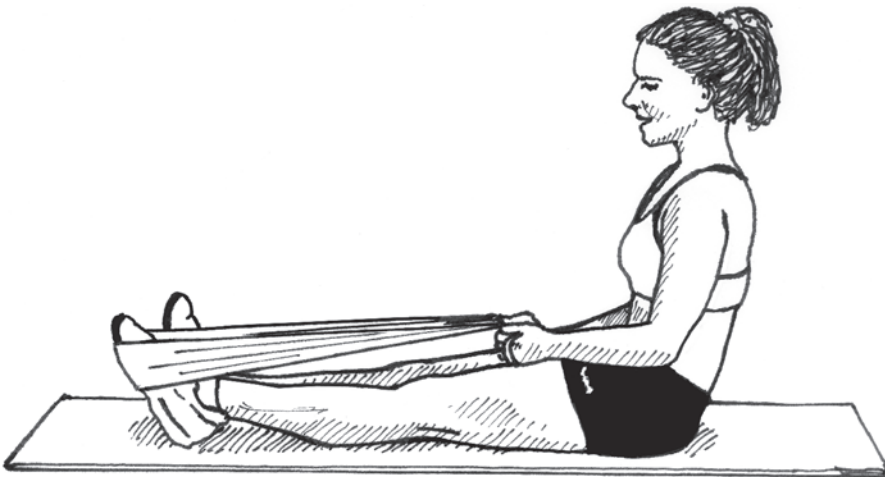
1. Sit on the pool deck with legs extended and loop the elastic band around your toes of one foot. Press your other foot onto the band to stabilize it.
2. With your toes slightly pointed, position yourself so that the band is under tension at the starting point.
3. Point your toes away from your shin and slowly return to the starting position.

Focus Point

Point the toes away from the shin as far as you can.

Tip

Place a rolled-up towel under your knee to help isolate the correct muscles.



158 SEATED HAMSTRING CURL

Purpose

To improve the strength of the hamstrings, which will lead to increased kicking strength and hip stability.

Procedure

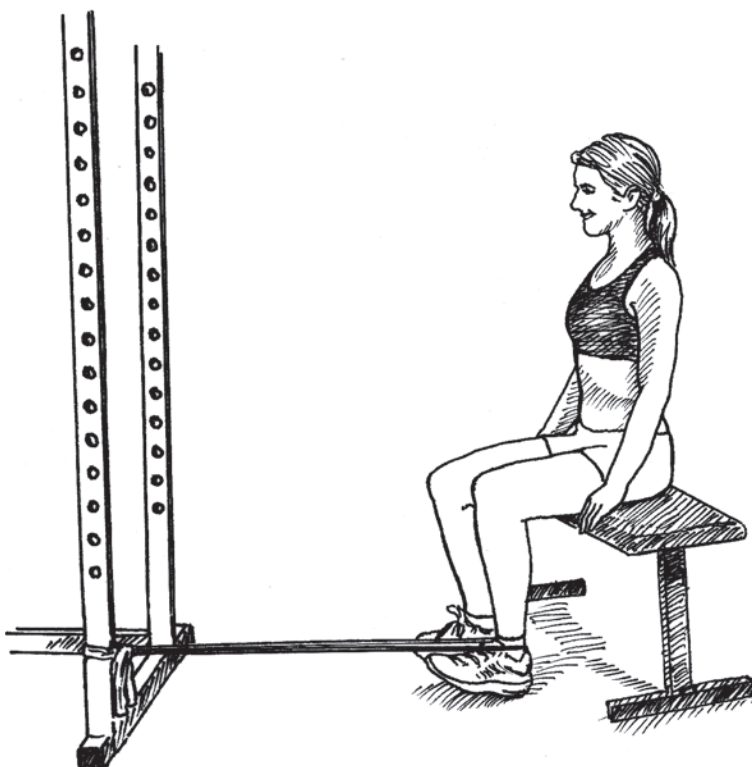
1. Sit on a chair or bench with your knees bent 90 degrees.
2. Loop a piece of elastic band around your ankle or heel and secure the other end to a sturdy object, such as a backstroke flag or fence
3. Position your chair far enough away from the attachment point of the tubing to create moderate tension in the band when your leg is extended in front of you.
4. Slowly flex your knee 90 degrees and hold this position for a count of two.
5. Return the leg to the starting position.

Focus Point

Pull the toes back as high as you can.

Tip

You can also perform this exercise in the weight room using a hamstring curl machine.



159 HIP EXTENSION

Purpose

To develop strength in the gluteal muscles for a strong upward kick in the butterfly and to improve body position in both the breaststroke and the butterfly.

Procedure

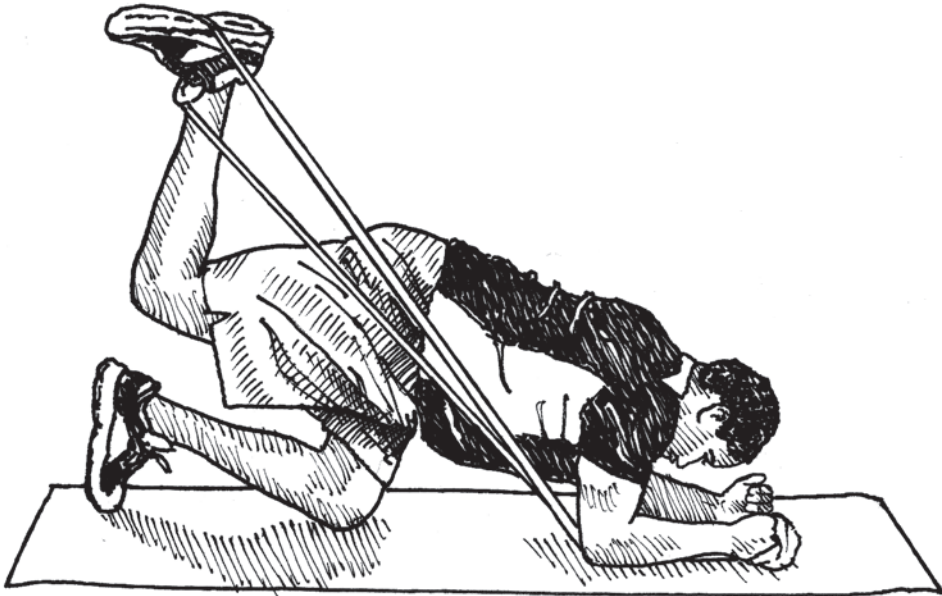
1. Position yourself on the pool deck on all fours (hands and knees), then bring the elbows to the floor and rest the forearms there for support.
2. Place both ends of the strength band under the forearms and loop the center of the band around one foot.
3. While keeping the knee bent, raise your hip upward slowly against the band, then return to the starting position.
4. Repeat with the opposite leg to work both hips.

Focus Points

- Keep good upper-body posture.
- Do not lean forward when performing the exercise.

Tips

- Keep your back straight.
- Keep your abdominals tight.



160 HIP FLEXION

Purpose

To improve strength in the hip flexor muscles to develop a strong downbeat in your butterfly and to maintain the correct body position in the breaststroke. This exercise also strengthens the core.

Procedure

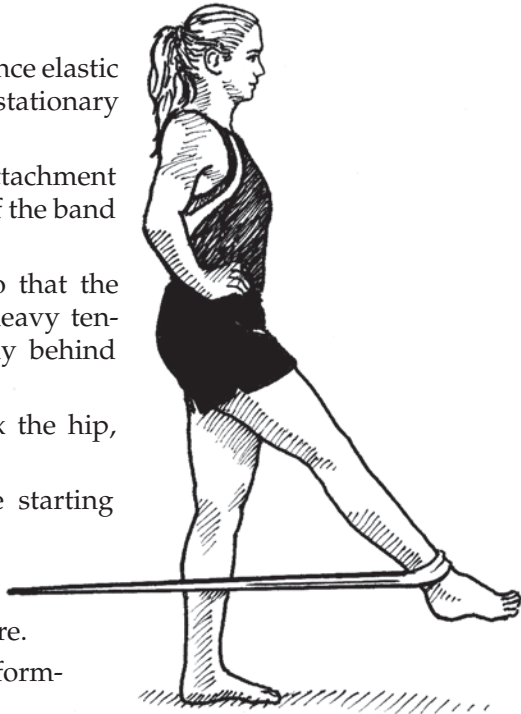
1. Attach a loop of heavy-resistance elastic tubing to a fence or other stationary object at ankle level.
2. Stand facing away from the attachment point and place the free end of the band around your right ankle.
3. Step away from the fence so that the band is under moderate to heavy tension when the foot is slightly behind the body.
4. Keeping the leg straight, flex the hip, pulling the leg forward.
5. Slowly return the leg to the starting position.

Focus Points

- Keep good upper-body posture.
- Do not lean forward when performing this exercise.

Tip

Lightly hold onto something for balance.



161 LAT PULLDOWN

Purpose

To develop strength in the lats and the muscles of the upper back, some of the most important muscles for generating the power behind your pull.

Procedure

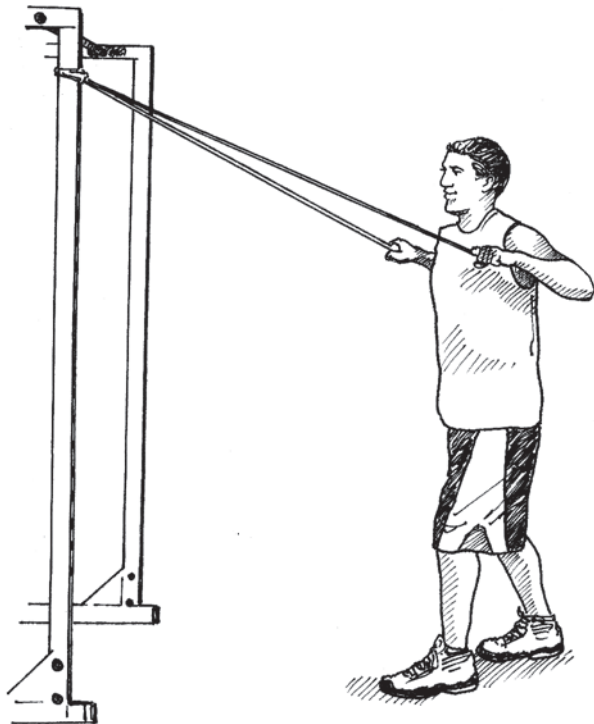
1. Loop a piece of elastic tubing over a lifeguard chair, through a fence, or over anything sturdy above your head.
2. Face the point of attachment and grasp the ends of the band above your shoulders with your elbows extended forward.
3. Pull the bands down and back by bringing your hands to your chest while bending your elbows.
4. Hold this position for two seconds and return to the starting position.

Focus Points

- Keep the elbows pointed out toward the sides throughout the movements.
- The elbows should be bent 90 degrees in the final position

Tip

The lats are the muscles that give many swimmers their V shape, and swimmers use them every time they pull. You will likely want to use a fairly heavy resistance when training these muscles because the lats are among the strongest muscles in the body.



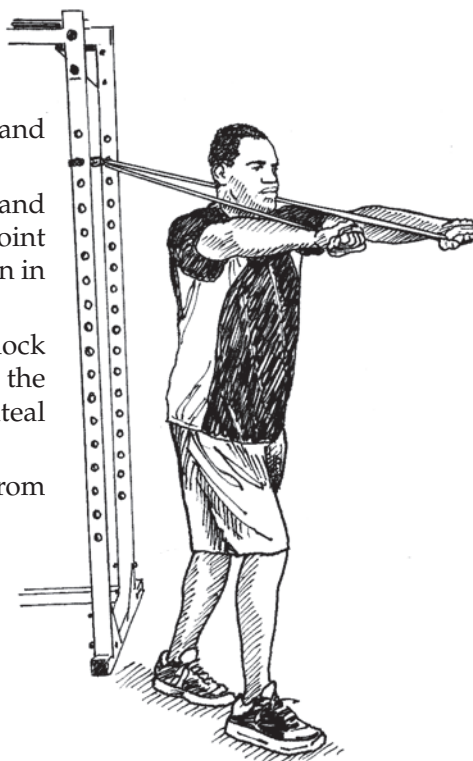
162 CORE CHEST PRESS

Purpose

To improve the strength of the muscles while also developing core stability.

Procedure

1. Attach one piece of elastic tubing to a fence or other stationary object at shoulder height.
2. Grab the other end with one hand and face away from the fence.
3. Hold the tubing at chest level and step away from the attachment point so that the tubing is under tension in this position.
4. Contract the core muscles and lock down the pelvis by contracting the abdominal, lower-back, and gluteal muscles.
5. Push the hand straight away from the body.
6. Slowly return the hand to the starting position.



Focus Points

- Do not lean into the exercise.
- Do not use the legs.
- Keep a stable position.

Tips

- You can perform this exercise using both arms at the same time by looping the elastic tubing around a backstroke flagpole and grasping one end with each hand as shown.
- You can make the exercise more challenging by standing on one leg or by balancing on a foam pad.

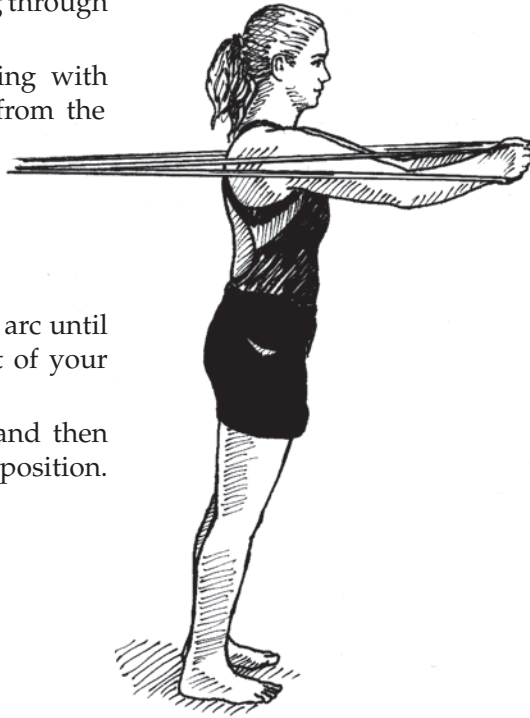
163 CHEST FLY

Purpose

To build strength through the chest for the inward sweep of the breaststroke pull.

Procedure

1. Loop a piece of elastic tubing through a fence at chest level.
2. Grasp one end of the tubing with each hand and face away from the fence.
3. Step forward so that the band is under tension when you hold your arms out to the sides.
4. Move the hands in a steady arc until they come together in front of your chest.
5. Hold this position briefly, and then slowly return to the starting position.



Focus Point

Keep the elbows bent slightly.

Tip

You can also perform this exercise in the weight room using a cable column or by using dumbbells while lying on a stability ball.

164 UPRIGHT ROW

Purpose

To develop strength in the muscles of the upper back, particularly the traps, which help stabilize the shoulder blades.

Procedure

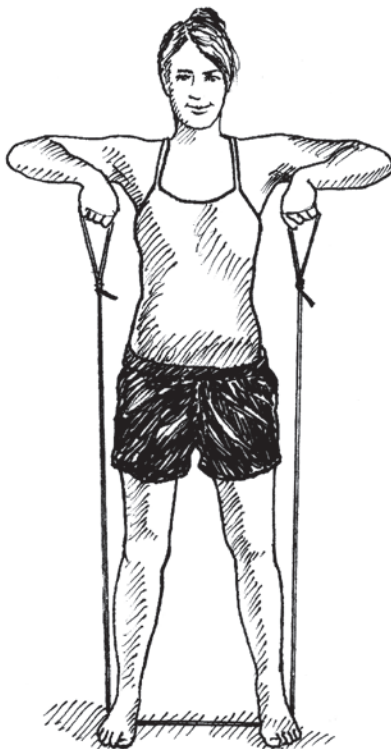
1. Grasp one end of an elastic band with each hand. Step on the band so that it is under some tension even when your arms hang straight down.
2. Squeeze your shoulder blades together and pull the shoulders back slightly.
3. Leading with the elbows, pull your hands up toward your chin.
4. Hold this position briefly and slowly return to the starting position.

Focus Points

- Keep the elbows pointed outward.
- Lift the hands only until the upper arms reach shoulder level.

Tip

You can also perform this exercise using dumbbells or a barbell.



165 SEATED ROW

Purpose

To build strength in the upper back, including the muscles that stabilize the shoulder blades.

Procedure

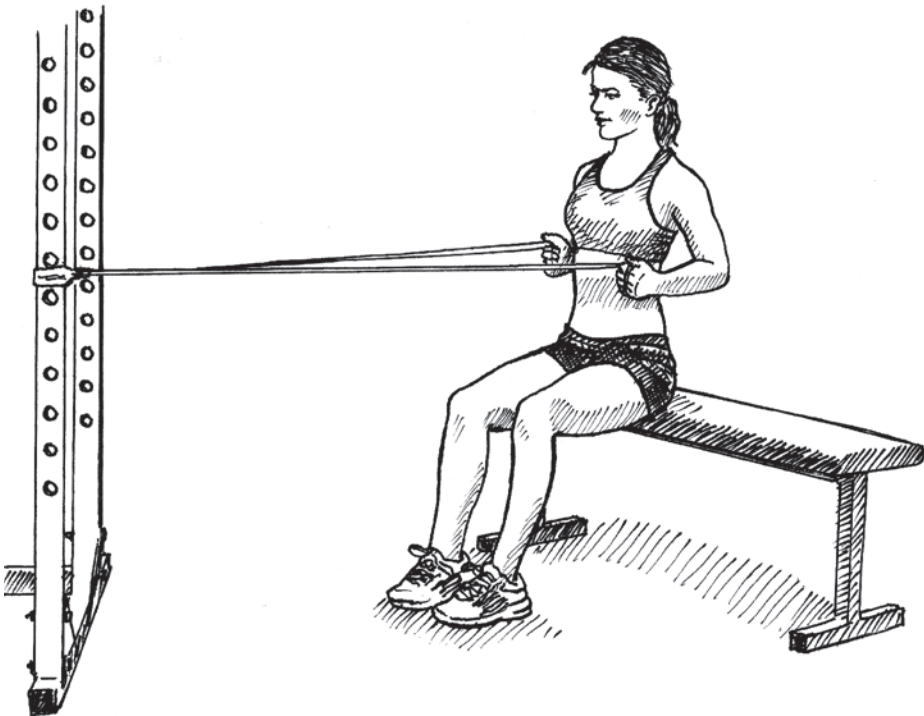
1. Loop a piece of elastic tubing through a fence or around a backstroke flagpole at chest height
2. Sit on a stability ball or on a bench and position yourself so that the band is under some tension when you hold your arms straight in front of you.
3. While maintaining an upright position, squeeze your shoulder blades together and pull your hands to your chest.
4. Slowly return your hands to the starting position.

Focus Points

- Keep your elbows up to mimic the position the arms will be in when swimming.
- Make sure to contract the core throughout the exercise.

Tip

Perform this exercise by bringing the elbows in to your side to make it easier.



166 BENT-OVER ROW

Purpose

To strengthen the muscles of the upper back that control the shoulder blades.

Procedure

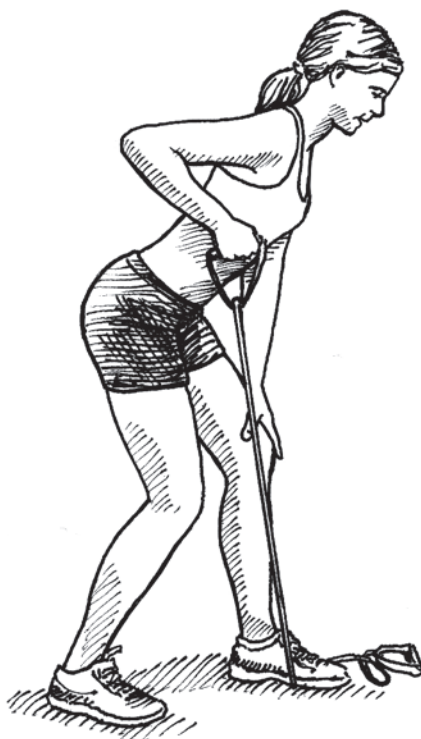
1. Start by standing on a short piece of elastic tubing with the feet slightly wider than shoulder-width apart.
2. With the knees slightly flexed, bend at the waist so that your upper body is nearly parallel with the ground.
3. Grab one end of the tubing with one hand so that the band is under slight tension when your arm is fully extended.
4. Keeping your back flat and your head up, pull your hands to your chest.

Focus Point

Try to keep the arm at a 90-degree angle when you pull your hand to your chest.

Tip

You might need to change your foot position slightly to adjust the length of the tubing.



167 STRAIGHT-ARM ROW

Purpose

To build strength in the muscles that adduct the shoulder, which are important muscles for generating power in the pull.

Procedure

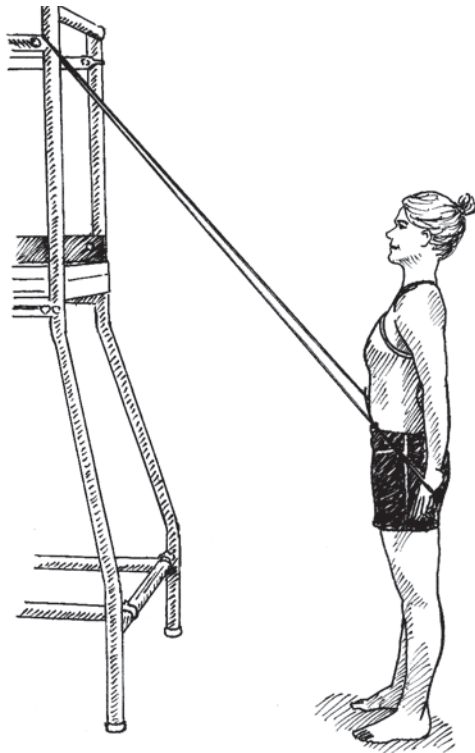
1. In a standing position, attach a piece of elastic tubing to a fence or other solid object several feet (a meter or so) above your head.
2. Grab one end of the tubing with each hand and step away from the fence so that the band is under moderate to strong tension when you extend your arms in front of you.
3. Pinch the shoulder blades together and pull both hands toward your thighs.
4. Hold briefly and slowly return to the starting position.

Focus Point

Keep the arms straight during the exercise.

Tip

You can also perform this exercise using a lat pulldown machine found in most weight rooms. Perform this exercise the same way by grasping the pulldown bar with both hands approximately shoulder-width apart.



168 TRICEPS EXTENSION

Purpose

To strengthen the triceps muscles in the back of the upper arm to help with the finish phase of the stroke.

Procedure

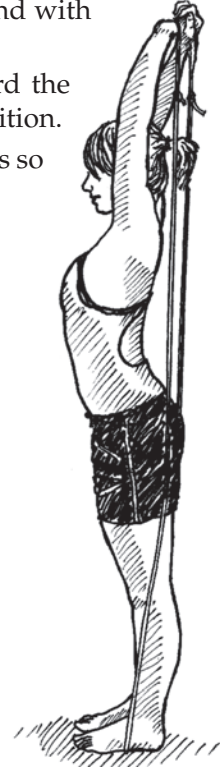
1. Stand on a piece of elastic tubing and grab the free end with both hands behind your head.
2. Position your arms so that your elbows point toward the sky and are bent 90 degrees or more in the starting position.
3. Without moving the upper arms, straighten the elbows so that your hands point to the sky.
4. Slowly lower the hands back to the starting position.

Focus Points

- Keep the elbows tight against the head.
- Keep the elbows facing forward.

Tip

You can also perform this exercise using a dumbbell.



169 HIGH TO LOW CHOP

Purpose

To develop strength through the entire kinetic chain using the legs, core rotation, and arms simultaneously.

Procedure

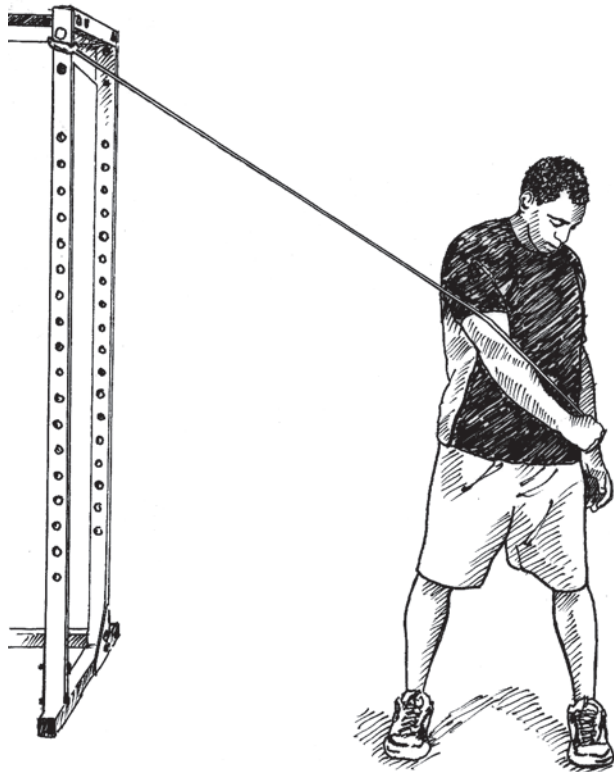
1. Attach a piece of low- to moderate-resistance elastic tubing to a fence or other stationary object above head height.
2. Position your body with the right shoulder closer to the fence. Grasp the handle with the right hand.
3. Use your torso rotation and the muscles of the upper back to bring the hand down across the body so that it ends up on the outside of the left hip.
4. Perform this exercise explosively, but return to the starting position in a controlled manner between repetitions. Repeat this exercise with your left arm.

Focus Point

You should have to rotate your torso to reach the handle in its starting position.

Tip

You can also perform this exercise in the weight room using a cable column machine.



170 BENT-OVER LATERAL RAISE

Purpose

To develop strength in back of the shoulders to help with arm recovery.

Procedure

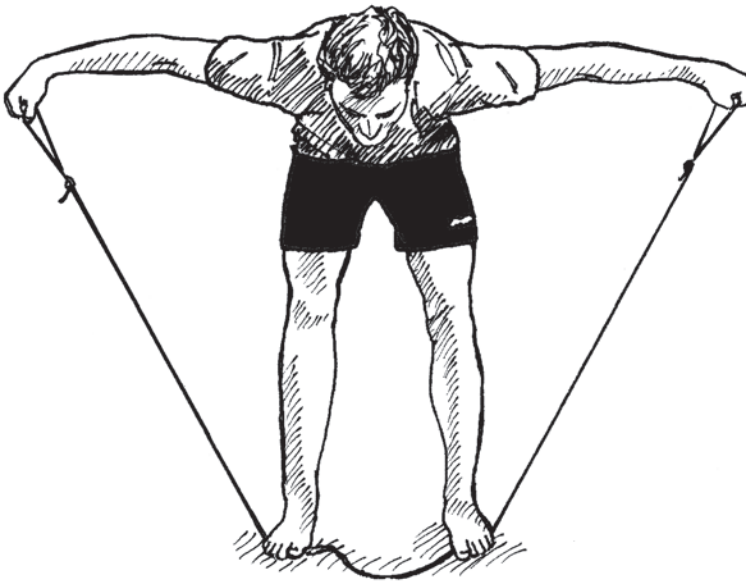
1. Stand on a short piece of low-resistance elastic tubing and grab one end of the tubing in each hand.
2. Flex the knees slightly and bend at the waist so that your torso is essentially parallel to the ground.
3. Keeping the back flat, lift your arms out to your sides until they are parallel to the ground.
4. Hold this position briefly and slowly lower your arms to the starting position.

Focus Points

- Keep your back as flat as possible
- Pinch your shoulder blades together when you lift your arms up.

Tip

The band should be under light tension when your arms hang down toward the ground.



171 SHOULDER BLADE PINCH

Purpose

To strengthen the scapular stabilizers in the upper back. This is the most basic upper back exercise.

Procedure

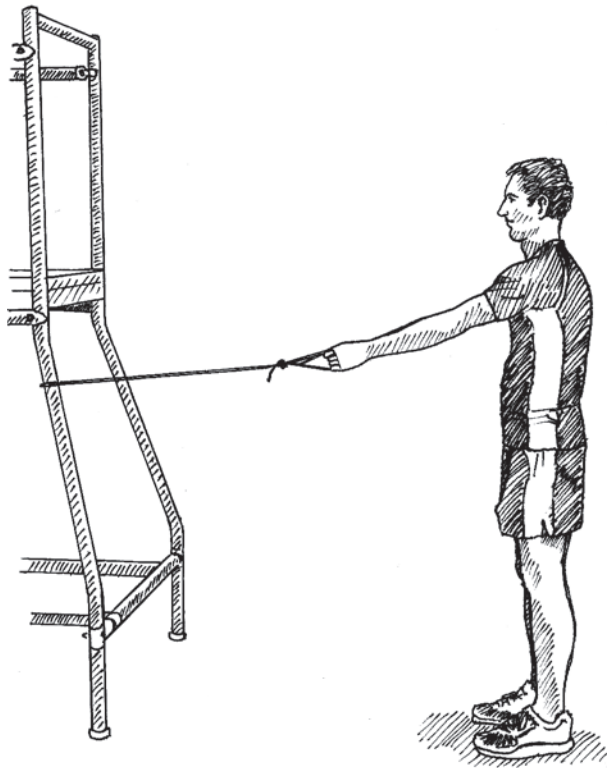
1. Loop a piece of elastic tubing around a backstroke flagpole or through a fence and grab one end with each hand.
2. Step backward so that the band is under light tension when you extend your arms fully in front of you.
3. Pinch your shoulder blades together.
4. Hold this position for a count of three before slowly returning to the starting position.

Focus Point

Do not bend the arms.

Tips

- To help with this, have a friend place a hand on your upper back and try to squeeze his or her hand with your shoulder blades.
- The stretch in the band results entirely from the activation of the muscles controlling the shoulder blades.



172 STANDING INTERNAL ROTATION

Purpose

To develop strength in the internal rotators, the muscles that contribute to the catch and propulsion in most strokes.

Procedure

1. Attach a piece of low- to moderate-resistance elastic tubing to a fence or other stationary object at waist level.
2. Stand with your body sideways to the fence so that your right arm is closer to it.
3. Grasp the free end of tubing with your right hand. Step away from the fence so that the band is under moderate tension when your elbow is at your side and your hand is pointing forward, away from your body.
4. Rotating only your shoulder, move your hand until it lies across your body and then return to the starting position.



Focus Points

- Keep your elbow against your body.
- Keep your arm at a 90-degree angle.

Tip

You can also perform this exercise with the arm extended in an elevated position. Attach the elastic tubing at shoulder height and stand facing away from the fence. Elevate the upper arm 90 degrees and bend the elbow 90 degrees. Rotate the arm forward, maintaining the position of the upper arm.

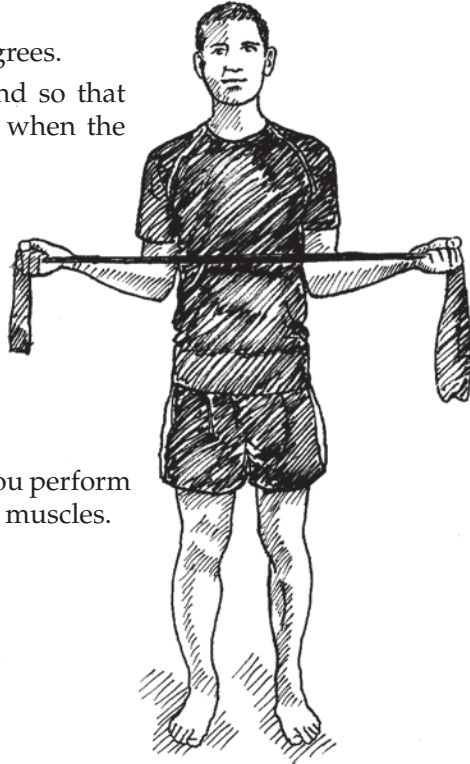
173 SHOULDER RETRACTION WITH EXTERNAL ROTATION

Purpose

To strengthen the external rotators in the rotator cuff and the muscles in the upper back that control the shoulder blades.

Procedure

1. Stand with your arms bent 90 degrees.
2. Grasp each end of an elastic band so that the band is under slight tension when the hands are pointed forward.
3. Pinch your shoulder blades together and rotate your arms outward 2 to 4 inches (5 to 10 cm).
4. Hold this position for a count of three.
5. Return to the starting position.



Focus Point

Push the chest forward slightly when you perform this exercise to activate the appropriate muscles.

Tip

Perform this drill slowly; do not rush.

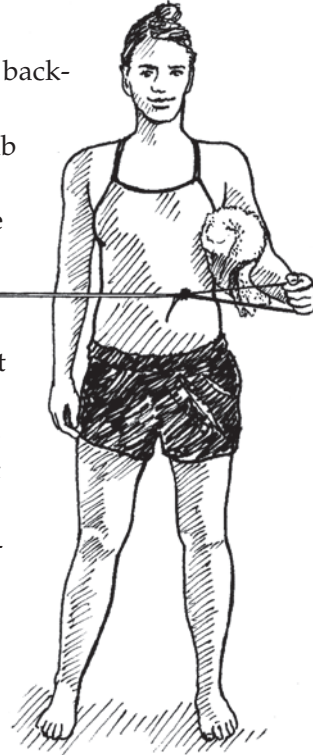
174 STANDING EXTERNAL ROTATION

Purpose

To build strength in the external rotators of the rotator cuff.

Procedure

1. Secure a piece of elastic tubing to a fence or the backstroke flagpole
2. Place a small towel under the left arm and grab the free end of the tubing with the left hand.
3. Stand with your right side closer to the fence and keep your left arm at your side with the elbow bent 90 degrees. The tubing should now come across the body.
4. Step to the left so that the band is under slight tension at the start of the movement.
5. Set the shoulder blades and slowly rotate the left shoulder until the hand and forearm point away from the body.
6. Hold this position briefly and return to the starting position.
7. Perform this exercise with both arms.



Focus Point

Keep the elbow tight against the towel.

Tip

You can also perform this exercise with small hand weights. Lie down on your side, slowly rotate the shoulder until your fingers point toward the sky, and then lower the weight back to its starting position.

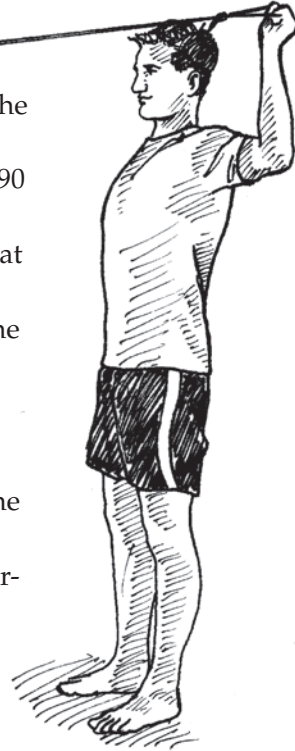
175 CATCH POSITION EXTERNAL ROTATION

Purpose

To strengthen the rotator cuff muscles that externally rotate the shoulder.

Procedure

1. Attach a piece of elastic tubing to a fence at waist level.
2. Facing the tubing attachment, point and grab the free end with the left hand.
3. Lift the arm out to the side and bend the elbow 90 degrees.
4. Set the shoulders and rotate the shoulder so that your hand and forearm point to the ceiling.
5. Hold this position briefly before returning to the starting position.
6. Repeat the exercise with the right arm.



Focus Points

- The band should be under slight tension at the start of the exercise.
- Your upper arm should not move when you perform this exercise correctly.

Tips

- This movement is more complicated than the standing external rotation because you have to stabilize the shoulder and shoulder blades to a greater degree.
- This exercise is more swimming specific because it mimics the shoulder motion used frequently in the freestyle and butterfly catch

176 FULL CAN

Purpose

To strengthen the muscles of the rotator cuff and to improve shoulder stability.

Procedure

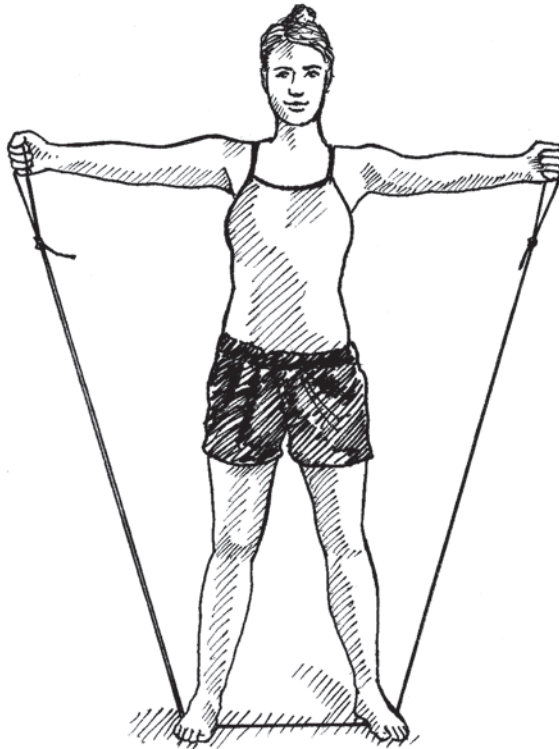
1. Stand on a piece of elastic tubing and grasp a free end with each hand.
2. Set your shoulder blades and point your thumbs toward the sky.
3. Slowly lift your arms out to your sides until they reach shoulder level.
4. Slowly lower your arms back to your sides.

Focus Points

- Keep the thumbs pointed upward throughout the movement.
- Pretend as if you were holding a full can and trying not to spill any of its contents.

Tip

Avoid pointing the elbows down, which can irritate the tendons in the shoulder.



About the Author



Photo courtesy of Ruben Guzman

Ruben Guzman is a United States Swimming (USS) coach for age-group swimmers. He has coached swimming for 30 years at the summer recreational, high school, collegiate, and competitive year-round USS levels.

Over the years, Guzman's teams have won numerous championships, and dozens of his swimmers have gone on to compete at the collegiate level. His athletes have advanced to nationals and Olympic trials. Recognized worldwide as an expert in stroke technique, Guzman served as the stroke specialist for the California Capital Aquatics team. He worked closely with retired head coach Mike Hastings, an assistant coach on the 1992 U.S. Olympic Team.

In 2008, his last year of coaching, Guzman's swim team from Christian Brothers High School of Sacramento, California, qualified 22 of its 33 swimmers for the state championships. In 2016, Guzman came out of retirement to coach his son's high school team, and he continues to conduct clinics and trainings for swim teams and coaches.

Guzman holds a Bachelor's degree in biological sciences from California Lutheran University and a Master's degree in public health from UCLA specializing in behavioral sciences and health promotion.

Outside of swimming, Guzman is author of the book *Evolving Health* and is a professional speaker, business coach, and consultant who specializes in leadership development communication, health promotion, and productivity for leaders and their organizations.



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