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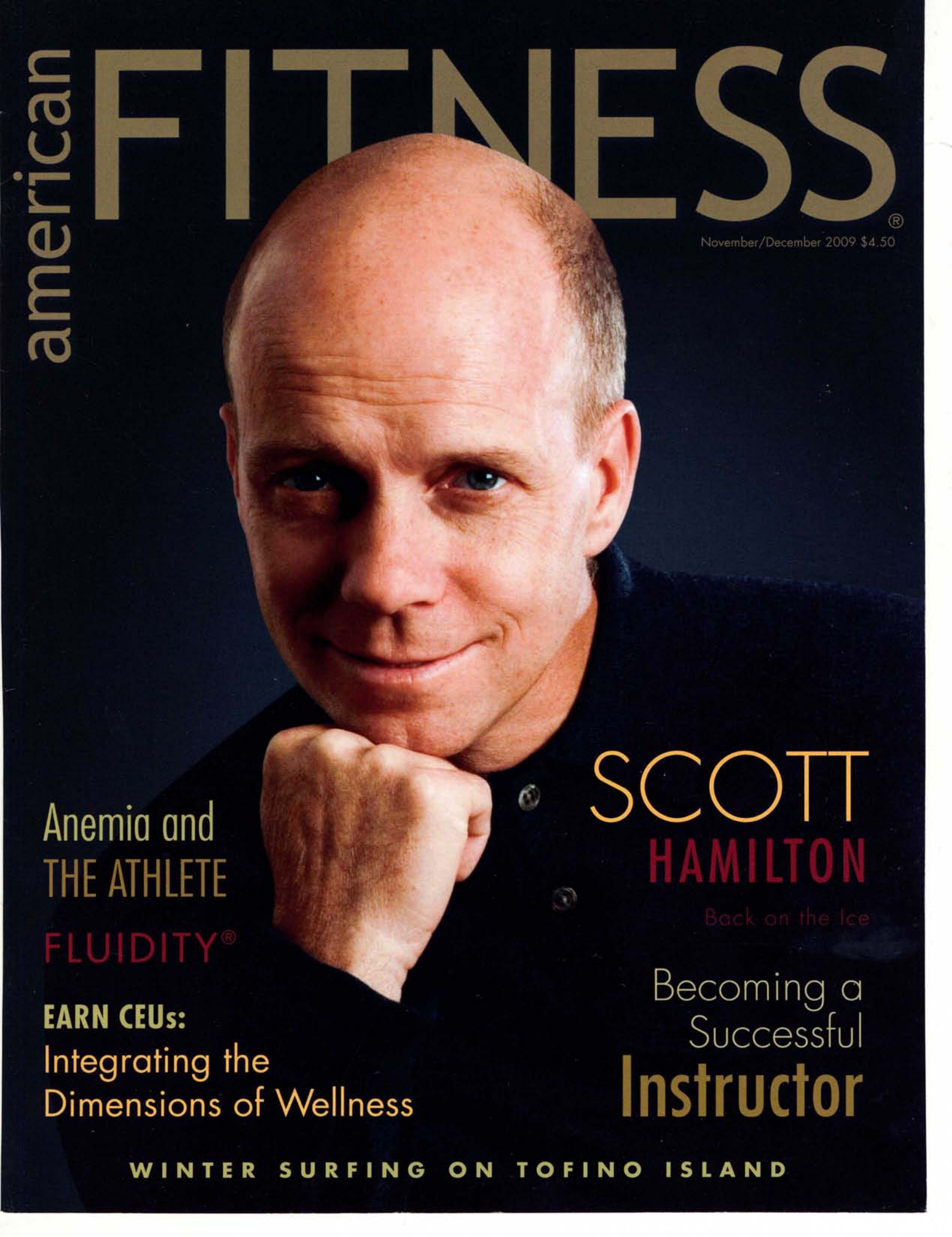

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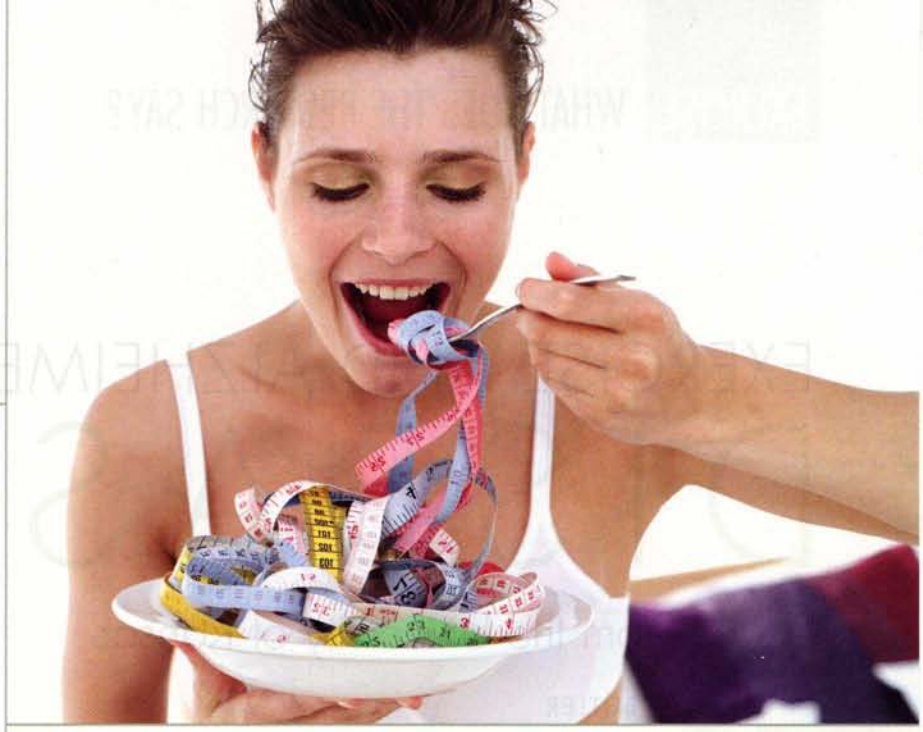
BY MATT BRZYCKI



Is waist circumference a good way to identify people who are at risk for cardiovascular disease?

The distribution of body fat has been used to predict health risks. In general, having central body fat (being "apple shaped") is associated with a higher risk of type 2 diabetes, hypertension and cardiovascular disease than having peripheral body fat (being "pear shaped").

One way to assess central adiposity is to measure waist circumference. For those who are normal weight or overweight, a waist circumference that's greater than 40 inches for men and 35 inches for women has an increased risk. But is it reasonable to think that two people of the same age and gender with the same waist circumference should be judged by the same "tale of the tape" if one person is, say, a foot taller than the other?

Enter the waist-to-height ratio. Various researchers have proposed that waist circumference should be no more than 50 percent of height. And according to at least one study, this cutoff point is valid for predicting risk.

A cutoff point of 0.5 for the waist-to-height ratio is certainly handy and easily understood. Researchers conclude (and advise), "Keep your waist circumference to less than half your height."

Bottom line: Waist circumference is a good predictor of cardiovascular disease but waist-to-height ratio might be better.

Does the amount of resistance that's used in an exercise determine the number of muscle fibers that are recruited?

It has been believed that using a maximal or near-maximal resistance is necessary to engage the greatest number of muscle fibers, thereby producing optimal improvements in strength. However, research on this topic shows otherwise.

The recruitment of muscle fibers is governed by the "Size Principle," which was proposed by Dr. Elwood Henneman in the 1950s. According to this principle, motoneurons are recruited by the nervous system based on increasing size: The motor unit with the smallest motoneuron is recruited first and the motor unit with the largest motoneuron is recruited last. (In general, the smallest motoneurons innervate slow-twitch fibers and the largest motoneurons innervate fast-twitch fibers.)

This orderly pattern of recruiting muscle fibers cannot be changed. As it turns out, the degree of recruitment depends on a maximal or near-maximal level of effort and not a maximal or near-maximal amount of resistance.

For optimal gains in strength, the resistance should be enough to allow the performance of at least 6 repetitions and no more than 20. Doing fewer than 6 repetitions carries a higher risk of injury; doing more than 20 repetitions becomes an aerobic effort, not an anaerobic one.

Does knowing information about portion sizes influence the intake of food?

An effective method of weight management is to control the size of portions. However, if people are given information about portion sizes, do they consume fewer calories?

In one study, 33 subjects of normal weight were given pasta for lunch on four different occasions over a period of two weeks. In three of these sessions, the subjects received the same amount of pasta—200 grams—but were told that it was 0.5, 1.0 or 1.5 portions; in the other session, the subjects received 300 grams of pasta to strengthen the belief that the portion sizes were varying. After consuming this "pre-load meal," the subjects were given the opportunity to eat more pasta and told that they could eat "as much or as little as they wished."

The researchers found that information about portion size didn't influence satiety (fullness) ratings or food intake. It was also found that the subjects viewed portion size as daily nutritional requirements rather than a fixed amount of food. Therefore, simply being fed material about portion sizes may not be enough to modify behavior.

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