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The Best (and Worst) Ways to Measure Body Fat

From old-school calipers to space-age vessels, find out which method is the most accurate *By Charlotte Andersen*



Body Fat Scales

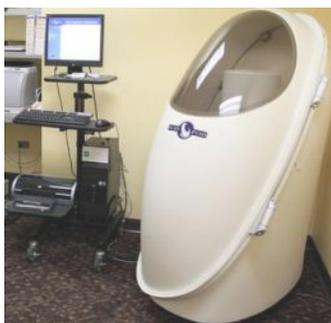
The Tanita, made famous by *The Biggest Loser*, and other body fat scales use bioelectrical impedance (BIA) to gauge the amount of lean mass, water, and fat in your body by sending a current from the metal plates under your feet through your body and timing how long it takes. While they are a relatively cheap option—you can find them for as little as \$19.99 at any department store, and you can use them in the privacy of your own home—they are notoriously unreliable. Take a huge drink of water and watch your percentage change by up to 10 percent.

Also known as the "pinch test", this involves another person (usually a personal trainer) using a set of calipers to measure the thickness of your skin at certain points on your body. The numbers are then tallied and plugged into a formula that estimates your body fat percentage based on your age and gender.

It doesn't hurt, but it does require you to show a little skin (tummy and thigh areas), and it's not something you can do yourself.

Generally considered more accurate than the previous methods, results can vary widely depending on who is administering the test and his or her skill level. Plus, calipers can only measure subcutaneous fat (There are do-it-yourself calipers kits you can buy pretty cheaply, but know that it's hard to measure the correct spots on your own body. Also, any calipers made entirely out of plastic probably aren't worth the postage it took to mail them to you). This method doesn't accurately measure muscle mass either.

Calipers



The Bod Pod

This expensive space-age looking machine is often the first choice of professional athletes and sports teams. It works by measuring the volume of air you displace inside the pod, and then runs it through a complicated mathematical equation to measure your fat, lean muscle mass, and resting metabolic rate, among other things. To use the Bod Pod, you need to wear a tight swimsuit and tuck your hair into a swim cap, as any air trapped in your clothing or hair could alter your results. After weighing yourself, you sit inside the machine (and breathe) for several minutes. It's not uncomfortable, though a little claustrophobic.

While the Bod Pod is much more accurate than all previously mentioned methods, it still uses an equation based on group-selected estimates. What's more, "lean, young females" is the group for which it's most likely to be off. Other downsides are that you have to go to a special facility (check your local university) and it can be a lengthy process.

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Handheld BIA Device

Often seen in gyms, handheld devices like the Omron use the same principle as the body fat scales but they suffer from the same reliability issues as the at-home scales and can fluctuate wildly depending on your hydration level. While they are easy to use—just grab the handles and hold!—they can also be pricey. Plus, they can't tell the difference between visceral and subcutaneous fat.

DEXA Scan

A dual-energy X-ray absorptiometry (DEXA) scan is primarily used for measuring bone density. It's as simple as laying on a table and getting a full-body X-ray, but the accuracy of the formulas have been called into question recently. While it seems to be nearly as accurate as hydrostatic weighing (more on that later) for young, healthy males, it falls apart when used on other groups. Scans are often covered by your insurance for bone density checks but not for body composition, and this test can run in the thousands for a full workup.



Hydrostatic Weighing



Dunk test! For this measure, you jump into a pool, sit on a special stool, and get into a "crunch" position so your body is entirely underwater. Then comes the hard part: You have to expel as much air as you possibly can and then hold perfectly still while the machine weighs you.

It took me nine attempts (nine!) before I mastered the trick of launching/ exhaling/ not panicking, but this test is generally considered the gold standard when it comes to accuracy. Check with local universities to find a facility that offers hydrostatic weighing—and schedule a good hour to get in and out.

**InBody
Bioscan**

"What may finally be the best of all worlds, the Bioscan is a machine that combines the ease-of-use of a BIA device with the accuracy of hydrostatic weighing. In testing the Bioscan correlated with the hydrostatic results with 98 percent agreement.

The process involves standing on a platform with four foot sensor pads and holding onto two handles for about one minute. In addition to your body fat percentage, the InBody can tell you where your fat is stored and where you have water collecting in your body (edema), which can be a sign of injury or inflammation. It will also measure your RMR, BMR, and relative strength of each of your limbs.

The machines are expensive but taking the test usually isn't. The Bioscan is fairly new technology so it can be hard to find. When it comes to ease of use and accuracy, it may be worth the effort to find one near you!"

