ISI NEWSLETTER
INTERNATIONAL SPORTSMEDICINE INSTITUTE
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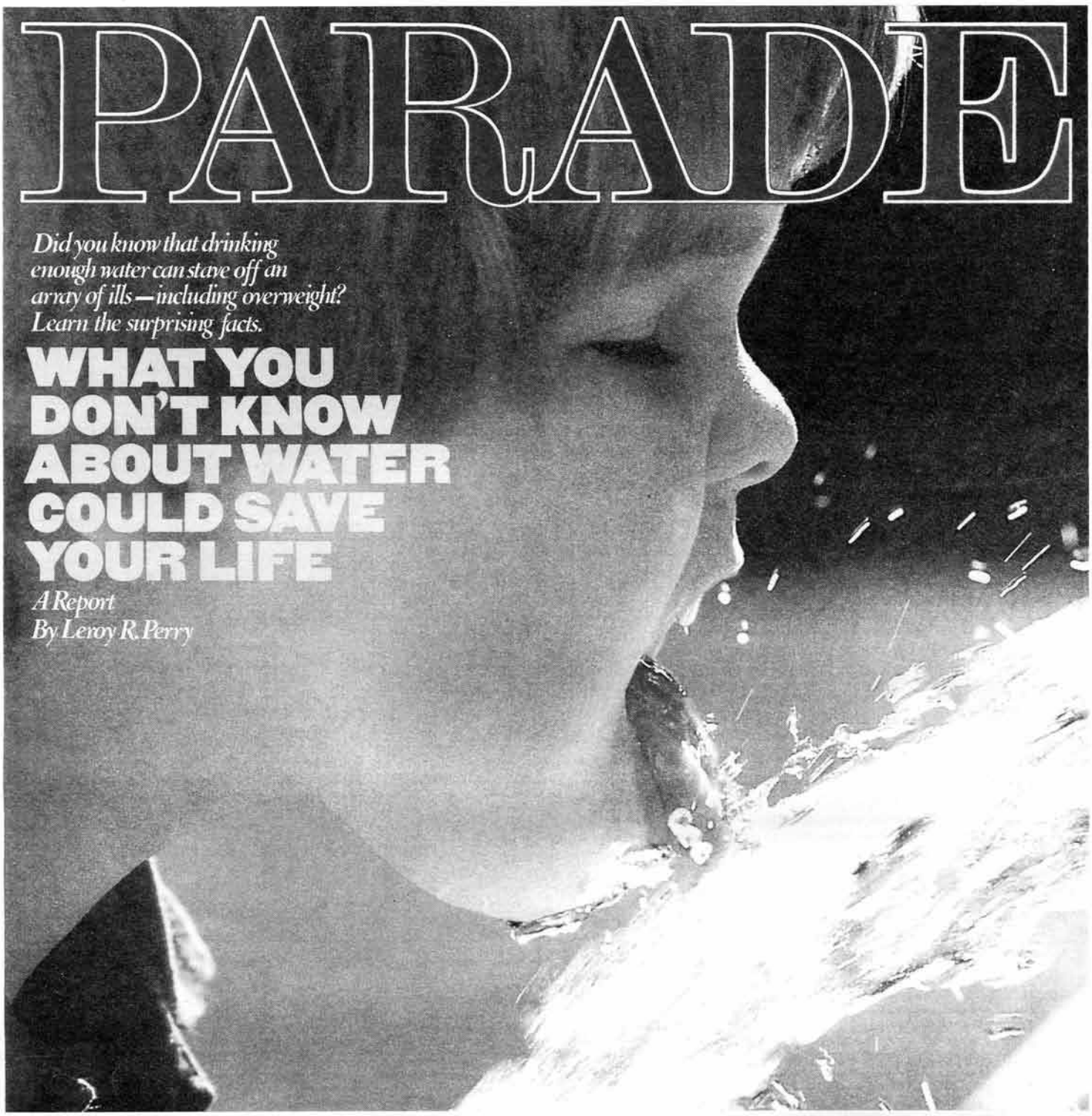

BY DR. LEROY R. PERRY JR.

Steven Mark Needham

It's a simple way to avoid: excess body fat, poor muscle tone, digestive problems, toxins, joint and muscle soreness and — believe it or not — water retention

ARE YOU DRINKING ENOUGH WATER?

WATER IS, BY FAR, THE MOST ABUNDANT SUBSTANCE ON EARTH AND IN OUR BODIES. A HUMAN embryo is more than 80 percent water, a newborn baby about 74 percent and a normal adult about 60 percent to 70 percent water. Next to air, water is the substance most necessary for our survival. Everything in our bodies occurs in a water medium. We can go without food for two months or more, but without water we can only survive a few days.

Yet most people have no idea how much water they should be drinking. In fact, many Americans live from day to day in a dehydrated state — that is, they don't drink enough water.

BY DR. LEROY R. PERRY JR.

The physiology of water. As the late Dr. Albert Szent-Gyorgyi, the discoverer of Vitamin C, said: "There is no life without water...water is part and parcel of the living machinery." Without water, we'd be poisoned to death by our own waste products and toxins resulting from metabolism.

When the kidneys remove wastes such as uric acid, urea and lactic acid, those wastes must be dissolved in water. So if there isn't enough water, wastes are not removed as effectively, and it may be damaging to the kidneys. Water also is vital to digestion and metabolism, acting as a medium for various enzymatic and chemical reactions in the body. It carries nutrients and oxygen to the cells through the blood. Water helps to regulate our body temperature through perspiration, which dissipates excess heat and cools the body. Water also lubricates our joints. This is particularly important if you're arthritic, have chronic musculoskeletal problems or are athletically active.

We even need water to *breathe.* Our lungs must be moistened by water to facilitate the intake of oxygen and excretion of carbon dioxide. We lose approximately a pint of liquid each day just exhaling!

So, if you don't drink enough water to be in "fluid balance," as doctors call it, you can impair every aspect of your body's physiological function. And the more you exercise, the more water you

need to keep your body in fluid balance. Dr. Howard Flaks is a bariatric physician in Beverly Hills, Calif. (Bariatrics is the branch of medicine dealing with obesity.) He says, "As a result of not drinking enough water, many people encounter such problems as excess body fat, poor muscle tone and size, decreased digestive efficiency and organ function, increased toxicity in the body, joint and muscle soreness (particularly after exercise) and water retention."

Water retention? If you're not drinking enough, your body starts retaining water to compensate for this shortage. So, paradoxical as it may seem, the way to eliminate fluid retention is to drink *more* water, not less.

"Proper water intake is the key to weight loss," says Dr. Donald Robertson, director of the Southwest Bariatric Nutrition Center in Scottsdale, Ariz. "If people who are trying to lose weight don't drink enough water, the body can't metabolize the fat, they retain fluid, which keeps weight up, and the whole procedure that we're trying to set up falls apart."

How much water should you drink? Of course, overweight people are not the only ones who need to drink a lot of water. We all do. Count the glasses if you must to ensure that you get the proper amount.

"I'd say the minimum amount a healthy person should drink is 10 eight-ounce glasses a day," says Dr. Flaks. "And you need to drink more if you're overweight, exercise a lot or live in a hot climate. Overweight people should drink an extra glass for every 25 pounds they exceed their ideal weight."

At the International Sportsmedicine Institute, where we work with Olympic and professional athletes from around the world, we have developed a formula for water intake that accommodates athletes and nonathletes alike. We suggest a daily water intake of 1/2 ounce per pound of body weight if you're a nonactive person (that's 10 eight-ounce glasses a day if your weight is 160 pounds), and 2/3 ounce per pound if you're an active, athletic person (13 to 14 eight-ounce glasses a day if you're 160 pounds). This ISI formula, inspired by East German physicians, has been used with great success for almost two decades.

Your water intake should be spread judiciously throughout the day, including the evening. Dr. Flaks cautions against drinking more than four glasses in any given hour. And you should always check with your physician before embarking on a regimen of increased water intake.

You may be wondering: If I drink this much water, won't I constantly be running to the bathroom? Initially, it has been observed, the bladder is hypersensitive to the increased amount of fluid, and you have to urinate frequently. But after a few weeks, your bladder calms down, and you urinate less frequently but in larger amounts.

Water vs. other beverages. There is a difference between pure water and other beverages that *contain* water. Biochemically, water is water — obviously you can get it consuming such beverages as fruit juice, soft drinks, beer, coffee and tea. Unfortunately, while such drinks contain water, they also may contain substances that are not healthy — and actually contradict some of the positive effects of the added water. As Dr. Jerzy Meduski, a medical doctor and biochemist in Los Angeles, says: "Beer contains water, but it also contains alcohol, which is a toxic substance." And caffeinated beverages like coffee stimulate the adrenal glands, while fruit juices contain a lot of sugar and stimulate the pancreas. Soda contains sodium. Such drinks may tax the body more than they cleanse it.

Another problem with these beverages is that you lose your taste for water.

The way to interpret all this, therefore, is that the recommended daily water intake means just that ... water!

Tap water or bottled water? It's difficult to speak in generalities about water quality in America, because it varies from location to location — and even from time to time at the same tap!

"Some communities don't even have to treat their water," says Eric Draper, campaigns director of the Clean Water Action Project, a Washington, D.C.-based activist group involved with water issues. "Essentially, the raw water they get from the ground is fine for drinking. In other areas the water source is very polluted, and no mater how sophisticated the treatment and filtration system, some of the chemicals are going to get through."

Utilities are required by law to test the water they provide to consumers. Unfortunately, they're not required to test the water at your tap. And a lot can — and apparently does — happen to water from the time it leaves the treatment facility until it comes out of your tap.

Gene Rosov, president of WaterTest Corp., the nation's largest independent drinking-water testing laboratory, has testified before Congress on water quality. He says, "I believe that the majority of health-related risks that are present in drinking water are a result of contamination added *after* the water leaves the treatment and distribution plant."

The reason for this, he says, falls largely into three categories: 1) *Contaminants,* such as lead, entering the water as it flows through the pipes to your tap. 2) *Back flow* into the water line, resulting from air-conditioners, stopped-up toilets and sinks. 3) *By-products of chlorination,* the so-called trihalomethanes (which are suspected carcinogens), formed as chlorine acts on debris in the water. An excess of particulate matter in the pipes results in greater trihalomethane levels — especially if the water sits around in the pipes for a while.

Is bottled water the 100 percent-safe alternative to tap water? "Not always," says one authority.

Bottled water has become a $2 billion business in this country. And one might ask: Is bottled water the 100 percent-safe alternative to tap water?

Unfortunately, the answer seems to be "no." Both California and New York did studies on bottled water and found many of the same impurities that are present in tap water, although the International Bottled Water Association has charged that both studies were flawed.

"People assume that when they buy bottled water, they're getting a better-quality water than when they turn on their tap," Rosov points out. "It's not always true."

"We did a survey of more than 100 bottled waters. The bottom line of the study was three points: 1) Good-quality bottled water and good-quality municipal water are not that different. 2) The decision to drink bottled water is an aesthetic choice (based on how the water tastes), and that aesthetic choice is usually the compelling reason. 3) You can't shower with the bottled water."

That last point is a reference to the fact that many contaminants in water are skin-absorbed (when you're taking a shower, for instance), while others are respirated (we breathe them in). Radon, a carcinogen, is breathed in when we take a shower.

We live in a chemicalized world. The fact is that we can never be 100 percent sure that what we drink or eat is 100 percent safe. But let's not forget that the U.S. probably has one of the safest water supplies in the world. In comparison, millions die each year in Third World countries from water contamination. Our challenge is how to make America's relatively good situation even better.

Our individual responsibility. Concern about the quality of our water has led to a boom in home water-treatment sales. While sales of bottled water are increasing by 10 to 15 percent annually, water-treatment sales are growing at a rate of 20 percent or more a year.

Various types of water treatments are available, including reverse osmosis, activated carbon filters, distillation, ion exchange (water softeners) and ultraviolet treatment. No single technique can remove all contaminants. Each has its own strengths and weaknesses. The type you get should be determined by the type of contamination in your water.

If you're thinking of buying a home-treatment unit, the first step is to have your water tested. A large independent lab like WaterTest can do it, or call your health department for a referral. In fact, testing may be a good idea whether you're thinking of getting a unit or not. How else are you going to determine the quality of your water?

Testing your water for a wide spectrum of chemicals and other pollutants can be quite expensive — $200 or more. You may choose to test simply for radon and lead, "the two worst contaminants," according to WaterTest's Gene Rosov, "because radon, which can cause cancer, kills more people in America than any other water contaminant, and lead affects so many and targets infants and pregnant women [lead impairs the development of brain cells in children]."

In the final analysis, to ensure clean water for our families, we must:

1) Continue to fight for clean-water legislation and support those who are dedicated to environmental preservation.

2) Test our water to make sure it's safe.

3) Use proper filtering systems to remove possible contaminants.

4) Not waste water

For more information. To learn more about water and your health, send a self-addressed stamped envelope to the Foundation for Athletic Research and Education, c/o International Sportsmedicine Institute, 3283 Motor Ave., West Los Angeles, Calif. 90034.

To learn about evaluating your water, write to WaterTest Corp., Dept. P, P.O. Box 6360, Manchester, NH 03108.

Several booklets discussing water quality have been published for consumers. *Safety on Tap: A Citizen's Drinking Water Handbook* ($10.45) is published by the League of Women Voters, Dept. P, 1730 M St., N.W., Washington, D.C. 20036. *Drinking Water: A Community Action Guide* ($3) is published by Concern Inc., Dept. P, 1794 Columbia Road, N.W., Washington, D.C. 20009. Or write to Is Your Drinking Water Safe?, U.S. Environmental Protection Agency, WH550, 401 M St., S.W., Washington, D.C. 20460, for an EPA publication.

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