
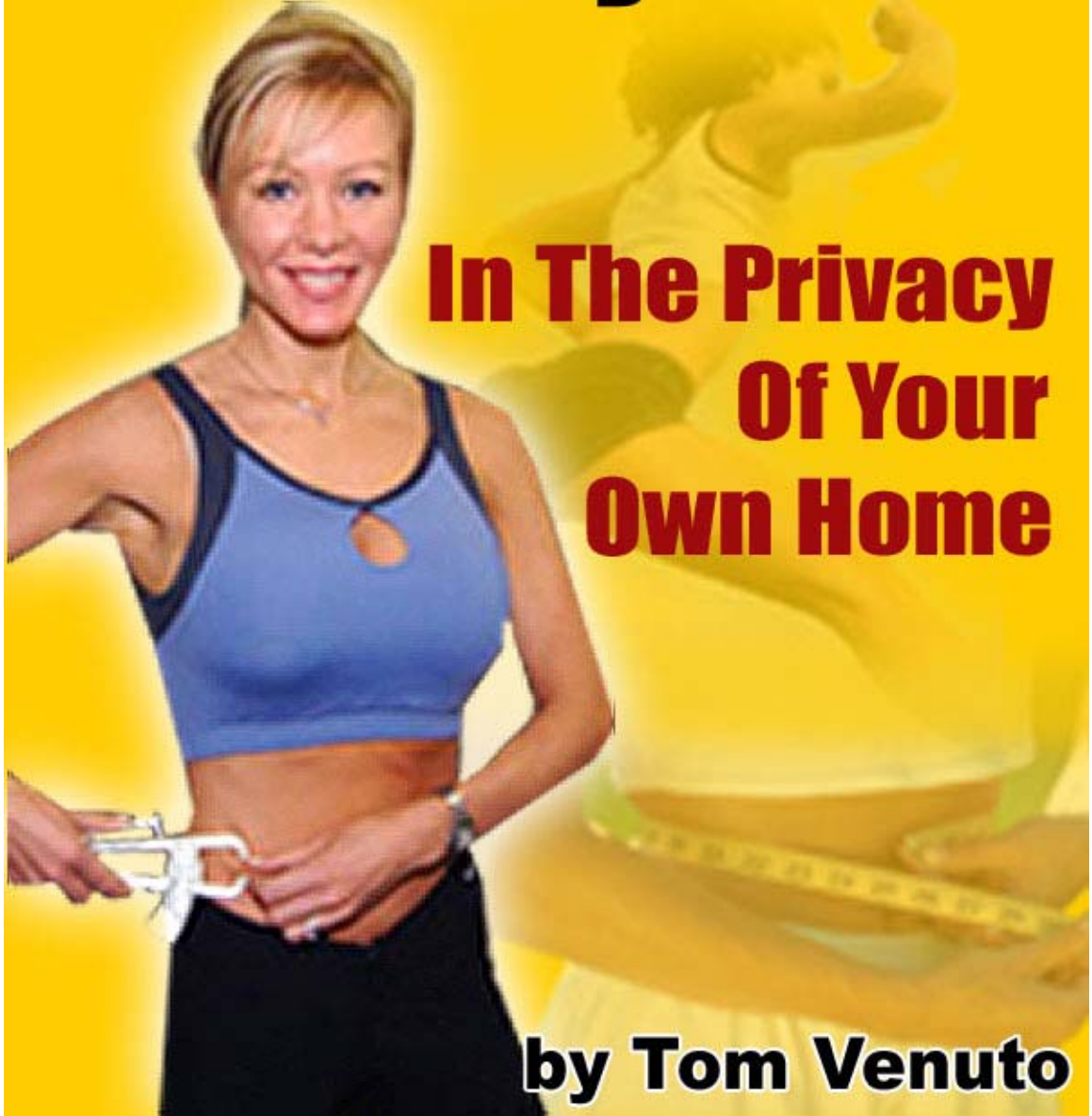


How To **Measure** **Your Body Fat**



**In The Privacy
Of Your
Own Home**



by Tom Venuto

How To Measure Your Body Fat In The Privacy Of Your Own Home!

- ✓ *Accurately Test Your Fat-to-Muscle Ratio*
- ✓ *Chart Your Progress With “Laser” Accuracy*
- ✓ *Find Out If Your Program Is Really Working*

**By Tom Venuto, Author of the #1 Best-selling Fitness E-Book,
Burn The Fat, Feed The Muscle (BFFM)**

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Feedback: How to Get From Where You Are to Where You Want to Be In The Shortest Time Possible

Management consultant and business author Ken Blanchard once said, "Feedback is the Breakfast of Champions." That's great advice, and it's just as true for managing your own body as it is for managing a company.

The formula for success in any endeavor is simple: First, you set a specific goal and designate a time limit for its achievement.

Second, you devise an action plan or strategy for achieving your goal. Your goal and your action plan must both be in writing.

Third, you launch at once, whether you think you're ready or not, and you begin taking efficient daily action in the direction of your goal.

That brings you to the fourth step – and it's a vitally important step that too many people forget: Get feedback on your results. Feedback means measuring your progress at frequent intervals to see if your action plan is working. Put another way, it means you have to "keep score."

Imagine a company where the owners did not meticulously keep track of sales and expenses on a daily basis. They probably wouldn't be in business for long would they? Imagine a basketball game where there are no hoops and the players just run around the court, dribbling, passing and so on, but there is nothing to shoot at and no way to keep score. Ridiculous? Well, it's just as silly to start a fitness or weight loss program and not keep score as it is to play any game or run any business without keeping score.

The way to get from where you are to where you want to be is to get continuous feedback to see how you're doing, adjust your action plan according to your results and repeat the process until you reach your goal.

Why body fat testing is the best way to get feedback and measure progress towards your fitness goals

Most people are totally obsessed with scale weight, even though the scale tells you nothing about what your weight consists of; fat or muscle. Scale weight can also fluctuate wildly on a daily basis based on your water levels, blurring the real picture (and messing with your head too!)

Losing *weight* is very easy. Losing *fat* – and keeping it off without losing muscle - is a much bigger challenge. If you simply wanted to lose *weight*, I could show you how to drop 10 –15 pounds over the weekend just by dehydrating yourself and using natural herbal diuretics. Bodybuilders and wrestlers do it all the time to make a weight class. But what good would that do if it's almost all water and you're just going to gain it all back within days?

If you want to achieve solid muscle gain or permanent fat loss and get off the diet roller coaster once and for all, you must squash your preoccupation with scale weight and instead judge your progress based on *lean body weight* and *body fat*.

Instead of looking only at *body weight*, a body fat test lets you focus on *lean tissue* versus *fat tissue* so you get a clearer picture of the effects your nutrition and training are really having your body. Body fat tests also allow you to monitor your progress and get continual feedback so you know how to adjust your nutrition or training on a week-to-week basis.

The scale, tape measure, mirror, and photographs are all helpful methods of feedback you can (and should) use, but alone they're not enough. It's difficult to notice daily and weekly changes in the mirror because they're taking place so gradually. Watching your progress unfold slowly like the grass grows can be frustrating and discouraging – sometimes even a de-motivator.

It's also difficult for most people to judge their own progress objectively. The best-known example of distorted self-image is anorexia, but it works both ways: Many bodybuilders suffer from "muscle dysmorphia," a term coined by psychologists that could best be described as "reverse anorexia." These are people who can never seem to get big or muscular enough.

Almost everyone has some small degree of distorted body image and you're always your own harshest critic. You seldom see changes in your own physique as readily as others do. That's why you need an objective, accurate, measurable and scientific method of measuring your results and recording your progress. Body fat testing is the answer.

Why skinfolds are the best method for personal body fat testing

There are many different methods for body fat testing, but some are more appropriate for personal, regular testing than others. For example, underwater weighing (also known as hydrostatic testing) has been called the "gold standard" for fat testing because of its high accuracy.

However, hydrostatic testing is simply not practical for personal use on a regular basis. Who wants to go to an exercise physiology lab and get dunked underwater every week while suspended from an oversized "grocery scale?" Not me, and probably not you either.

There are some other very high tech methods for measuring body fat these days, and they keep coming out with new ones all the time. Some are said to be so accurate that they can tell you whether your right arm has more fat than your left arm! The problem is, all these methods are too complicated, impractical, inaccessible or expensive. For home self testing, you want a method that is *simple, practical, easily accessible and inexpensive*. That's where the "pinch an inch" test comes in!

Skinfold self-testing at home

There are three types of body fat: The first is *subcutaneous fat*, which is stored right below your skin. Second, there's *intramuscular fat*, which is inside the muscle tissue (picture the fat inside a "marbled steak."). Third, you have *internal fat*, which is located on and around your internal organs for protective cushioning.

Skinfold testing is based on the premise that the majority of your body fat is *subcutaneous*— right below your skin where you can see and grab it. By “pinching” the skin and fat and measuring the thickness of the fold at one or more sites, you can get a fairly accurate estimate of your *total* body fat percentage...and more importantly, a way to consistently measure your progress from week to week.

Until quite recently, a challenge many people faced was not having an experienced fitness professional available to test you. For years, a skinfold test could only be performed by somebody else (there was no way to “pinch yourself.”) A second person was required to “pinch your fat” at several locations, including spots you can’t reach, such as your upper back. Even if you were the “human pretzel” and you could somehow reach around and measure all your own skinfolds, it wouldn’t be accurate.

This problem was surmounted when a company called Accu-Fitness invented an inexpensive plastic skinfold caliper called the Accu Measure. The Accu Measure is different from other calipers because it was designed so you can measure your own body fat at home and you don’t even need another person to help! This method is inexpensive, convenient and *private*!

There’s a LOT to be said for the *accountability factor* when you have a coach or trainer measure your body fat every week. However, the *privacy factor* of the Accu Measure is also nice because if you’re like most people, you prefer not to have a stranger groping your fat rolls every week. It’s kind of embarrassing in the beginning... although once you start getting leaner, you may surprise yourself when one day you’re proud to have someone “pinch you” - because there’s nothing there but thin skin on top of rock hard muscle!)

How To Measure Your Own Body Fat At Home With The One Site Skinfold Test

Skinfold self-testing is now possible because instead of using the traditional three or four site skinfold formulas that require a second person, the Accu Measure only requires a skinfold to be taken at ONE SITE - the Iliac crest (also known as “suprailliac” or top of the hip bone), and you can measure that spot yourself! Based on this *single measurement*, you simply refer to a body fat interpretation chart for an accurate estimate of *total body fat*.

Some people wonder whether the one site iliac crest pinch test is inaccurate, especially if they store more fat in their lower bodies than they do around the waist. The truth is, it doesn’t matter where you store the most fat. What matters is that you have a method you can use regularly, which gives you consistent readings you can use to compare one week’s results to the next, and the Accu Measure does that beautifully.

Studies have shown that measuring at three or four sites *does* increase accuracy slightly, but not greatly so – so don’t worry that the Accu measure only requires pinching one spot. Research has also shown that measuring more than four skinfold sites does not always increase accuracy further. In fact, if the tester is inexperienced, it can actually increase the margin for error).

Is the one-site skinfold test really accurate?

With all the high tech fat testing gizmos available these days, you might wonder if skinfold testing is really accurate – especially a one-site skinfold test. I have to admit, the first time I saw an Accu measure, I thought the little plastic thingy was a piece of junk. I didn't see how it could possibly come close to comparing to my \$450 "Skyndex I" digital caliper we use at our health clubs (with a four-site measurement). It wasn't until I used the Accu Measure myself and had hundreds of my clients use it (who didn't have any other options for testing), that I began to appreciate the value of this simple instrument.

What I discovered is that there's definitely a learning curve and you may get wildly inconsistent measurements when you first start using the Accu measure. But after you master the technique, you will get measurements with uncanny accuracy and consistency (and it's *consistency* that really matters, not "accuracy.")

For example, the first time you measure your iliac crest (hip bone) skinfold, taking three measurements in a row, you might get readings of 14 mm, then 17 mm Then 9 mm, etc. This shows very poor accuracy because you're a beginner and you're unfamiliar with proper "skinfold pinching" technique and site location using anatomical landmarks.

Don't worry. *Everything* is difficult the first time, and practice makes perfect - so practice! For the first week, measure yourself every day – for practice purposes, not for progress reporting purposes (because you won't see much difference in body fat from day to day). Within that first week, your technique will improve dramatically. You'll see measurements more like this: 14 mm, 13 mm, and 15 mm. Each skinfold in this example is only one millimeter apart, indicating that your accuracy has improved (you can average those three numbers to 14 mm as your official measurement, by the way).

Within two or three weeks of practicing, you'll have excellent accuracy. You know you have the technique perfected when you get three of three or at least two of three measurements identical. For example: 13 mm, 13 mm, 13 mm, or 13 mm, 13 mm, 14 mm.

During the sometimes frustrating learning stages, it will make you feel better to know this: When I was in college learning body composition testing in exercise physiology lab and then again in ACSM certification workshops, our instructors and professors told us that it takes 100 tests on 100 different subjects before you are a "proficient expert" at testing. So stick with it. (And keep that in mind if you choose to have someone else measure you).

Even if you have access to a fitness professional, personal trainer or exercise physiologist to measure you with a multiple site skinfold test, the accuracy will only be as good as the tester's experience and testing technique. The technique of skinfold testing is not accurate or inaccurate per se –the *person doing the testing* is accurate or inaccurate. So... you might as well become an accurate tester yourself, right?

Should you still test your own body fat even if you have other methods available?

Having a personal trainer or fitness professional measure your body fat with a multiple site skinfold test is great, as long as you have regular access to that person (you need frequent feedback to track your results), and you're certain your tester is experienced. I have no idea how many people I have tested over the last 15 years, but if I had to guess, I would say it's at least a few thousand, and that's why my accuracy and consistency are so good.

At our health clubs, and with my personal coaching clients, I use the Skyndex I, a very accurate digital caliper that uses the "Durnin" 4-site pinch test formula. If you have access to this type of testing, you can certainly continue using it and an experienced tester will give you very accurate and consistent results. However, I still believe the Accu Measure is a handy device to learn how to use and keep around, just in case your official fat tester "skips town" on you.

If you have a friend, husband, wife, boyfriend, girlfriend, roommate, training partner, etc. who can test you with traditional multi-site methods, that's an option too. Just remember, your tester will have to go through the learning curve and their accuracy will be dubious in the beginning until they are experienced.

If you prefer to have someone else test you, you can use the Accu Measure (most economical), or you can invest in a professional health club grade electronic caliper such as the Skyndex I (\$350 - \$500), the Lange (\$200-\$300), The Harpenden (\$350 to \$450) or the economical, (yet still accurate), The Slimguide (\$30), which is plastic, but quite heavy duty. All these calipers are available from Creative Health Products. Their website is www.chponline.com and their phone number is 800-742-4478, email: sales@chponline.com. The charts you need to convert skinfolds (in millimeters) to body fat percentage come with the calipers when you purchase them. (Except the digital Skyndex I, which has a nifty built in microprocessor that converts your skinfolds to body fat percentage automatically)

What about those fat testing "scales" or hand-grippers for home testing?

Another body fat testing device that can be used for personal home testing is the "body fat scale." You just step on it like a regular scale, and it not only flashes your *weight* on the digital readout, it also tells you your *body fat percentage*. The most popular brand of fat testing scale is made by Tanita.

The Tanita scale is based on bio-electric impedance analysis (BIA) which is a fancy way of saying that a current gets passed through your body to measure your tissue's resistance to electricity. (Don't worry – you don't get electrocuted – you don't even feel anything because it's a very low-amperage current). The BIA test measures body composition based on the fact that muscle has high water content, and is highly conductive, while fat has lower water content and is not highly conductive.

I would only recommend the "body fat scales" as a last resort or a 2nd choice for home self testing. Here's why: The makers of the scale point to the scientific

literature on BIA testing, which *does* show that BIA is valid technology. What scale makers don't tell you is that most of the research on BIA was done on the conventional BIA analysis test, which is done in an exercise physiology lab. In this type of test, one electrode is placed on your hand, and another on your foot. The current is then passed through you to measure *whole body* electrical conductivity. The body fat scale only measures your *lower body*.

Incidentally, another company called Omron makes a similar device which uses a hand gripper. The gripper has the same problem – it passes the current through your *upper body* only and doesn't measure full body electrical conductivity.

There's also a second drawback to the fat testing scales and grippers. Because the BIA test is based on body water balance, your state of hydration can impact the level of accuracy. Anything that affects your water balance (alcohol, caffeine, diuretics, exercise, etc) can mess up your results. If you measure yourself in the morning, and then again the same day in the evening when you're retaining more water, you can get a completely different result. Ditto for after exercise, when you can be dehydrated. This drawback can be partially overcome by always doing your weekly test under the same conditions and same time of day and by following the instructions that come with the scale.

Some of my clients told me that they really like the Tanita scale because it's "easier to use" than skinfolds. They swear the results seem consistent each week and seem to correlate with their weight loss and the way they look in the mirror.

However, other Tanita users told me that they get some pretty funky readings at times, so they don't trust the scale's accuracy level. Some people even say that they can step on the scale once, then step on it again one minute later and get a totally different reading – like a 3% lower, for example (yeah, don't we *wish* body fat could drop that fast!).

One reason you might want to use a Tanita scale for home testing is if you have a very high body fat percentage, which sometimes makes it difficult to grab your iliac skinfold and get an accurate measurement. When skinfolds are over 20 mm in thickness, it tends to decrease accuracy somewhat. In extreme cases, you might not even be able to get the jaws of the caliper around the skinfold or your skinfolds may be off the chart. (Note: The Tanita has its limits too, however: 300 lbs./ 136 kilos).

If you're already very lean, with a 2 or 3 millimeter iliac crest skinfold, and you want to get even leaner (but you're still visibly storing fat elsewhere on your body), you may have the opposite problem – not enough fat to pinch at the hip bone. That makes it hard to track changes from week to week because there's only so much further your iliac skin fold can decrease (1.5 to 2.0 mm is like having no fat... just skin; but you might have 6 or 7 mm on your back or abdomen which could still drop and be measured).

One major advantage of skinfold testing over body fat scales, grippers or other "indirect" measurements is that the skinfold tests allow you to "palpate" your body fat. In Webster's dictionary the definition of palpate is "to examine by touch."

When I begin my 12-16 week bodybuilding contest prep phase, not only do I get measured (by a colleague at the gym), I also have this almost unconscious habit of "grabbing my fat" around my navel and hip bone. In the middle of the day while sitting at my desk, or while I'm walking down the street, I find myself constantly "pinching my fat" with my hand/fingers. Here's the interesting part: After competing in over two dozen bodybuilding contests over a 14 year period, I've reached the point where I can tell by touch (palpation), exactly whether I'm getting leaner or not. This may seem to go against my recommendation of having a "scientific," "objective" and "quantifiable" method of gathering feedback, but *in addition to* having the former, it's wise to have as many methods of gathering feedback as possible – including those that are subjective and intuitive.

In Neuro Linguistic Programming (NLP) lingo, this is called having "**sensory acuity.**" In plainer English – it's when you get really "tuned in" to your body so that you notice even the tiniest changes. The neat thing I discovered about skinfold testing in general as compared to other methods, is that doing weekly skinfold tests on yourself helps you build your sensory acuity and helps you get to know your body better. When you grab your own skinfold and pinch it with a caliper, (even the \$20 plastic calipers), you can get a "feel" for skinfold thicknesses and really understand what 10 mm or 7 mm or 3 mm really is like. You also become aware of it when then skinfold gets smaller.

But getting back to the body fat scales... with all the previous admonitions taken into consideration, the body fat scale is certainly a second option, especially if your fat level is in the extreme range in either direction, or there's some other reason you can't or don't want to use a caliper. All things considered though, the Accu Measure gets my first place vote for home self testing, for most people, most of the time.

The Fat Track II Digital Caliper – A high tech improvement on the economical Accu Measure or more trouble than it's worth?

Okay, so here's the deal: A few years after the original Accu measure plastic caliper came out, the Accu Fitness company decided to go high tech and create another model of caliper for personal self testing, only this time it was a little palm-sized electronic pincher gizmo with a microprocessor that sets you back about \$49 bucks. It was called the Fat Track (and most recently, the Fat Track II or Fat Track Gold which comes with a tape measure called a "Myotape").

This electronic caliper has some neat benefits. You pinch yourself at three sites instead of one, which you would presume, increases accuracy. You also get an instant digital readout, so you don't need to look up your body fat percentage on those cumbersome interpretation charts.

It all sounds great in theory, but in my opinion, it's not quite as easy in the real world. In the majority of the users I've surveyed, I found that the Fat Track is MORE difficult to use than the \$20 plastic Accu Measure caliper. I have a theory about why this is true: First, if you haven't mastered the technique, then three skinfold sites can increase your margin for error, not decrease it. Second, the Fat Track uses a totally different spring mechanism and caliper jaws than ANY of the standard calipers which have been research tested for accuracy. Third, the Fat Track requires a thigh skinfold. You'd think using a body fat formula that measures

lower body would increase accuracy, and it might if the measurement were perfect. What most people don't realize is that the thigh skinfold can be very tricky to pinch on many people. The skin just doesn't pull away from the thigh muscle in a clean U-shaped fold all the time, and sometimes it clings to the muscle so tightly you can hardly grab it at all. The abdominal and chest skinfolds sometimes present similar problems. On the other hand, the iliac crest skinfold used with the plastic Accu measure, is a no-brainer – it's the easiest place to pinch.

I own a Fat Track, but I don't use it. I gave up after I kept getting inconsistent measurements. I know the same thing happened to many of my clients who tried it. However, if you own a Fat Track II (or were thinking about getting one), I'm not telling you not to use it, just advising you about the pros and cons. I believe it *could* be accurate (and convenient for home self-testing) if you master the pinching technique and have no problem with the required skinfold sites. There's a learning curve associated with ANY skinfold testing device. It's possible I may have thrown in the towel before I learned how to use the darn thing properly (never was any good with electronic gadgets anyway... but whaddya expect, I'm just a "muscle head" from New Jersey!)

What's important is that the method of fat testing you choose gives you results that are **consistent** from one measurement to the next. As with the Accu measure, you'll know you've mastered the Fat Track technique when you can repeat the test three times in a row and get the same or almost the same measurement. So if you're using a Fat Track and getting consistent readings from week to week, then by all means keep using it. But if your Fat Track II measurements are all over the map, even though you've been practicing for weeks, then you might opt for the regular "el cheapo" \$20 accu measure. Sometimes simplicity Trumps technology.

Testing with more than one method

I would usually not recommend having your fat tested with two different methods (i.e, your trainer measures you at the gym and you measure yourself at home... or you measure yourself with calipers and you also measure yourself with a Tanita scale), because using two different methods will often give you two different results. Getting two different results will usually just confuse you. Pick ONE method as your "official" testing method and stick with it.

You *could* have yourself measured with another method -- strictly for curiosity's sake and experimental purposes. This would allow you to see how each technique compares to each other. For example, it's always interesting to go to a university exercise physiology lab and get yourself "dunked" (hydrostatically weighed) if you ever have the opportunity. But again, use only one method as your "official" method and only compare the readings from one device to the readings from that same device the week before.

The 7 Step Self-Testing Method For "Laser-Accurate" Results

One way to greatly increase your accuracy is to be ruthlessly consistent in your pinching technique by using an "anatomical landmark." This means that before grabbing a skinfold, you must carefully LOCATE the *precise spot* to pinch by finding a reference point such as a bony protrusion (like where the top of your hip bone

pokes out). That reminds me, one of my clients once had her husband mark "the pinching spot" with a permanent marker to improve her testing accuracy. Kind of funny, but I'm sure she got a *very* accurate reading each week! (Although she'd probably get some odd stares if she showed up at the beach with lines drawn all over her!)

Anyway, the purpose of the "anatomical landmark" is to help you pinch exactly the same spot each time to increase your accuracy. If you pinch one inch to the left, right, above or below the usual spot, this will decrease your accuracy. Locating the anatomical landmark will help you pinch the exact same spot every time.

Here are the exact steps for finding the right spot to pinch, and taking an accurate skinfold with the Accu Measure calipers

1. Holding the Accu measure in your right hand in "pinch-ready" position, reach across your body with your left hand and locate the proper skinfold site by taking your left index finger and putting it on the top of your right hip bone (That's the "Iliac crest"). This is the anatomical landmark you must find before you take the measurement. Don't just grab randomly without locating the spot first - it's extremely important to grab the same place every time. One inch up, down, left or right and your measurements will be inconsistent.
2. Leaving your left index finger on the spot, take your left thumb and pinch the skinfold firmly between your left thumb and index finger.
3. Without letting go of the skinfold, clamp the caliper onto the middle of the skinfold using your right hand. As you close the caliper, the plastic slide-rule will move until the point where the Accu measure "clicks" - that's when you know your measurement is done. Then, release the caliper jaws and look at the calipers to see where the black line on the slide rule is pointing. That number is your Iliac crest skinfold thickness in millimeters.
4. When you're just starting out, I recommend taking three measurements. If they're all the same, (i.e, 13, 13, 13) then your accuracy was good and that's your measurement. If they're close, take the average of the three (example, 14, 13, 13.5 = average of 13.5 mm). If your measurements "all over the map" (19 mm, 11 mm, 15 mm), your technique is off and you need some practice! Don't give up - keep working at it.
5. Record the SINGLE measurement at the illiac crest once per week. Measure to the half of a millimeter: If the black line on the slide rule points to between 12 and 13, write down 12.5 millimeters as your measurement.
6. You now have your skinfold thickness in millimeters. To translate that number into a body fat percentage, look at your skinfold interpretation chart. The chart that comes with the Accu measure caliper is fine, but to avoid making the chart huge and cumbersome, it only lists skinfolds within a 2 mm range. Therefore the original Accu measure chart may over or under estimate your body fat. I wanted more precision, so one day, I took it unto myself to crunch some numbers and improve the chart. My "expanded" Accu measure skinfold interpretation chart has taken the data from the original chart and extrapolated it to the half millimeter in skinfold thickness and it gives you a body fat

measurement within several tenths of a percentage point (results are listed on the chart to the hundredth of a percentage, but that is only because I didn't round them off – no skinfold test is that precise. Also, keep in mind that greater precision on the interpretation chart is useless if your pinching technique is sloppy.)

7. Once you've translated your iliac skinfold into a body fat percentage, write down body fat % and skinfold on your 12 week progress chart and then fill in all the calculations for LBM, etc. EXCEL spreadsheets can automatically do your calculations for you. Continue to get frequent feedback by checking your body composition *weekly*.

*NOTE: IF you are left handed, simply reverse these instructions: Pinch the skinfold on your left hip bone with your right hand, and clamp the calipers on the skinfold with your left hand.

Age categories on the body fat interpretation charts

When you look at the Accu measure interpretation chart, you'll notice that it's sorted into age groups. That's because statistically speaking, body fat increases with age, at least in "normal" non-athletic populations. With age, the average person also tends to store more body fat internally (internal organs and intramuscular fat) as opposed to below the skin (subcutaneous fat). This internal and intramuscular fat can't be measured with a skinfold.

The increase in fat represented on the chart with age groups is an attempt at estimating the higher fat in the "average" older person and accounting for the internal fat that can't be pinched.

On the body fat charts in the back of this book, you'll notice that if you're a 21 year old female, and your iliac skinfold is 10.5 mm, the chart says your body fat is 20.3%. However, if you're a 51 year old female and your skinfold is 10.5 mm, the chart says your body fat is 24.0%, even though you have the same skinfold.

The only drawback to the age categories is that if you're older, especially over 50, and you're extremely fit, you're an athlete, and/or you've been training your entire life, then using your age category might overestimate your body fat slightly. For purposes of charting your progress from one week to the next, that doesn't really matter. It wouldn't even matter if you used the *wrong* age category, as long as you used the **same** age category on the chart.

What's most important is consistency from one measurement to the next. By the way, that also means that if you have a birthday moving you into the next category on the chart, you should keep using the same age category for as long as you are working on the same goal and using the same progress chart.

What are average and ideal levels of body fat?

I'm going to make this real simple for you:

If you want to lose body fat and look leaner, then an "ideal" level of body fat is a level that is *lower* than it was last week!

If you're happy with how you look and you don't want/need to get leaner, then an "ideal" level of body fat is the *same* as it was last week!

That was not a smart-alec answer. I'm serious. Your goal should be **personal improvement**... right up until the day when you're satisfied with what you've achieved, and then your goal becomes maintenance – for life. Don't get hung up on body fat numbers as anything other than a way to get feedback and to quantify your improvements.

Having made that point, I'll be happy to share some body fat "norms" with you.

Body fat averages and ideals are different for men and women. The female hormone estrogen causes women to carry at least 5% more body fat than men. The average woman has about 23% body fat and the average man about 17%.

Body fat average and ideals also vary with age. In both sexes, body fat increases while lean body mass decreases with age. According to Dr. William Evans of the USDA Human Nutrition Research Center on Aging at Tufts University, the average American loses 6.6 pounds of lean body mass every decade after age 20. The rate of muscle loss increases after age 45. With advancing age, most people gain fat even when body weight doesn't change much; the muscle shrinks as the fat accumulates. The average male college student (age 20) has about 15% body fat. The average sedentary middle-aged male (50) has 25% body fat or more.

It's important to note that commonly quoted "average" body fat levels are not necessarily "ideal" ranges (who wants to be just "average?") A body fat of 25% would statistically place a female in the "average" category, but this level isn't "ideal."

An ideal percentage of body fat for a non-athlete is around 10-14% for men and 16-20% for women. These ideal body fat goals are realistic, achievable and maintainable by nearly anyone. Desirable body fat levels for athletes may be even lower, depending on the nature of the sport. At these "ideal" body fat levels, you will look lean and relatively fat free.

If you want the "ripped" look of a bodybuilder or fitness competitor, you may need to drop even lower: Most men will start to show excellent muscle definition when they hit the single digits. Women look defined when they reach the low to mid teens.

Body fat rating scale

	<u>men</u>	<u>women</u>
Competition Shape ("ripped")	3-6%	9-12%
Very Lean (excellent)	≤ 9%	≤15%
Lean (good)	10-14%	16-20%
Average (fair)	15-19%	21-25%
Below average (poor)	20-25%	26-30%
Major improvement needed (Very poor)	26-30%+	31-40%+

Athlete norms

High levels of body fat decrease athletic performance. Studies have shown that high body fat levels cause decreased endurance, speed, balance, agility and jumping ability.

<u>Typical average body fat for athletes</u>	<u>male</u>	<u>female</u>
Distance runners	5-10%	10-16%
Elite marathon runners	3-5%	9-12%
Sprinters	5-12%	12-18%
Jumpers & hurdlers	6-13%	12-20%
Olympic gymnasts	5-8%	11-14%
Bodybuilders, contest condition	3-5%	8-12%
Bodybuilders, off season	6-12%	13-18%
Football players, running backs, receivers, def backs	7-9%	NA
Football players, linebackers	14%	NA
Football players, linemen	16-19%	NA
Soccer players	7-12%	10-18%
Baseball/softball players	10-14%	12-18%
Pro basketball players	7-12%	10-16%
Wrestlers	4-12%	NA
Cross country skiers	7-13%	17-23%
Tennis players	10-16%	14-20%
Swimmers	6-12%	10-16%

How much body fat is unhealthy?

High body fat levels have been linked to over 30 health problems including diabetes, high blood pressure, cardiovascular disease, cancer and osteoarthritis. Being categorized as "clinically obese" means that body fat is at such a level that health problems become more of a concern. Men are considered borderline at 25% body fat and clinically obese at 30%, while women are borderline at 30% and clinically obese at 35% body fat.

How low should you go?

It's impossible for your body fat levels to drop to zero since some fat is located internally and is necessary for normal body functioning. This is called "essential fat." Essential fat is necessary for energy storage, protection of internal organs, and insulation against heat loss. Essential fat is found in the nerves, brain, bone marrow, liver, heart, and in nearly all the other glands and organs of the body. In women, this fat also includes sex-related fat deposits including the breast tissue and uterus. Essential body fat at least 2-3% for men and 7-8% for women.

Competitive bodybuilders and endurance athletes such as marathon runners have been known to reach body fat levels as low as 2-4% in men and 8-10% in women. With today's obsession for leanness, the safety of dropping to very low body fat levels should be questioned. Being extremely lean is undoubtedly healthier than being extremely obese. However, trying to *maintain* extremely low body fat levels for too long a period of time is neither realistic nor healthy.

This is particularly true for women. With few exceptions, most women who try to maintain their body fat levels at or below 10-13% can have problems with estrogen production, their menstrual cycles and reproductive systems become disrupted and bone density may decrease, putting them at higher risk of osteoporosis as they grow older.

Reaching these extremes of body fat during a competitive season is par for the course for a serious athlete in some sports. *Trying to keep it there for a prolonged period* is when the problems pop up. Training and dieting in cycles so that body fat level varies between in-season and off-season is healthier and more sensible. The typical female bodybuilder or fitness competitor will maintain a very lean (and healthy) 13-17% for most of the year, then drop down to 8-12% for competition. Men may drop as low as 3-5% for competitions, then increase to 8-12% in the off-season

How much body fat should you lose each week?

My recommendation is to make 1/2% per week your standard and benchmark if fat loss is your goal, which adds up to 6% lost in 12 weeks. This is achievable by anyone and shows good, solid progress. Moreover, this rate of fat loss can be maintained over a fairly long period without plateaus.

I've seen quite a few people lose .6% or .7% body fat for week after week if they were disciplined and worked especially hard. Many of my clients have lost 7-8% in 12 weeks. This is "above average" progress. Consider anything over a half a percent per week as "gravy." I've even seen people lose .8%, .9%, even 1.0% per week, but I have never seen anyone maintain these rates of fat loss for more than a short period of time. They were "spikes."

If you're an "over-achiever" and you want to lose more than 6% body fat in 12 weeks or more than 1/2% every week, then set the goal and go for it. But set it with this warning: Track your results using body fat testing and chart your lean body mass, not just your weight. Make sure the weight you lose is all fat. Keep focused on *fat* loss not *weight* loss.

Come on! Could that "little plastic thingy" really be accurate and consistent? What does the research say?

If you compared the Accu measure to dual energy X-ray absorptometry (DEXA) or deuterium oxide dilution (hydrometry) or one of the other new technologically advanced methods of body fat assessment, you might find that skinfolds have a margin of error of three percent or even higher. That doesn't matter, because **accuracy** isn't as important as **consistency of repeated measurements**.

Does it matter if the Accu measure says you're 21% and you're really 18% or 24%? Maybe to you psychologically, but in reality, consistency and repeatability are more important than sheer accuracy. Actually the only truly 100% "accurate" method of body fat testing is direct assessment through dissection. Wanna volunteer? The Accu measure is surprisingly accurate for such a simple device, but more important, it provides *consistent* measurements if you know how to use it properly.

As for research, there's hasn't been much done on the Accu measure or other home testing devices. Most of my observations and comments come from anecdotal reports and my experience working with hundreds of personal coaching protégés and e-mail mentoring clients. As of this writing, I know of only one study on the Tanita scale and it was only an abstract that wasn't published in a journal. However, one clinical study on the Accu measure was published in the Journal of Strength and Conditioning Research by the National Strength & Conditioning Association. The results included the following:

- Self-testing of % body fat with the Accu-Measure was as accurate as results from multi-site measurements and calculations taken by an experienced clinical investigator using a Lange caliper.
- % body fat calculations with the Accu-Measure were within 1.1 percentage points of underwater weighing results, the gold standard of body fat measurement.
- Accu-Measure was recommended over another self-assessment device, the Futrex-1000, which significantly overestimated % body fat.

The authors of the study noted:

"A salient feature of the Accu-Measure is that it is an inexpensive self-assessment technique that requires little skill to administer, therefore offering an attractive alternative for individuals who wish to determine their body composition without the inconvenience, expense, and lack of privacy of conventional body fat testing at clinics or recreational facilities."

-- Journal of Strength and Conditioning Research, December 1998

You can download the complete study here compliments of the folks at Accu Measure Fitness:

<http://www.accumeasurefitness.com/study.pdf>

Where to order

Accu measure skinfold calipers can be ordered on dozens of health and fitness web sites all over the Internet. To order direct from Accu measure, visit:

<http://www.accumeasurefitness.com>

<http://www.accufitness.com>

To order other types of calipers at the lowest prices, visit Creative Health Products at:

<http://www.chponline.com>

"A single measurement is worth a thousand opinions"

- Gary Bencivenga

An illustrated guide to Using The Accu-Measure Personal Body Fat Tester

Step 1 The site you will use for skinfold measurement is the iliac crest (approximately one inch above your right hipbone, see figure 1).

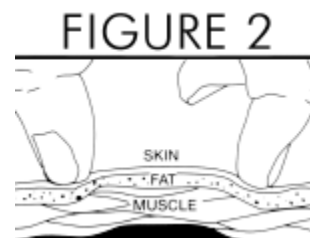
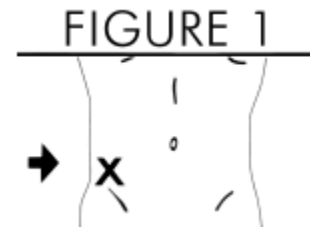
Step 2 While standing, firmly pinch the iliac crest skinfold between your left thumb and forefinger, see figures 2 and 3. Place the jaws of the Personal Body Fat Tester over the skinfold, while continuing to hold the skinfold with the left hand, see figure 4.

Step 3 Press with the thumb where indicated on the Personal Body Fat Tester until you feel a slight click. The slide rule will automatically stop at the correct measurement, see figure 5.

Step 4 After reading your measurement, return the slide rule to the far right starting position. Repeat two more times and use the average as your measurement.

Step 5 Refer to the body fat interpretation chart to determine your body fat percentage.

Step 6: Record your results on your progress chart



Body Fat Interpretation Charts (Original charts that come with the Accu Measure)

Body Fat Interpretation Chart For Women																	
SKINFOLD MEASUREMENT IN MILLIMETERS																	
AGE	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22-23	24-25	26-27	28-29	30-31	32-33	34-35
UP TO 20	11.3	13.5	15.7	17.7	19.7	21.5	23.2	24.8	26.3	27.7	29.0	30.2	31.3	32.3	33.1	33.9	34.6
21-25	11.9	14.2	16.3	18.4	20.3	22.1	23.8	25.5	27.0	28.4	29.6	30.8	31.9	32.9	33.8	34.5	35.2
26-30	12.5	14.8	16.9	19.0	20.9	22.7	24.5	26.1	27.6	29.0	30.3	31.5	32.5	33.5	34.4	35.2	35.8
31-35	13.2	15.4	17.6	19.6	21.5	23.4	25.1	26.7	28.2	29.6	30.9	32.1	33.2	34.1	35.0	35.8	36.4
36-40	13.8	16.0	18.2	20.2	22.2	24.0	25.7	27.3	28.8	30.2	31.5	32.7	33.8	34.8	35.6	36.4	37.0
41-45	14.4	16.7	18.8	20.8	22.8	24.6	26.3	27.9	29.4	30.8	32.1	33.3	34.4	35.4	36.3	37.0	37.7
46-50	15.0	17.3	19.4	21.5	23.4	25.2	26.9	28.6	30.1	31.5	32.8	34.0	35.0	36.0	36.9	37.6	38.3
51-55	15.6	17.9	20.0	22.1	24.0	25.9	27.6	29.2	30.7	32.1	33.4	34.6	35.6	36.6	37.5	38.3	38.9
56 & UP	16.3	18.5	20.7	22.7	24.6	26.5	28.2	29.8	31.3	32.7	34.0	35.2	36.3	37.2	38.1	38.9	39.5
	LEAN				IDEAL				AVERAGE				OVERFAT				

Body Fat Interpretation Chart For Men																	
SKINFOLD MEASUREMENT IN MILLIMETERS																	
AGE	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22-23	24-25	26-27	28-29	30-31	32-33	34-35
UP TO 20	2.0	3.9	6.2	8.5	10.5	12.5	14.3	16.0	17.5	18.9	20.2	21.3	22.3	23.1	23.8	24.3	24.9
21-25	2.5	4.9	7.3	9.5	11.6	13.6	15.4	17.0	18.6	20.0	21.2	22.3	23.3	24.2	24.9	25.4	25.8
26-30	3.5	6.0	8.4	10.6	12.7	14.6	16.4	18.1	19.6	21.0	22.3	23.4	24.4	25.2	25.9	26.5	26.9
31-35	4.5	7.1	9.4	11.7	13.7	15.7	17.5	19.2	20.7	22.1	23.4	24.5	25.5	26.3	27.0	27.5	28.0
36-40	5.6	8.1	10.5	12.7	14.8	16.8	18.6	20.2	21.8	23.2	24.4	25.6	26.5	27.4	28.1	28.6	29.0
41-45	6.7	9.2	11.5	13.8	15.9	17.8	19.6	21.3	22.8	24.7	25.5	26.6	27.6	28.4	29.1	29.7	30.1
46-50	7.7	10.2	12.6	14.8	16.9	18.9	20.7	22.4	23.9	25.3	26.6	27.7	28.7	29.5	30.2	30.7	31.2
51-55	8.8	11.3	13.7	15.9	18.0	20.0	21.8	23.4	25.0	26.4	27.6	28.7	29.7	30.6	31.2	31.8	32.2
56 & UP	9.9	12.4	14.7	17.0	19.1	21.0	22.8	24.5	26.0	27.4	28.7	29.8	30.8	31.6	32.3	32.9	33.3
	LEAN				IDEAL				AVERAGE				OVERFAT				

EXPANDED BODY FAT INTERPRETATION CHART FOR MEN

Single Site Skinfold Measurement: Iliac Crest (Hip Bone)

Age 20 & under		Age 21-25		Age 26-30		Age 31-35		Age 36-40		Age 41-45		Age 46-50		Ages 51-55		Ages 56 +	
Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat
2.5 mm	2.00%	2.5 mm	2.50%	2.5 mm	3.50%	2.5 mm	4.50%	2.5 mm	5.60%	2.5 mm	6.70%	2.5 mm	7.70%	2.5 mm	8.80%	2.5 mm	9.90%
3.0 mm	2.47%	3.0 mm	3.10%	3.0 mm	4.12%	3.0 mm	5.15%	3.0 mm	6.22%	3.0 mm	7.32%	3.0 mm	8.32%	3.0 mm	9.70%	3.0 mm	10.52%
3.5 mm	2.95%	3.5 mm	3.70%	3.5 mm	4.75%	3.5 mm	5.80%	3.5 mm	6.85%	3.5 mm	7.95%	3.5 mm	8.95%	3.5 mm	10.60%	3.5 mm	11.15%
4.0 mm	3.42%	4.0 mm	4.30%	4.0 mm	5.37%	4.0 mm	6.45%	4.0 mm	7.47%	4.0 mm	8.57%	4.0 mm	9.57%	4.0 mm	11.50%	4.0 mm	11.77%
4.5 mm	3.90%	4.5 mm	4.90%	4.5 mm	6.00%	4.5 mm	7.10%	4.5 mm	8.10%	4.5 mm	9.20%	4.5 mm	10.20%	4.5 mm	12.40%	4.5 mm	12.40%
5.0 mm	4.47%	5.0 mm	5.50%	5.0 mm	6.60%	5.0 mm	7.67%	5.0 mm	8.70%	5.0 mm	9.77%	5.0 mm	10.80%	5.0 mm	12.97%	5.0 mm	12.97%
5.5 mm	5.05%	5.5 mm	6.10%	5.5 mm	7.20%	5.5 mm	8.25%	5.5 mm	9.30%	5.5 mm	10.35%	5.5 mm	11.40%	5.5 mm	13.55%	5.5 mm	13.54%
6.0 mm	5.62%	6.0 mm	6.70%	6.0 mm	7.80%	6.0 mm	8.82%	6.0 mm	9.90%	6.0 mm	10.92%	6.0 mm	12.00%	6.0 mm	14.12%	6.0 mm	14.12%
6.5 mm	6.20%	6.5 mm	7.30%	6.5 mm	8.40%	6.5 mm	9.40%	6.5 mm	10.50%	6.5 mm	11.50%	6.5 mm	12.60%	6.5 mm	14.70%	6.5 mm	14.70%
7.0 mm	6.77%	7.0 mm	7.85%	7.0 mm	8.95%	7.0 mm	9.97%	7.0 mm	11.05%	7.0 mm	12.07%	7.0 mm	13.15%	7.0 mm	15.27%	7.0 mm	15.27%
7.5 mm	7.35%	7.5 mm	8.40%	7.5 mm	9.50%	7.5 mm	10.55%	7.5 mm	11.60%	7.5 mm	12.65%	7.5 mm	13.70%	7.5 mm	15.85%	7.5 mm	15.85%
8.0 mm	7.92%	8.0 mm	8.95%	8.0 mm	10.05%	8.0 mm	11.12%	8.0 mm	12.15%	8.0 mm	13.22%	8.0 mm	14.25%	8.0 mm	16.42%	8.0 mm	16.42%
8.5 mm	8.50%	8.5 mm	9.50%	8.5 mm	10.60%	8.5 mm	11.70%	8.5 mm	12.70%	8.5 mm	13.80%	8.5 mm	14.80%	8.5 mm	17.00%	8.5 mm	17.00%
9.0 mm	9.00%	9.0 mm	10.02%	9.0 mm	11.12%	9.0 mm	12.20%	9.0 mm	13.22%	9.0 mm	14.32%	9.0 mm	15.32%	9.0 mm	17.52%	9.0 mm	17.52%
9.5 mm	9.50%	9.5 mm	10.55%	9.5 mm	11.65%	9.5 mm	12.70%	9.5 mm	13.75%	9.5 mm	14.85%	9.5 mm	15.85%	9.5 mm	18.05%	9.5 mm	18.05%
10.0 mm	10.00%	10.0 mm	11.07%	10.0 mm	12.17%	10.0 mm	13.20%	10.0 mm	14.27%	10.0 mm	15.37%	10.0 mm	16.37%	10.0 mm	18.57%	10.0 mm	18.57%
10.5 mm	10.50%	10.5 mm	11.60%	10.5 mm	12.70%	10.5 mm	13.70%	10.5 mm	14.80%	10.5 mm	15.90%	10.5 mm	16.90%	10.5 mm	19.10%	10.5 mm	19.10%
11.0 mm	11.00%	11.0 mm	12.10%	11.0 mm	13.17%	11.0 mm	14.20%	11.0 mm	15.30%	11.0 mm	16.37%	11.0 mm	16.37%	11.0 mm	19.57%	11.0 mm	19.57%
11.5 mm	11.50%	11.5 mm	12.60%	11.5 mm	13.64%	11.5 mm	14.70%	11.5 mm	15.80%	11.5 mm	16.85%	11.5 mm	16.85%	11.5 mm	20.05%	11.5 mm	20.05%
12.0 mm	12.00%	12.0 mm	13.10%	12.0 mm	14.12%	12.0 mm	15.20%	12.0 mm	16.30%	12.0 mm	17.32%	12.0 mm	17.32%	12.0 mm	20.52%	12.0 mm	20.52%
12.5 mm	12.50%	12.5 mm	13.60%	12.5 mm	14.60%	12.5 mm	15.70%	12.5 mm	16.80%	12.5 mm	17.80%	12.5 mm	18.90%	12.5 mm	21.00%	12.5 mm	21.00%
13.0 mm	12.95%	13.0 mm	14.05%	13.0 mm	15.05%	13.0 mm	16.20%	13.0 mm	17.25%	13.0 mm	18.25%	13.0 mm	19.35%	13.0 mm	21.45%	13.0 mm	21.45%
13.5 mm	13.40%	13.5 mm	14.50%	13.5 mm	15.50%	13.5 mm	16.70%	13.5 mm	17.70%	13.5 mm	18.70%	13.5 mm	19.80%	13.5 mm	21.90%	13.5 mm	21.90%
14.0 mm	13.85%	14.0 mm	14.95%	14.0 mm	15.95%	14.0 mm	17.20%	14.0 mm	18.15%	14.0 mm	19.15%	14.0 mm	20.25%	14.0 mm	22.35%	14.0 mm	22.35%
14.5 mm	14.30%	14.5 mm	15.40%	14.5 mm	16.40%	14.5 mm	17.50%	14.5 mm	18.60%	14.5 mm	19.60%	14.5 mm	20.70%	14.5 mm	22.80%	14.5 mm	22.80%
15.0 mm	14.72%	15.0 mm	15.80%	15.0 mm	16.82%	15.0 mm	17.92%	15.0 mm	19.00%	15.0 mm	20.02%	15.0 mm	21.12%	15.0 mm	23.22%	15.0 mm	23.22%
15.5 mm	15.15%	15.5 mm	16.20%	15.5 mm	17.25%	15.5 mm	18.35%	15.5 mm	19.40%	15.5 mm	20.45%	15.5 mm	21.55%	15.5 mm	23.65%	15.5 mm	23.65%
16.0 mm	15.57%	16.0 mm	17.00%	16.0 mm	17.67%	16.0 mm	18.77%	16.0 mm	19.80%	16.0 mm	20.87%	16.0 mm	21.97%	16.0 mm	24.07%	16.0 mm	24.07%
16.5 mm	16.00%	16.5 mm	17.40%	16.5 mm	18.10%	16.5 mm	19.20%	16.5 mm	20.20%	16.5 mm	21.30%	16.5 mm	22.40%	16.5 mm	24.50%	16.5 mm	24.50%
17.0 mm	16.37%	17.0 mm	17.80%	17.0 mm	18.47%	17.0 mm	19.57%	17.0 mm	20.60%	17.0 mm	21.67%	17.0 mm	22.75%	17.0 mm	24.87%	17.0 mm	24.87%
17.5 mm	16.75%	17.5 mm	18.20%	17.5 mm	18.85%	17.5 mm	19.95%	17.5 mm	21.00%	17.5 mm	22.05%	17.5 mm	23.15%	17.5 mm	25.25%	17.5 mm	25.25%
18.0 mm	17.12%	18.0 mm	18.60%	18.0 mm	19.22%	18.0 mm	20.32%	18.0 mm	21.40%	18.0 mm	22.42%	18.0 mm	23.52%	18.0 mm	25.62%	18.0 mm	25.62%
18.5 mm	17.50%	18.5 mm	18.95%	18.5 mm	19.60%	18.5 mm	20.70%	18.5 mm	21.80%	18.5 mm	22.80%	18.5 mm	23.90%	18.5 mm	26.00%	18.5 mm	26.00%
19.0 mm	17.85%	19.0 mm	19.30%	19.0 mm	19.95%	19.0 mm	21.05%	19.0 mm	22.15%	19.0 mm	23.27%	19.0 mm	24.25%	19.0 mm	26.35%	19.0 mm	26.35%
19.5 mm	18.20%	19.5 mm	19.65%	19.5 mm	20.30%	19.5 mm	21.40%	19.5 mm	22.50%	19.5 mm	23.75%	19.5 mm	24.60%	19.5 mm	26.70%	19.5 mm	26.60%
20.0 mm	18.55%	20.0 mm	20.00%	20.0 mm	20.65%	20.0 mm	21.75%	20.0 mm	22.85%	20.0 mm	24.22%	20.0 mm	24.95%	20.0 mm	27.05%	20.0 mm	26.95%

Single Site Skinfold Measurement: Iliac Crest (Hip Bone)

Age 20 & under		Age 21-25		Age 26-30		Age 31-35		Age 36-40		Age 41-45		Age 46-50		Ages 51-55		Ages 56 +	
Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat	Iliac skinfold	Percent Body fat
20.5 mm	18.90%	20.5 mm	20.00%	20.5 mm	21.00%	20.5 mm	22.10%	20.5 mm	23.20%	20.5 mm	24.70%	20.5 mm	25.30%	20.5 mm	27.40%	20.5 mm	27.40%
21.0 mm	19.22%	21.0 mm	20.30%	21.0 mm	21.32%	21.0 mm	22.42%	21.0 mm	23.50%	21.0 mm	24.90%	21.0 mm	25.62%	21.0 mm	27.72%	21.0 mm	27.72%
21.5 mm	19.55%	21.5 mm	20.60%	21.5 mm	21.65%	21.5 mm	22.77%	21.5 mm	23.80%	21.5 mm	25.10%	21.5 mm	25.95%	21.5 mm	28.05%	21.5 mm	28.05%
22.0 mm	19.87%	22.0 mm	20.90%	22.0 mm	21.97%	22.0 mm	23.07%	22.0 mm	21.40%	22.0 mm	25.30%	22.0 mm	26.27%	22.0 mm	28.37%	22.0 mm	28.37%
22.5 mm	20.20%	22.5 mm	21.20%	22.5 mm	22.30%	22.5 mm	22.10%	22.5 mm	24.40%	22.5 mm	25.50%	22.5 mm	26.60%	22.5 mm	28.70%	22.5 mm	28.70%
23.0 mm	20.47%	23.0 mm	21.47%	23.0 mm	22.57%	23.0 mm	22.42%	23.0 mm	24.70%	23.0 mm	25.77%	23.0 mm	26.87%	23.0 mm	28.97%	23.0 mm	28.97%
23.5 mm	21.75%	23.5 mm	21.75%	23.5 mm	22.85%	23.5 mm	22.77%	23.5 mm	25.10%	23.5 mm	26.05%	23.5 mm	27.15%	23.5 mm	29.25%	23.5 mm	29.25%
24.0 mm	22.02%	24.0 mm	22.02%	24.0 mm	22.12%	24.0 mm	23.07%	24.0 mm	25.40%	24.0 mm	26.32%	24.0 mm	27.42%	24.0 mm	29.57%	24.0 mm	29.52%
24.5 mm	21.30%	24.5 mm	22.30%	24.5 mm	23.40%	24.5 mm	23.40%	24.5 mm	25.60%	24.5 mm	26.60%	24.5 mm	27.70%	24.5 mm	29.80%	24.5 mm	29.80%
25.0 mm	21.55%	25.0 mm	22.55%	25.0 mm	23.65%	25.0 mm	23.67%	25.0 mm	25.82%	25.0 mm	26.25%	25.0 mm	27.95%	25.0 mm	30.05%	25.0 mm	30.05%
25.5 mm	21.80%	25.5 mm	22.80%	25.5 mm	23.90%	25.5 mm	23.95%	25.5 mm	26.05%	25.5 mm	26.50%	25.5 mm	28.20%	25.5 mm	30.30%	25.5 mm	30.30%
26.0 mm	22.05%	26.0 mm	23.05%	26.0 mm	24.15%	26.0 mm	24.22%	26.0 mm	26.27%	26.0 mm	26.75%	26.0 mm	28.45%	26.0 mm	30.55%	26.0 mm	30.55%
26.5 mm	22.30%	26.5 mm	23.30%	26.5 mm	24.40%	26.5 mm	24.50%	26.5 mm	26.50%	26.5 mm	27.60%	26.5 mm	28.70%	26.5 mm	30.80%	26.5 mm	30.80%
27.0 mm	22.50%	27.0 mm	23.52%	27.0 mm	24.60%	27.0 mm	24.75%	27.0 mm	26.72%	27.0 mm	27.80%	27.0 mm	28.90%	27.0 mm	31.00%	27.0 mm	31.00%
27.5 mm	22.70%	27.5 mm	23.75%	27.5 mm	24.80%	27.5 mm	25.00%	27.5 mm	26.95%	27.5 mm	28.00%	27.5 mm	29.10%	27.5 mm	31.20%	27.5 mm	31.20%
28.0 mm	22.90%	28.0 mm	23.97%	28.0 mm	25.00%	28.0 mm	25.25%	28.0 mm	27.17%	28.0 mm	28.20%	28.0 mm	29.30%	28.0 mm	31.40%	28.0 mm	31.40%
28.5 mm	23.10%	28.5 mm	24.20%	28.5 mm	25.20%	28.5 mm	24.50%	28.5 mm	27.40%	28.5 mm	28.40%	28.5 mm	29.50%	28.5 mm	31.60%	28.5 mm	31.60%
29.0 mm	23.27%	29.0 mm	24.37%	29.0 mm	25.37%	29.0 mm	24.75%	29.0 mm	27.57%	29.0 mm	28.57%	29.0 mm	29.67%	29.0 mm	31.82%	29.0 mm	31.77%
29.5 mm	23.45%	29.5 mm	24.55%	29.5 mm	25.55%	29.5 mm	25.00%	29.5 mm	27.75%	29.5 mm	28.75%	29.5 mm	29.85%	29.5 mm	32.05%	29.5 mm	31.95%
30.0 mm	23.62%	30.0 mm	24.72%	30.0 mm	25.72%	30.0 mm	25.25%	30.0 mm	27.92%	30.0 mm	28.92%	30.0 mm	30.02%	30.0 mm	32.27%	30.0 mm	32.12%
30.5 mm	23.80%	30.5 mm	24.90%	30.5 mm	25.90%	30.5 mm	25.50%	30.5 mm	28.10%	30.5 mm	29.10%	30.5 mm	30.20%	30.5 mm	32.30%	30.5 mm	32.30%
31.0 mm	23.92%	31.0 mm	25.02%	31.0 mm	26.05%	31.0 mm	25.70%	31.0 mm	28.22%	31.0 mm	29.25%	31.0 mm	30.32%	31.0 mm	32.45%	31.0 mm	32.45%
31.5 mm	24.05%	31.5 mm	15.15%	31.5 mm	26.20%	31.5 mm	25.90%	31.5 mm	28.35%	31.5 mm	29.40%	31.5 mm	30.45%	31.5 mm	32.60%	31.5 mm	32.60%
32.0 mm	24.17%	32.0 mm	25.27%	32.0 mm	26.35%	32.0 mm	26.10%	32.0 mm	28.47%	32.0 mm	29.55%	32.0 mm	30.57	32.0 mm	32.75%	32.0 mm	32.75%
32.5 mm	24.30%	32.5 mm	25.40%	32.5 mm	26.50%	32.5 mm	26.30%	32.5 mm	28.60%	32.5 mm	29.70%	32.5 mm	30.70%	32.5 mm	32.90%	32.5 mm	32.90%
33.0 mm	24.45%	33.0 mm	25.50%	33.0 mm	26.60%	33.0 mm	26.47%	33.0 mm	28.70%	33.0 mm	29.80%	33.0 mm	30.82%	33.0 mm	33.00%	33.0 mm	33.00%
33.5 mm	24.60%	33.5 mm	25.60%	33.5 mm	26.70%	33.5 mm	26.64%	33.5 mm	28.80%	33.5 mm	29.90%	33.5 mm	30.95%	33.5 mm	33.10%	33.5 mm	33.10%
34.0 mm	24.75%	34.0 mm	25.70%	34.0 mm	26.80%	34.0 mm	26.82%	34.0 mm	28.90%	34.0 mm	30.00%	34.0 mm	31.07%	34.0 mm	33.20%	34.0 mm	33.20%
34.5 mm	24.90%	34.5 mm	25.80%	34.5 mm	26.90%	34.5 mm	27.00%	34.5 mm	29.00%	34.5 mm	30.10%	34.5 mm	31.20%	34.5 mm	33.30%	34.5 mm	33.30%
35.0 mm	25.05%	35.0 mm	25.90%	35.0 mm	27.00%	35.0 mm	27.12%	35.0 mm	29.10%	35.0 mm	30.20%	35.0 mm	31.32%	35.0 mm	33.40%	35.0 mm	33.40%
35.5 mm	25.20%	35.5 mm	26.00%	35.5 mm	27.10%	35.5 mm	27.25%	35.5 mm	29.20%	35.5 mm	30.30%	35.5 mm	31.45%	35.5 mm	33.50%	35.5 mm	33.50%
36.0 mm	25.35%	36.0 mm	26.10%	36.0 mm	27.20%	36.0 mm	27.37%	36.0 mm	29.30%	36.0 mm	30.40%	36.0 mm	31.57%	36.0 mm	33.60%	36.0 mm	33.60%
36.5 mm	25.50%	36.5 mm	26.20%	36.5 mm	27.30%	36.5 mm	27.50%	36.5 mm	29.40%	36.5 mm	30.50%	36.5 mm	31.70%	36.5 mm	33.70%	36.5 mm	33.70%
37.0 mm	25.65%	37.0 mm	26.30%	37.0 mm	27.40%	37.0 mm	27.62%	37.0 mm	29.50%	37.0 mm	30.60%	37.0 mm	31.82%	37.0 mm	33.80%	37.0 mm	33.80%
37.5 mm	26.80%	37.5 mm	26.40%	37.5 mm	27.50%	37.5 mm	27.75%	37.5 mm	29.60%	37.5 mm	30.70%	37.5 mm	31.95%	37.5 mm	33.90%	37.5 mm	33.90%
38.0 mm	26.95%	38.0 mm	26.50%	38.0 mm	27.60%	38.0 mm	27.87%	38.0 mm	29.70%	38.0 mm	30.80%	38.0 mm	32.07%	38.0 mm	34.00%	38.0 mm	34.00%
38.5 mm	26.10%	38.5 mm	26.60%	38.5 mm	27.70%	38.5 mm	28.50%	38.5 mm	29.80%	38.5 mm	30.90%	38.5 mm	32.20%	38.5 mm	34.10%	38.5 mm	34.10%
39.0 mm	26.25%	39.0 mm	26.70%	39.0 mm	27.80%	39.0 mm	28.62%	39.0 mm	29.90%	39.0 mm	31.00%	39.0 mm	32.30%	39.0 mm	34.20%	39.0 mm	34.20%
39.5 mm	26.40%	39.5 mm	26.80%	39.5 mm	27.90%	39.5 mm	28.75%	39.5 mm	30.00%	39.5 mm	31.10%	39.5 mm	32.40%	39.5 mm	34.30%	39.5 mm	34.30%
40.0 mm	26.55%	40.0 mm	26.90%	40.0 mm	28.00%	40.0 mm	28.87%	40.0 mm	30.10%	40.0 mm	31.20%	40.0 mm	32.50%	40.0 mm	34.40%	40.0 mm	34.40%

EXPANDED BODY FAT INTERPRETATION CHART FOR WOMEN

Single Site Skinfold Measurement: Iliac Crest (Hip Bone)

Age 20 & under	Age 21-25	Age 26-30	Age 31-35	Age 36-40	Age 41-45	Age 46-50	Ages 51-55	Ages 56 +
Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold
Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat
2.0 mm	2.0 mm	2.0 mm	2.0 mm	2.0 mm	2.0 mm	2.0 mm	2.0 mm	2.0 mm
10.75%	11.32%	11.92%	12.65%	13.25%	18.82%	14.42%	15.02%	15.75%
2.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm
11.30%	11.90%	12.50%	13.20%	13.80%	14.40%	15.00%	15.60%	16.30%
3.0 mm	3.0 mm	3.0 mm	3.0 mm	3.0 mm	3.0 mm	3.0 mm	3.0 mm	3.0 mm
11.85%	12.47%	13.07%	13.75%	14.35%	14.97%	15.57%	16.17%	16.85%
3.5 mm	3.5 mm	3.5 mm	3.5 mm	3.5 mm	3.5 mm	3.5 mm	3.5 mm	3.5 mm
12.40%	13.05%	13.65%	14.30%	14.90%	15.55%	16.10%	16.75%	17.40%
4.0 mm	4.0 mm	4.0 mm	4.0 mm	4.0 mm	4.0 mm	4.0 mm	4.0 mm	4.0 mm
12.95%	13.62%	14.22%	14.85%	15.45%	16.12%	16.72%	17.32%	17.95%
4.5 mm	4.5 mm	4.5 mm	4.5 mm	4.5 mm	4.5 mm	4.5 mm	4.5 mm	4.5 mm
13.50%	14.20%	14.80%	15.40%	16.00%	16.70%	17.30%	17.90%	18.50%
5.0 mm	5.0 mm	5.0 mm	5.0 mm	5.0 mm	5.0 mm	5.0 mm	5.0 mm	5.0 mm
14.05%	14.72%	15.32%	15.95%	16.55%	17.22%	17.80%	18.42%	19.05%
5.5 mm	5.5 mm	5.5 mm	5.5 mm	5.5 mm	5.5 mm	5.5 mm	5.5 mm	5.5 mm
14.60%	15.25%	15.85%	16.50%	17.10%	17.75%	18.35%	18.95%	19.60%
6.0 mm	6.0 mm	6.0 mm	6.0 mm	6.0 mm	6.0 mm	6.0 mm	6.0 mm	6.0 mm
15.15%	15.77%	16.37%	17.05%	17.65%	18.27%	18.87%	19.47%	20.15%
6.5 mm	6.5 mm	6.5 mm	6.5 mm	6.5 mm	6.5 mm	6.5 mm	6.5 mm	6.5 mm
15.70%	16.30%	16.90%	17.60%	18.20%	18.80%	19.40%	20.00%	20.70%
7.0 mm	7.0 mm	7.0 mm	7.0 mm	7.0 mm	7.0 mm	7.0 mm	7.0 mm	7.0 mm
15.20%	16.82%	17.42%	18.10%	18.70%	19.30%	19.92%	20.52%	21.20%
7.5 mm	7.5 mm	7.5 mm	7.5 mm	7.5 mm	7.5 mm	7.5 mm	7.5 mm	7.5 mm
15.70%	17.35%	17.95%	18.60%	19.20%	19.80%	20.40%	21.05%	21.70%
8.0 mm	8.0 mm	8.0 mm	8.0 mm	8.0 mm	8.0 mm	8.0 mm	8.0 mm	8.0 mm
16.20%	17.87%	18.47%	19.10%	19.70%	20.30%	20.97%	21.57%	22.20%
8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm	8.5 mm
17.70%	18.40%	19.00%	19.60%	20.20%	20.80%	21.50%	22.10%	22.70%
9.0 mm	9.0 mm	9.0 mm	9.0 mm	9.0 mm	9.0 mm	9.0 mm	9.0 mm	9.0 mm
18.20%	18.87%	19.47%	20.07%	22.65%	21.30%	21.97%	22.57%	23.17%
9.5 mm	9.5 mm	9.5 mm	9.5 mm	9.5 mm	9.5 mm	9.5 mm	9.5 mm	9.5 mm
18.70%	19.35%	19.95%	20.55%	23.10%	21.80%	22.44%	23.05%	23.65%
10.0 mm	10.0 mm	10.0 mm	10.0 mm	10.0 mm	10.0 mm	10.0 mm	10.0 mm	10.0 mm
20.20%	19.82%	20.42%	21.02%	23.55%	22.30%	22.91%	23.52%	24.12%
10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm	10.5 mm
19.70%	20.30%	20.90%	21.50%	22.20%	22.80%	23.40%	24.00%	24.60%
11.0 mm	11.0 mm	11.0 mm	11.0 mm	11.0 mm	11.0 mm	11.0 mm	11.0 mm	11.0 mm
20.15%	20.75%	21.35%	21.97%	22.65%	23.25%	23.85%	24.47%	25.07%
11.5 mm	11.5 mm	11.5 mm	11.5 mm	11.5 mm	11.5 mm	11.5 mm	11.5 mm	11.5 mm
20.60%	21.20%	21.80%	22.45%	23.10%	23.70%	24.30%	24.95%	25.55%
12.0 mm	12.0 mm	12.0 mm	12.0 mm	12.0 mm	12.0 mm	12.0 mm	12.0 mm	12.0 mm
21.05%	21.65%	22.25%	22.92%	23.55%	24.15%	24.75%	25.42%	26.02%
12.5 mm	12.5 mm	12.5 mm	12.5 mm	12.5 mm	12.5 mm	12.5 mm	12.5 mm	12.5 mm
21.50%	22.10%	22.70%	23.40%	24.00%	24.60%	25.20%	25.90%	26.50%
13.0 mm	13.0 mm	13.0 mm	13.0 mm	13.0 mm	13.0 mm	13.0 mm	13.0 mm	13.0 mm
21.92%	22.52%	23.15%	23.82%	24.42%	24.92%	25.62%	26.32%	26.92%
13.5 mm	13.5 mm	13.5 mm	13.5 mm	13.5 mm	13.5 mm	13.5 mm	13.5 mm	13.5 mm
22.35%	22.95%	23.60%	24.25%	24.85%	25.25%	26.05%	26.75%	27.35%
14.0 mm	14.0 mm	14.0 mm	14.0 mm	14.0 mm	14.0 mm	14.0 mm	14.0 mm	14.0 mm
22.77%	23.37%	24.05%	24.67%	25.27%	25.57%	26.47%	27.17%	27.77%
14.5 mm	14.5 mm	14.5 mm	14.5 mm	14.5 mm	14.5 mm	14.5 mm	14.5 mm	14.5 mm
23.20%	23.80%	24.50%	25.10%	25.70%	26.30%	26.90%	27.60%	28.20%
15.0 mm	15.0 mm	15.0 mm	15.0 mm	15.0 mm	15.0 mm	15.0 mm	15.0 mm	15.0 mm
23.60%	24.22%	24.90%	25.50%	26.10%	26.70%	27.32%	28.00%	28.60%
15.5 mm	15.5 mm	15.5 mm	15.5 mm	15.5 mm	15.5 mm	15.5 mm	15.5 mm	15.5 mm
24.00%	24.65%	25.30%	25.90%	26.50%	27.10%	27.75%	28.40%	29.00%
16.0 mm	16.0 mm	16.0 mm	16.0 mm	16.0 mm	16.0 mm	16.0 mm	16.0 mm	16.0 mm
24.40%	25.07%	25.70%	26.30%	26.90%	27.50%	28.17%	28.80%	29.40%
16.5 mm	16.5 mm	16.5 mm	16.5 mm	16.5 mm	16.5 mm	16.5 mm	16.5 mm	16.5 mm
24.80%	25.50%	26.10%	26.70%	27.30%	27.90%	28.60%	29.20%	29.80%
17.0 mm	17.0 mm	17.0 mm	17.0 mm	17.0 mm	17.0 mm	17.0 mm	17.0 mm	17.0 mm
25.17%	25.87%	26.47%	27.07%	27.67%	28.27%	28.80%	29.58%	30.17%
17.5 mm	17.5 mm	17.5 mm	17.5 mm	17.5 mm	17.5 mm	17.5 mm	17.5 mm	17.5 mm
25.55%	26.25%	26.85%	27.45%	28.05%	28.65%	29.00%	29.95%	30.55%
18.0 mm	18.0 mm	18.0 mm	18.0 mm	18.0 mm	18.0 mm	18.0 mm	18.0 mm	18.0 mm
25.92%	26.62%	27.22%	27.82%	28.42%	29.02%	29.20%	30.32%	30.92%
18.5 mm	18.5 mm	18.5 mm	18.5 mm	18.5 mm	18.5 mm	18.5 mm	18.5 mm	18.5 mm
26.30%	27.00%	27.60%	28.20%	28.80%	29.40%	30.10%	30.70%	31.30%
19.0 mm	19.0 mm	19.0 mm	19.0 mm	19.0 mm	19.0 mm	19.0 mm	19.0 mm	19.0 mm
26.65%	27.35%	27.95%	28.55%	29.15%	29.75%	30.45%	31.05%	31.65%
19.5 mm	19.5 mm	19.5 mm	19.5 mm	19.5 mm	19.5 mm	19.5 mm	19.5 mm	19.5 mm
27.00%	27.70%	28.30%	28.90%	29.50%	30.10%	30.80%	31.40%	32.00%
20.0 mm	20.0 mm	20.0 mm	20.0 mm	20.0 mm	20.0 mm	20.0 mm	20.0 mm	20.0 mm
27.35%	28.05%	28.65%	29.25%	29.85%	30.45%	31.15%	31.75%	32.35%

Single Site Skinfold Measurement: Iliac Crest (Hip Bone)

Age 20 & under	Age 21-25	Age 26-30	Age 31-35	Age 36-40	Age 41-45	Age 46-50	Ages 51-55	Ages 56 +
Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold	Iliac skinfold
Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat	Percent Body fat
20.5 mm	20.5 mm	20.5 mm	20.5 mm	20.5 mm	20.5 mm	20.5 mm	20.5 mm	20.5 mm
27.70%	28.40%	29.00%	29.60%	30.20%	30.80%	31.50%	32.10%	32.70%
21.0 mm	21.0 mm	21.0 mm	21.0 mm	21.0 mm	21.0 mm	21.0 mm	21.0 mm	21.0 mm
28.02%	28.70%	29.32%	29.92%	30.52%	31.12%	31.82%	32.42%	33.02%
21.5 mm	21.5 mm	21.5 mm	21.5 mm	21.5 mm	21.5 mm	21.5 mm	21.5 mm	21.5 mm
28.35%	29.00%	29.65%	30.25%	30.85%	31.45%	32.15%	32.75%	33.35%
22.0 mm	22.0 mm	22.0 mm	22.0 mm	22.0 mm	22.0 mm	22.0 mm	22.0 mm	22.0 mm
28.67%	29.30%	29.97%	30.57%	31.17%	31.77%	32.47%	33.07%	33.67%
22.5 mm	22.5 mm	22.5 mm	22.5 mm	22.5 mm	22.5 mm	22.5 mm	22.5 mm	22.5 mm
29.00%	29.60%	30.30%	30.90%	31.50%	32.10%	32.80%	33.40%	34.00%
23.0 mm	23.0 mm	23.0 mm	23.0 mm	23.0 mm	23.0 mm	23.0 mm	23.0 mm	23.0 mm
29.30%	29.90%	30.60%	31.20%	31.80%	32.40%	33.10%	33.70%	34.30%
23.5 mm	23.5 mm	23.5 mm	23.5 mm	23.5 mm	23.5 mm	23.5 mm	23.5 mm	23.5 mm
29.60%	30.20%	30.90%	31.50%	32.10%	32.70%	33.40%	34.00%	34.60%
24.0 mm	24.0 mm	24.0 mm	24.0 mm	24.0 mm	24.0 mm	24.0 mm	24.0 mm	24.0 mm
29.90%	30.50%	31.20%	31.80%	32.40%	33.00%	33.70%	34.30%	34.90%
24.5 mm	24.5 mm	24.5 mm	24.5 mm	24.5 mm	24.5 mm	24.5 mm	24.5 mm	24.5 mm
30.20%	30.80%	31.50%	32.10%	32.70%	33.30%	34.00%	34.60%	35.20%
25.0 mm	25.0 mm	25.0 mm	25.0 mm	25.0 mm	25.0 mm	25.0 mm	25.0 mm	25.0 mm
30.47%	31.07%	31.75%	32.37%	32.97%	33.57%	34.25%	34.85%	35.47%
25.5 mm	25.5 mm	25.5 mm	25.5 mm	25.5 mm	25.5 mm	25.5 mm	25.5 mm	25.5 mm
30.75%	31.35%	32.00%	32.65%	33.25%	33.85%	34.50%	35.10%	35.75%
26.0 mm	26.0 mm	26.0 mm	26.0 mm	26.0 mm	26.0 mm	26.0 mm	26.0 mm	26.0 mm
31.02%	31.62%	32.25%	32.92%	33.52%	34.12%	34.75%	35.35%	36.02%
26.5 mm	26.5 mm	26.5 mm	26.5 mm	26.5 mm	26.5 mm	26.5 mm	26.5 mm	26.5 mm
31.30%	31.90%	32.50%	33.20%	33.80%	34.40%	35.00%	35.60%	36.30%
27.0 mm	27.0 mm	27.0 mm	27.0 mm	27.0 mm	27.0 mm	27.0 mm	27.0 mm	27.0 mm
31.55%	32.40%	32.75%	33.42%	34.05%	34.65%	35.25%	35.85%	36.52%
27.5 mm	27.5 mm	27.5 mm	27.5 mm	27.5 mm	27.5 mm	27.5 mm	27.5 mm	27.5 mm
31.80%	32.90%	33.00%	33.65%	34.30%	34.90%	35.50%	36.10%	36.75%
28.0 mm	28.0 mm	28.0 mm	28.0 mm	28.0 mm	28.0 mm	28.0 mm	28.0 mm	28.0 mm
32.05%	33.40%	33.25%	33.87%	34.55%	35.15%	35.75%	36.35%	36.97%
28.5 mm	28.5 mm	28.5 mm	28.5 mm	28.5 mm	28.5 mm	28.5 mm	28.5 mm	28.5 mm
32.30%	32.90%	33.50%	34.10%	34.80%	35.40%	36.00%	36.60%	37.20%
29.0 mm	29.0 mm	29.0 mm	29.0 mm	29.0 mm	29.0 mm	29.0 mm	29.0 mm	29.0 mm
32.50%	33.12%	33.72%	34.32%	35.00%	35.62%	36.22%	36.82%	37.42%
29.5 mm	29.5 mm	29.5 mm	29.5 mm	29.5 mm	29.5 mm	29.5 mm	29.5 mm	29.5 mm
32.70%	33.35%	33.95%	34.55%	35.20%	35.85%	36.45%	37.05%	37.65%
30.0 mm	30.0 mm	30.0 mm	30.0 mm	30.0 mm	30.0 mm	30.0 mm	30.0 mm	30.0 mm
32.90%	33.57%	34.17%	34.77%	35.40%	36.07%	36.67%	37.27%	37.87%
30.5 mm	30.5 mm	30.5 mm	30.5 mm	30.5 mm	30.5 mm	30.5 mm	30.5 mm	30.5 mm
33.10%	33.80%	34.40%	35.00%	35.60%	36.30%	36.90%	37.50%	38.10%
31.0 mm	31.0 mm	31.0 mm	31.0 mm	31.0 mm	31.0 mm	31.0 mm	31.0 mm	31.0 mm
33.30%	33.97%	34.60%	35.20%	35.80%	36.47%	37.07%	37.70%	38.30%
31.5 mm	31.5 mm	31.5 mm	31.5 mm	31.5 mm	31.5 mm	31.5 mm	31.5 mm	31.5 mm
33.50%	34.15%	34.80%	35.40%	36.00%	36.65%	37.25%	37.90%	38.50%
32.0 mm	32.0 mm	32.0 mm	32.0 mm	32.0 mm	32.0 mm	32.0 mm	32.0 mm	32.0 mm
33.70%	34.32%	35.00%	35.60%	36.20%	36.87%	37.42%	38.10%	38.70%
32.5 mm	32.5 mm	32.5 mm	32.5 mm	32.5 mm	32.5 mm	32.5 mm	32.5 mm	32.5 mm
33.90%	34.50%	35.20%	35.80%	36.40%	37.00%	37.60%	38.30%	38.90%
33.0 mm	33.0 mm	33.0 mm	33.0 mm	33.0 mm	33.0 mm	33.0 mm	33.0 mm	33.0 mm
34.07%	34.67%	35.35%	35.95%	36.55%	37.17%	37.77%	38.45%	39.05%
33.5 mm	33.5 mm	33.5 mm	33.5 mm	33.5 mm	33.5 mm	33.5 mm	33.5 mm	33.5 mm
34.25%	34.85%	35.50%	36.10%	36.70%	37.35%	37.95%	38.60%	39.20%
34.0 mm	34.0 mm	34.0 mm	34.0 mm	34.0 mm	34.0 mm	34.0 mm	34.0 mm	34.0 mm
34.42%	35.02%	35.65%	36.25%	36.85%	37.52%	38.12%	38.75%	39.35%
34.5 mm	34.5 mm	34.5 mm	34.5 mm	34.5 mm	34.5 mm	34.5 mm	34.5 mm	34.5 mm
34.60%	35.20%	35.80%	36.40%	37.00%	37.70%	38.30%	38.90%	39.50%
35.0 mm	35.0 mm	35.0 mm	35.0 mm	35.0 mm	35.0 mm	35.0 mm	35.0 mm	35.0 mm
34.77%	35.37%	35.95%	36.55%	37.15%	37.87%	38.47%	39.05%	39.65%
35.5 mm	35.5 mm	35.5 mm	35.5 mm	35.5 mm	35.5 mm	35.5 mm	35.5 mm	35.5 mm
34.95%	35.55%	36.10%	36.70%	37.30%	37.95%	38.65%	39.20%	39.80%
36.0 mm	36.0 mm	36.0 mm	36.0 mm	36.0 mm	36.0 mm	36.0 mm	36.0 mm	36.0 mm
35.12%	35.72%	36.25%	36.85%	37.45%	38.22%	38.82%	39.35%	39.95%
36.5 mm	36.5 mm	36.5 mm	36.5 mm	36.5 mm	36.5 mm	36.5 mm	36.5 mm	36.5 mm
35.30%	35.90%	36.40%	37.00%	37.60%	38.40%	39.00%	39.50%	40.10%
37.0 mm	37.0 mm	37.0 mm	37.0 mm	37.0 mm	37.0 mm	37.0 mm	37.0 mm	37.0 mm
35.37%	36.07%	36.55%	37.15%	37.75%	38.57%	39.17%	39.65%	40.25%
37.5 mm	37.5 mm	37.5 mm	37.5 mm	37.5 mm	37.5 mm	37.5 mm	37.5 mm	37.5 mm
35.55%	36.25%	36.70%	37.30%	37.90%	38.75%	39.35%	39.80%	40.40%
38.0 mm	38.0 mm	38.0 mm	38.0 mm	38.0 mm	38.0 mm	38.0 mm	38.0 mm	38.0 mm
35.72%	36.42%	36.85%	37.45%	38.05%	38.92%	39.52%	39.95%	40.55%
38.5 mm	38.5 mm	38.5 mm	38.5 mm	38.5 mm	38.5 mm	38.5 mm	38.5 mm	38.5 mm
35.90%	36.60%	37.00%	37.60%	38.20%	39.10%	39.70%	40.10%	40.70%
39.0 mm	39.0 mm	39.0 mm	39.0 mm	39.0 mm	39.0 mm	39.0 mm	39.0 mm	39.0 mm
36.07%	36.77%	37.15%	37.75%	38.35%	39.27%	39.87%	40.25%	40.85%
39.5 mm	39.5 mm	39.5 mm	39.5 mm	39.5 mm	39.5 mm	39.5 mm	39.5 mm	39.5 mm
36.25%	36.95%	37.30%	37.90%	38.50%	39.45%	40.05%	40.40%	40.90%
40.0 mm	40.0 mm	40.0 mm	40.0 mm	40.0 mm	40.0 mm	40.0 mm	40.0 mm	40.0 mm
36.42%	37.12%	37.45%	38.05%	38.65%	39.62%	40.22%	40.55%	41.05%

12 WEEK PROGRESS CHART

Accu-Measure Single Site Measurement

Week	Date of Test	Iliac Skinfold Thickness (mm)	Bodyfat Percentage	Total Body Weight	Fat Weight	Lean Body Weight	Change (+ / -) in Lean Body Mass	Change (+ / -) in Fat Mass	Weekly Weight Change	Total Weight Change to Date	Total Body Fat Change To Date
Start											
Week 1											
Week 2											
Week 3											
Week 4											
Week 5											
Week 6											
Week 7											
Week 8											
Week 9											
Week 10											
Week 11											
Finish											
Week 12											

12 WEEK PROGRESS CHART

Tanita Bio-Electric Impedance Analysis Body Fat Test

Week	Date of Test	Time of Test	Bodyfat Percentage	Total Body Weight	Fat Weight	Lean Body Weight	Change (+ / -) in Lean Body Mass	Change (+ / -) in Fat Mass	Weekly Weight Change	Total Weight Change to Date	Total Body Fat Change To Date
Start											
Week 1											
Week 2											
Week 3											
Week 4											
Week 5											
Week 6											
Week 7											
Week 8											
Week 9											
Week 10											
Week 11											
Finish											
Week 12											

12 WEEK PROGRESS CHART

Multi-Site Skinfold Caliper Test

Week	Date of Test	Skinfold Measurements				Bodyfat Percentage	Total Body Weight	Fat Weight	Lean Body Weight	Change (+/-) in Lean Body Mass	Change (+/-) in Fat Mass	Weekly Weight Change	Total Weight Change to Date	Total Body Fat Change To Date
		Skinfold #1: (location)	Skinfold #2: (location)	Skinfold #3: (location)	Skinfold #4: (location)									
Start														
Week 1														
Week 2														
Week 3														
Week 4														
Week 5														
Week 6														
Week 7														
Week 8														
Week 9														
Week 10														
Week 11														
Finish														
Week 12														

About The Author

Tom Venuto is a lifetime natural bodybuilder, trainer, nutrition consultant, freelance writer, gym owner and success coach based in Hoboken, New Jersey. He is the founder of Fitness Renaissance (www.fitren.com), a health-fitness consulting and publishing company, and the author of: "Burn the Fat, Feed the Muscle (BFFM), "How To Measure Your Body Fat in the Privacy of Your Own Home," and "BIG FAT LIES, A shocking expose of the 12 biggest lies, myths, scams and deceptions in the weight loss industry." He is also a the co-author of "Fit Over 40: Role Models for Excellence at Any Age" with Jon Benson, and Contributing author of A to Z Fitness.Com's "All Star Trainer's Secrets." Tom has written over 160 articles and has been featured in IRONMAN magazine, Natural Bodybuilding, Muscular Development, Muscle-Zine, Exercise for Men and Men's Exercise. His inspiring and informative columns are also featured regularly on dozens of websites worldwide including Global-Fitness.Com, Female Muscle.Com, Bodybuilding.Com, Will Brink's Muscle Building Nutrition.com, Lee Labrada's Lean Body Coaching Club, A to Z Fitness.Com and too many others to mention.

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