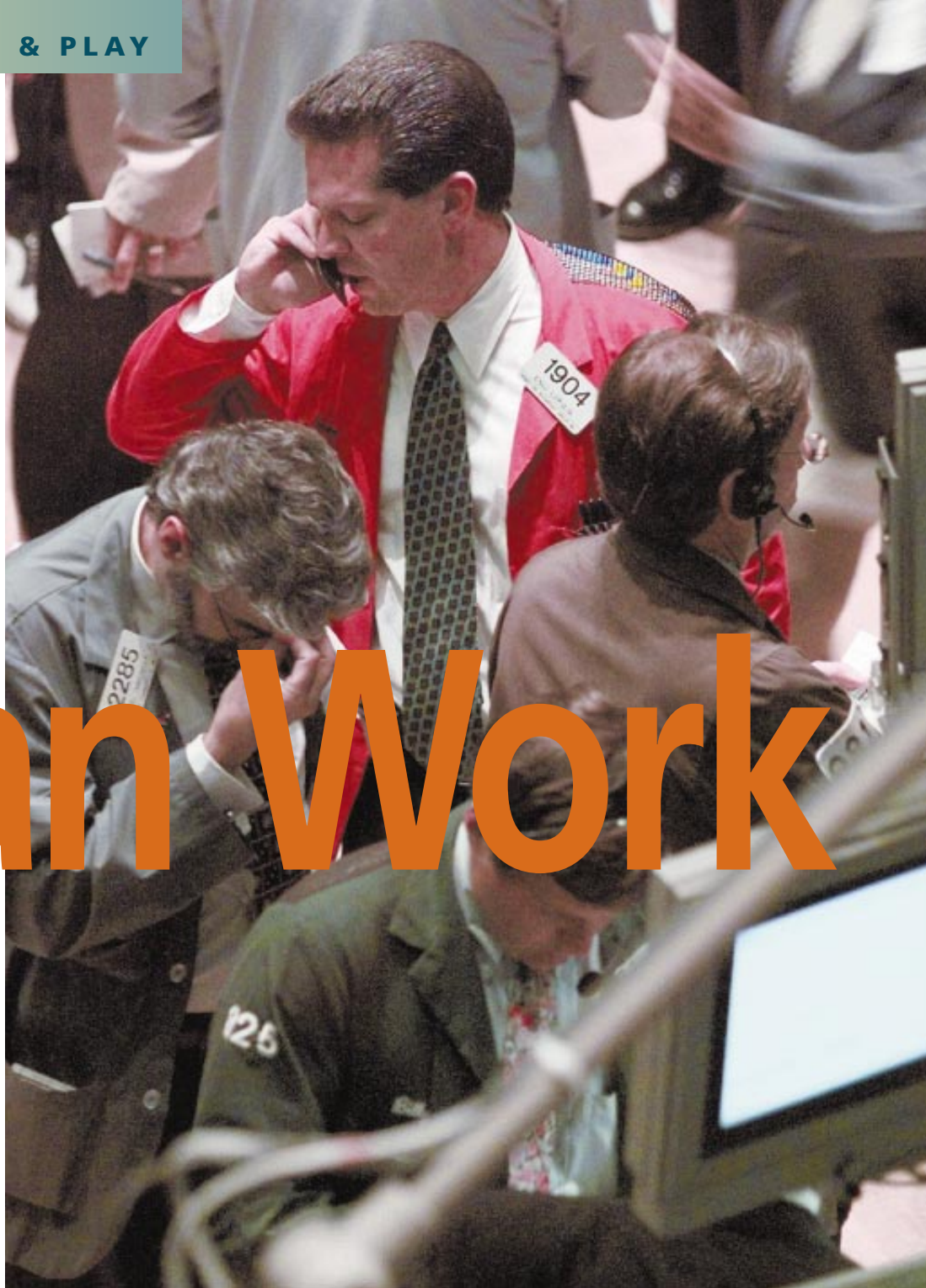




*Recent studies suggest that stress on the job can be deadly*

# Can Work

by Harvey B. Simon



According to Sigmund Freud, a man's mission in life is "to work and to love." In this modern world, an excess of—or, at least, unprotected—love can be hazardous indeed. But what of work? Can a man literally work himself to death?

The Japanese think so; in fact, *karoshi*, or "death from overwork," is a recognized diagnosis that qualifies survivors of its victims to receive employee com-

pensation payments. A 1998 survey of 526 Japanese men, aged 30 to 69, supported the idea that long working hours can be hazardous to a man's health. The subjects of the study included men who had been hospitalized with a heart attack as well as healthy men of similar ages and occupations. The results were striking: men from both groups who put in more than 11 hours of work on an average day were

2.4 times more likely to have a heart attack than were men who worked "just" seven to nine hours a day.

What accounts for the increased risk of heart attack among Japanese men who work very long hours? Mental stress is a logical explanation, but in this study psychological factors, as measured by what the researchers called the "burnout index," did not completely account for the trend. Nor



RICHARD DREW AP Photo (far left); KYODO NEWS (left)

**STRESS ON THE JOB** is a common complaint of many professionals, including Wall Street traders (far left). In Japan, hot lines (left) provide counseling for men suffering from work-related stress as part of an effort to reduce the incidence of *karoshi*, or "death from overwork."

high demands and low control combined to explain this effect as well. In a related survey, researchers who evaluated 99,029 Italian railway workers found that the combination of high job responsibility and low level of physical work was associated with an increased risk of heart attack.

More research will be needed to verify these observations. Even now, however, there is enough evidence to suggest that job stress may increase a man's risk of dying from heart disease. The combination of high mental demands, low personal control and inadequate social supports is particularly worrisome.

If stress at work kills, how does it happen? Nobody knows for certain. But we do know that mental stress increases blood levels of adrenaline and cortisone, two so-called stress hormones. Psychological stress raises the blood pressure and heart rate; it can also induce abnormalities in the heart's pumping rhythm, known as arrhythmias. Stress can also activate platelets in the blood, triggering clots that can block diseased coronary arteries. Furthermore, doctors have known for several years that anger in particular can trigger heart attacks and that mental stress tests can predict heart trouble more accurately than exercise stress tests.

Anger is an important component of stress on the job—and according to a recent study, men with the most anger and hostility have the highest risk of heart disease.

Since 1961 scientists at Harvard Medical School and the Harvard School of Public Health have been observing 2,280 men as part of the Normative Aging Study. In 1986, 1,305 men (with an average age of 61) completed the psychological test known as the Minnesota Multiphasic Personality Inventory (MMPI-2), which includes a section designed to quantify anger [see box on next page]. Each participant received a score that indicated his level of anger and hostility. The men returned for comprehensive medical examinations approximately every seven years, at

# Kill?

did established risk factors. High blood pressure, high cholesterol levels, smoking, diabetes and obesity were linked to heart attack, but even after taking these variables into account, the number of hours worked itself was still closely related to the risk of heart attack.

The Japanese are notorious workaholics, but working conditions in Japan are actually designed to be predictable and to minimize stress among employees. In general, Western men do not enjoy such advantages, so one wonders just how working too hard affects their health. In 1997 an international team addressed the question by examining the results of over a dozen earlier studies on work and health, which looked at conditions ranging from heart attacks to exhaustion and mental stress. Analysis of the compiled data confirmed a correlation (in both men and women) between hours of work and ill health; the effect was small but consistent and significant.

Both of these studies focused on working hours but not on working conditions. Are such qualitative factors also important? A 1996 study from

Sweden explored the possibility. The group of researchers observed more than 12,500 employed men over a 14-year period. The scientists evaluated the psychological and physical demands of each man's job; they also collected information about the age, smoking history, exercise habits, educational level and social class of each individual. When the results were analyzed, two occupational factors emerged as risk factors for death from cardiovascular disease. Men who had low control over the demands of their jobs were 1.8 times more likely to die from heart disease than men with more control were; men who also experienced a low level of social support from co-workers were 2.6 times more vulnerable to cardiovascular death.

These heart-stopping results do not stand alone. An earlier study of 2,465 Danish bus drivers linked the intensity of traffic on the drivers' routes to a two-fold increase in the risk of death and heart attack; lack of social support compounded the problem. Job strain was implicated as a predictor of mortality in a seven-year study of 500 Swedish men;

## The Hostile Heart



EVERETT COLLECTION

**ANGRY** as a result of work-related stress, the character played by Michael Douglas in the 1993 film *Fallen Down* vents his frustration violently.

**D**o you have an angry heart? To evaluate your overall tendency toward hostility, use the Minnesota Multiphasic Personality Inventory Anger Content Scale. Answer true or false to each of these questions:

T F

1. At times I feel like **swearing**.
2. At times I feel like **smashing** things.
3. Often I can't understand why I've been so **irritable** and **grouchy**.
4. At times I feel like picking a **fistfight** with someone.
5. I easily become **impatient** with people.
6. I am often said to be **hotheaded**.
7. I am often so **annoyed** when someone tries to get ahead of me in a line of people that I speak to that person about it.
8. I have at times had to be **rough** with people who were rude or annoying.
9. I am often **sorry** because I am so irritable and grouchy.
10. It makes me **angry** to have people hurry me.
11. I am very **stubborn**.
12. Sometimes I get so **angry** and **upset** I don't know what comes over me.
13. I have gotten angry and broken furniture or dishes when I was **drinking**.
14. I have become so angry with someone that I have felt as if I would **explode**.
15. I've been so angry at times that I've hurt someone in a physical **fight**.
16. I almost never lose **self-control**.

Questions 1–15: One point for each “true”  
Question 16: One point for “false”

**KEY**  
0–5: Anger is not a problem.  
6–10: Anger level is moderate; work on ways to relax.  
11–16: Anger level is a concern; your health may suffer the consequences if corrective measures are not taken.  
—H.B.S.

which time they were checked for heart disease and cardiac risk factors such as smoking, hypertension and high cholesterol.

All the men were free of coronary artery disease when the study began, but during seven years of observation, 110 of them developed heart disease. The men with the highest anger scores were at the greatest risk for developing heart disease. And the risk was substantial: coronary artery disease was diagnosed three times more often in the angriest men than in the men with the least anger. The link between anger and heart disease was not explained by differences in blood pressure, smoking or other cardiac risk factors; hostility was heartbreaking in its own right.

As it turns out, hostility is not so good for the brain, either. In a report published this spring, Susan A. Everson and her colleagues at the University of Michigan School of Public Health reported that hostility increases a patient's risk of stroke. The effect is significant. In a seven-year study of more than 2,000 men, the scientists found that men who showed high levels of anger on standard tests of anger expression were two times more likely to have strokes than were their calm peers. Other factors such as age, smoking, high blood pressure, excessive alcohol consumption, diabetes, obesity and high cholesterol levels did not account for the increased risk.

Men do not have to retire to protect their health. They should, however, certainly eat right, exercise often and avoid smoking to keep their hearts healthy. They should have regular medical care and be sure their blood pressure and cholesterol levels are okay. But they should also seek a work environment that provides a healthy degree of autonomy and control without sacrificing social supports. At its best, work should be challenging without being stressful; it should also be balanced by a healthy amount of play. **SA**

### The Author

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### Further Reading

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ANGER KILLS: 17 STRATEGIES FOR CONTROLLING HOSTILITY THAT CAN HARM YOUR HEALTH. Redford Williams and Virginia Williams. Harper Perennial Library, 1994.  
CONQUERING HEART DISEASE: NEW WAYS TO LIVE WELL WITHOUT DRUGS OR SURGERY. Harvey B. Simon. Little, Brown and Company, 1994.  
The *Harvard Men's Health Watch* is available at [www.harvardhealthpubs.org/txtindex.html](http://www.harvardhealthpubs.org/txtindex.html) on the World Wide Web.