

>> Okay. So that was how to figure out your basal metabolic rate, the calculation. If you were curious. Then you would add in how many calories you burn for your activity levels. Now, this obviously varies so much between, you know, person to person. Depending on how active you are can be an additional 25 to 40% of your days calorie burn. So, you know, obviously we all, we get up, we move around the house. We get up and cook. We walk to the car. But are you on top of doing all those, are you walking your dog? Are you going to the gym? You know, how active are you? Are you sitting at a desk all day? Or are you waitressing? Are you on a sports team, a team athlete? So that's why there's 25 to 40%. There's that big range. If you're a couch potato, you know, you're going to be like 25% of your days calories. If you're very athletic or very active, it will be, you know, in the higher end 35 to 40%. So we'll talk about ways to measure your energy activity calories. Lastly, we have thermic effect of food. Like I mentioned, every time you eat something you digest, absorb, process the food, it takes calories. Which is why some people, you know, they try to lose weight by eating maybe just one meal a day. Besides not being healthy, you're not going to get enough nutrients that way. Each time you eat you rev up your metabolism because your body has to work to digest and absorb that food. And that's another 5 to 10% of your days calories. Okay? And that's why they say a lot of diets, you know, eat every few hours. That's the premise behind that. This is just FYI to digest a protein rich meal does take more calories, okay? So it will be like 20 to 30% of how many calories you consumed in that meal would go to just digesting it and absorbing it. Whereas a carb rich meal, you know, a big bowl of cereal or pasta, a lot of bread, it doesn't take as many calories. It's 5 to 10%. And then a fatty meal doesn't take much at all, because fat just goes to fat. But the protein has to be converted to amino acids and then to glucose and glycogen and sometimes to adipose tissues. It takes a lot of calories. And that's the premise behind the high protein diets. So that's just something to think about. Each meal, it's healthy as well, but it would be good to have protein with each meal because it does take a little bit more calories to digest it. It also helps even out your insulin levels. So just to summarize and you should know this, the three ways we burn calories. Your basal metabolic rate, your activity levels and what we call thermic effect of food. At least know the first two and what percent they make up of your days calorie burning for the quiz. So you can see by far the metabolic rate makes up the majority and then your activity level. And again, one of the most effective ways to burn more calories in your day is to build muscle tissue. And females don't have to worry about bulking up. We don't have the kind of hormones men do. We can work out every day of the week lifting weights, we're not going to look like a guy. We don't have that hormone profile. Don't worry about this, your book and the NutriCalc program also figures out how many calories you burn in a day this way. Or how many you need. So there's a lot of different ways to figure it out. You can go to an exercise physiology lab and they'll hook you up to machines, that's the most accurate way. And they'll figure out how many calories per day. This is an equation that you can get a rough idea anyway, by putting in your age, your activity level, your height and weight. Your activity level, where you get that

from is here. You can see here, let's say you're a male and you're not active at all. You would plug in 1.11 in that equation. So this kind of gives you an idea of what is active. When people say, "I'm very active". Well they describe it as meaning you walk the equivalent of 17 mile a day at a pretty fast pace. So that's just one way to figure out how many calories you need per day. Like I said, there's a lot of different ways. This is just showing you, calculating your BMR like I went through earlier. Multiply your weight in kilograms times 0.9 and then times 24 if you're a woman. Or times 1 if you're a male. And then you can put in your activity factor, this is another source that they say to put in 20 to 30% if you're sedentary. Or 30 to 45% if you, you know, have light activity and so forth. And so you can calculate your BMR with that calculation and then put in this activity factor based on this chart, to see how many calories you burn just through your metabolism. So this is another way of doing it. Then you can add your thermic effect of food. Which would be 10% of your activity calories, add the BMR and that's how you get your days total calorie expenditure. So that's a – I like that calculation. So you can play with that and see how many calories you need to take in a day. But that means you have to count calorie intake which is very cumbersome. Most people don't do that. Again, I don't – when someone comes to me for help for losing weight, that's not how I do it. Because it just gets too, people don't want to do this, counting calories is just too much. So, again remember too that these are all just estimates of calorie burning. Your genetics, your hormone levels play a big role in just tweaking it. It could be off by 50 or 100 or several hundred calories. How many calories do you burn doing different activities? You can Google energy expenditure charts. And I have an example. It'll show you how many calories you burn doing different activities, I thought that was funny. How many calories do you burn downloading diet apps? [laughs] Anyway, we'll get back to the energy expenditure charts. But you can Google it and it'll show you, let's say you go to the gym, you have a half an hour. Should you go on the treadmill, the Nordic Track, the stair stepper? What should you do in that half an hour for you body weight? What will you burn the most calories on? And you can Google that. BMI, let's review this. You will need to do this by the way for your second assignment, the case study. We did go over this in chapter two I believe it was. But remember, your BMI is your weight in pounds divided by your height in inches squared. So if you're six four, that's 64 inches times 64 inches. And then times 703. And you do need to remember for the quiz the healthy weight your BMI should be 18.5 to 24.9. And then you can see the ranges if you're 25 to 29.9 you're overweight. Thirty or more you're obese and you have increased risk for disease. Forty or more is severe obesity, major health risks. Heart disease, diabetes, cancer, all that. Well anything over the normal weight you're at an increased risk. This is just the BMI chart. You can always going that. And keep in mind too that, these two guys have the same height and weight. So they're both going to calculate out with the same BMI. But obviously the guy on the left has more muscle tissue making up his weight. Whereas the guy on the right has more fat tissue. So, you have to take into consideration what that weight is made of. In a muscular person, particularly someone working out at

a gym, BMI calculation would not be accurate. And I'll show you what you would do instead. Again, these two women weigh the same amount, have the same BMI. But this woman has more body fat than this one. This one has less muscle mass, this one has more muscle. This obviously being the healthier version, because you have more muscle tissue, less fat. Even though they weigh the same. So really you want to see how much body fat you have and we'll talk about that. So what are some of the health risks associated with having too much body fat? I mentioned some earlier, but like I said you're pretty much at increased risk for everything. Heart disease, many different cancers are linked to being overweight and obese. Because when you're overweight or obese, fat tissue holds onto a lot of toxins, a lot of pesticides, a lot of carcinogens. So the more fat tissue you have, the more toxins you're carrying around that can potentially increase your risk for cancer. In women, fat tissue is where we store our estrogen. And too much estrogen is associated with many forms of breast cancer, ovarian and uterine cancer. So that's a huge risk factor. Being obese or overweight, overweight increases your risk of Type 2 diabetes, sleep apnea, pulmonary problems, high blood pressure, arthritis from all the weight. Gallstones is a big risk factor. Pregnancy problems, menstrual problems, premature death, erectile dysfunction in men, and fatty liver disease or liver damage. That's a lot of health problems. And you know, the top killers in the United States are right here. So we could significantly decrease that by losing weight. Please know how much body fat would be healthy. So, this means what percent of your body weight is made up of fat? Because again, the more fat, the less muscle tissues. That's not very healthy. Men, the healthy range would be anywhere from 8% to 24%. For women, 21 to 35%. It's probably easiest to know, over 24% men over 35% women, is considered obese. Of course, you can see a range here. Athletes usually are on the lower end and people that are not maybe even overweight or just a little bit, will be higher. And then when you're over these you're considered obese. But how do you measure what percent of your body weight is fat? Well there's many types of gadgets and methods. One, we're going to go through all of these. Underwater weighing, take skin fold measurements, some machines you have hook up to. So let's go through that. This is the DEXA, we talked about a little bit in chapter nine with minerals. A DEXA is a type of x-ray that measures not just bone density but it can also be used to measure your percent body fat. Now calipers, these are really simple to use. I have a set of these. I'll show you pictures. You basically take measurements of your skin folds throughout your body. Come to the book, it tells you where to take the measurements. You add the measurements up and it tells you percent body fat. So let's say that is your arm. And you chopped it in half, your cross section. There here is your bone, the red is your muscle tissue, and then you can see on the outside is the fat tissue. So what this caliper is doing, you pinch just the fat tissue. And this takes practice, if you do it incorrectly you're going to grab muscle. So you grab just the fat tissue and you can, you know, obviously you don't need a machine. You know some people have a lot of fat tissue. But that's how this caliper works. You take your measurements. There's usually four spots on your body you measure. This would be the back of your arm

or your triceps. You take the biceps area, the front of the arm. On the back, like this. And then also on the abdominal area. It takes like a minute. Very accurate way if done correctly. Now underwater weighing, it used to be what was called a gold standard. I think it still is actually. But it's just not done very often because you have to find a facility that does this. In Orange county there is at Cal State Fullerton they have an exercise physiology lab that does do this. But the premise behind this, if you think of a swimming pool. You know, who tends to float and who tends to sink? If you have a heavyset person because they have more fat, fat floats. Right? Just pour some oil in water and you'll know that the fat floats. Well, if you're floating because you have more fat. With this underwater weighing is at these facilities, what they do is they put a weight, a scale, underneath the water. And then you sit on the scale. If you tend to float because you have more fat tissue, you're going to put less pressure on that scale. And you tend to float and you'll weigh less. If you have a lot of muscle tissue, which is very dense, you're going to be heavier, you're going to tend to sink in the water and you're going to weigh more. And that's how they calculate your percent body fat. And here it is again, you have to be completely submerged including your head. So that's the most accurate way. It's just not, like I said, done very often. And where do you find a place that does it? Biological impedance is a machine, as a chiropractor, a lot of chiropractors have this. You set up two electrodes on your hand, two on your feet and you send an electric current and we know that electricity loves water. So the more muscle tissue you have, the more water you have. The more fat tissue you have, the less water. Well the quicker the electrical impulse, and you don't feel this at all, goes from your hands to your feet. It means you have more water tissue, less fat tissue, and it calculates your percent body fat. Pretty accurate and it only takes a few seconds as well. The hand he will gadgets you see at Target and Walmart, they're no very accurate. They also have the scales. Again, they're not very accurate. Okay, we'll stop here and finish off the next part.