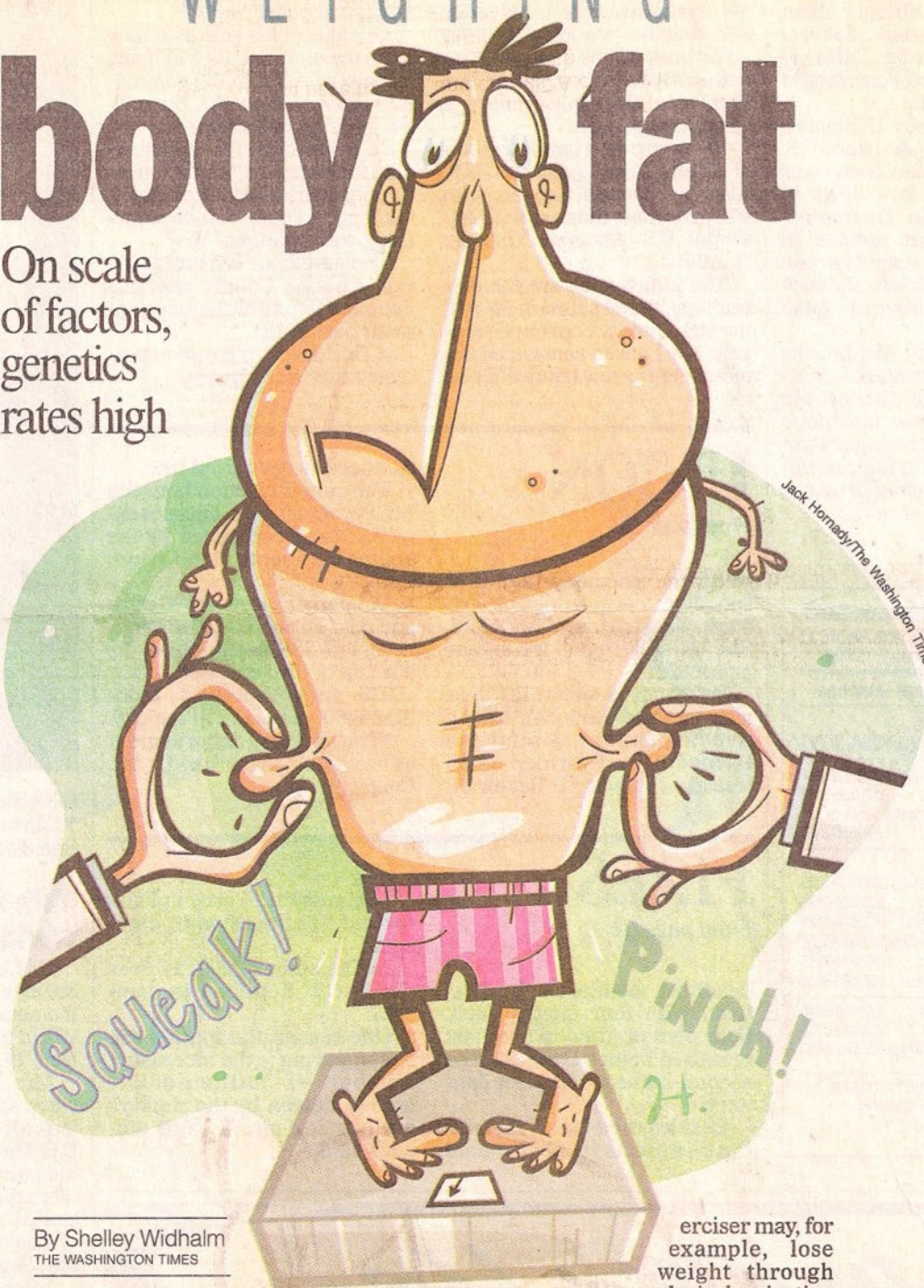
WEIGHING body fat

On scale of factors, genetics rates high



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By Shelley Widhalm
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Dr. Arthur Frank prefers using an ordinary scale instead of body-fat measurement devices with patients he sees through George Washington University's weight management program.

Aside from athletes and body builders, measuring body weight is a good way to judge body fat, says Dr. Frank, medical director of the program.

"It's not perfect. It's the most practical because it's easy. All you have to do is get on a scale," he says.

In some cases, however, a person's weight does not necessarily indicate a low percentage of body fat, says Stacey Snelling, associate professor in the department of health and fitness at American University in Northwest. A non-exerciser may, for example, lose weight through caloric deprivation and still retain body fat, she says.

"How you define a healthy body should not be based on only weight, but what that weight is made up of," says Ms. Snelling, who holds a doctorate in counseling.

Other methods used to measure body fat also have their pitfalls. Most have a 3 percent or more inaccuracy rate, says registered dietitian Jane Jakubczak, who is a student dietitian at the University of Maryland student health center in College Park.

One method, the skin fold thickness or pinch test, typically is used in health and sports clubs, gymnasiums and clinics. A caliper is used to measure how much subcutaneous fat, fat located directly under the skin, can be pulled away from the body in two or more sites.

Another method used at clubs and

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gyms is bioelectrical impedance analysis (BIA). Electrodes are attached to the feet or to a hand and foot to send an imperceptible electrical current through the body. Fat, a weak conductor of electricity, will slow the current's movement.

The subject's fluid intake and exercise and the time of day the test is taken must be standardized for the BIA to be accurate, Dr. Frank says.

"It's a fairly good system for research purposes, because you can standardize the conditions. You can specify exactly what you want people to do," he says.

Hydrodensitometry, or hydrostatic weighing, is considered to be the gold standard in the health and fitness fields for its accuracy and is used mainly for research, though it is costly and time-consuming. The test subject is asked to blow air out of his or her lungs and, while sitting on a chair, is lowered onto a scale in a pool of water. Lean tissue weighs more than fat, so a person with more lean tissue or body mass, which includes bones, organs, muscles, connective tissues and fluids, will weigh more underwater.

"It's the closest thing that doesn't have a lot of variables that might offset the numbers," Ms. Jakubczak says.

A similar method, air-displacement plethysmography, measures the amount of air a subject displaces while inside a chamber.

The dual energy X-ray absorptiometry (DEXA) scan, an X-ray used primarily to test for osteoporosis, can be used to determine the density of fat, along with bone and other tissues, by scanning the body as a subject lies on a table.

Two other fat-measuring methods, total body potassium and total body water, are based on the principle that lean body mass has constant amounts of potassium and water. The radiation that an isotope of potassium and of hydrogen emit is measured to calculate body fat.

The percentage of body fat a person needs to be healthy is mostly genetic, Ms. Jakubczak says. More than 60 percent of Americans have too much fat and are considered overweight, while 30 percent are considered obese, she says.

For women, a healthy body fat measurement is 20 to 25 percent, with 26 to 29 percent considered overweight and anything 30 percent or higher obese, according to health and fitness standards, says Denise Feeley from MedStar Research Institute in Northwest. She is an adjunct professor in the department of exercise science and sports nutrition at George Washington University, also in Northwest.

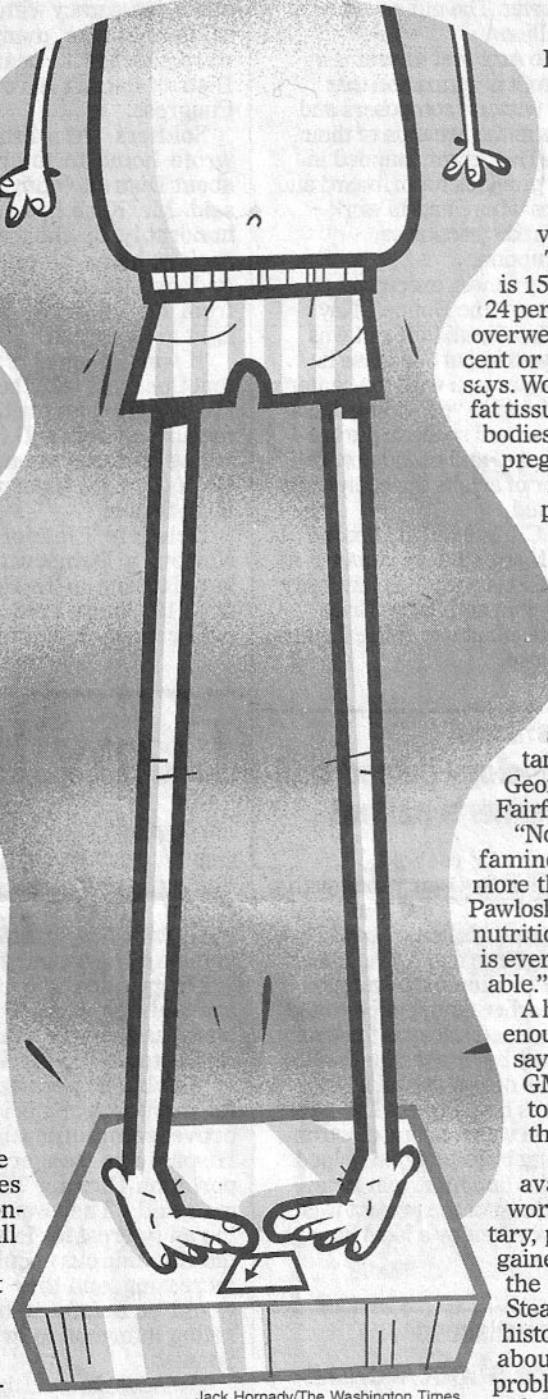
The healthy range for men is 15 to 18 percent, while 19 to 24 percent body fat is considered overweight and anything 25 percent or higher obese, Ms. Feeley says. Women generally have more fat tissue than men because their bodies are designed to sustain a pregnancy, she says.

Body fat is essential for protecting and cushioning the body's organs, regulating and maintaining the body's temperature and storing energy. From an anthropological perspective, fat also was necessary to survive times of famine, says Lisa Pawloski, assistant professor of nutrition at George Mason University in Fairfax.

"Now, we don't have times of famine, so we're collecting it more than we need it," says Ms. Pawloski, who holds a doctorate in nutritional anthropology. "Food is everywhere and readily available."

A hundred years ago, getting enough to eat was a concern, says Peter Stearns, provost at GMU and author of "Fat History: Bodies and Beauty in the Modern West."

As food became more available and leisure and work activities more sedentary, people did not adjust and gained weight, particularly in the past 20 years, says Mr. Stearns, who has a doctorate in history. Though people worry about being overweight, the problem has become a personal and social issue as the standards for healthy body weight became more rigorous, he says.



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"Fat became ugly and unhealthy, whereas it used to be seen up to a point as beautiful and desirable," Mr. Stearns says.

Research shows that too much body fat can be a risk factor in coronary heart disease, certain types of cancer, high blood pressure, high cholesterol, diabetes and hypertension.

"It's pretty easy to pack on fat," Ms. Pawloski says. "Once we start overeating, these fat cells expand and eventually divide. When we lose weight, the fat cells shrink, but don't disappear."

About 3,500 calories make a pound of fat. A woman who does not exercise, for example, needs about 1,500 to 1,800 calories a day, while a woman who exercises, needs 1,800 to 2,500 calories, Ms. Feeley says. Exercising helps burn calories and increase resting or basal metabolism rate, the energy used for breathing, pumping the heart and the body's other automatic mechanisms.

"For weight loss, you have to exercise regularly, and you really have to watch what you're eating," she says.