

>> Okay, so here's some examples of fish oil supplements. You can see here omega-3, this one has more DHA; there's two components, EPA and DHA. You just want to get a good brand, make sure it says on the label that they took out the heavy metals and please take note here that, I think this might have been a test question as well, it would be contraindicated to take a fish oil supplement if- contraindicating means don't do it, if you're taking an anticoagulant, which is a blood thinner, or having surgery shortly or you have a bleeding disorder, meaning fish oil, remember, like I said, prevents your blood from clotting, but it does that because it is a natural blood thinner. So, if you're already taking an anticoagulant, which is a blood thinner, and then you take omega-3 fats it can also- it can make your blood too thin. You can bleed out or bleed too much if you get cut. If you're having surgery, obviously you don't want to be taking this because you're more apt to bleed or if you have a bleeding disorder, so that's something to think about only- and again, if most of us can get it from natural sources or fish, walnuts, etc. but you want about a gram, gram and a half a day, depending if you're male or female. Again, it's so so healthy. If you don't like fish, taking a supplement a few times a week even would be a great idea. They found that during pregnancy women that take an omega-3 supplement actually have babies with higher IQs. Again, it's so important, not just for heart health but brain health. Here is in a three-ounce serving of fish you can see what- which ones have the most; salmon has quite a bit, sardines and trout, lobster doesn't have very much at all, catfish not much at all, halibut very little. Walnuts have quite a bit. Now the omega-6 fats, this one you have to tricky- you have to be careful with; there's two sources, two main sources of omega-6 fats. The healthier source would be from nuts, corn, but I have corn in parenthesis because it's an omega- I mean it's a GMO food. Nuts and sunflower seeds have a lot of omega-6 fats, all nuts and sunflower seeds. But, also vegetable oils have a lot of omega-6 fats. We get the vegetable oils from, you know, whatever plant; peanut oil from peanut, soybean oil, safflower oil, cottonseed oil, corn oil, etc. The reason these are not very healthy is to get the vegetable oil extracted from the plant takes a lot of high heat and they use chemical processing, they bleach the oil, they deodorize the oil, and what you have is any time you heat an oil to a high temperature, like they do to process the- it is unhealthy. So heated oils, like I said, that you get, let's say you buy a jar- a bottle of peanut oil or corn oil, it's already been heated and processed and chemical, you know, used to strip the oil and so forth, and then you're going to heat it again when you cook or fry and when you heat a vegetable oil to high temperatures like they are in processing and then when you cook in it it makes them unhealthy, increases risk of inf- well it increases inflammation in your body, they're oxidized oils; it's been linked with pretty much every chronic disease; heart disease, cancer, diabetes, Alzheimer's, etc. so frying is really not the best way to eat a food. Using vegetables, I really would avoid it. The healthiest of oils, we'll talk about the olive oil, coconut oil, avocado oil, and then- and the veg- omega-6 oils in nuts and seeds are fine. Now it's so important about omega-6 omega-3 that there's actually a ratio and on your nutri-calc assignment it will actually calculate it for you, but in America we are getting so many

omega-6 fats and so little omega-3 that it's— like I said, it increases your risk of chronic diseases. The recommendation is to keep the omega-6 to omega-3 ratio about— well one to one would be wonderful, but maybe four to one maximum, meaning four times as much omega-6. But what most Americans are getting are sometimes 10 to 20 or more times as much because we eat so many processed foods and fried foods and we eat out a lot and this is where we're getting all the oils, and again it's linked to chronic diseases. Be careful with farmed fish; you can read the label, a lot of fish is now farmed, which means— example tilapia, a lot of it is farmed, which means that these were caught, not in the ocean these fish, but these were farmed, meaning that they were manmade lakes, and out in the ocean a fish eat— fish eat plant type products that's found in the ocean, but when they farm the fish they feed the fish omega-6 rich corn and soy; these are GMO foods that are high in omega-6's. Fish don't eat corn and soy in the wild, and particularly GMO. This makes meaning— so now— usually fish have a lot of omega-3s, now they have a lot of omega-6 instead of omega-3s, which makes it very unhealthy, so try to eat wild caught fish. I mentioned about the mercury in fish. You can see here shark, swordfish, king mackerel, tilefish have most. In medium amounts, which you want to be careful if you're a child or pregnant or nursing because you're more susceptible to its damage; albacore tuna, sea bass, halibut, lobster, orange roughy. You can Google this as well, get this information. Lowest levels you can see here, canned light tuna, mahi mahi, salmon, shrimp and trout, so you kind of want to stick to these. Now outside of the omega-3 fats and the omega-9 or monounsaturated fats are also so so healthy, like you can't get healthier than that. This is olives, olive oil, avocados, avocado oil, nuts have monounsaturated fat. These are so so healthy for you. They lower the LDL cholesterol, they raise your good HDL cholesterol. Olive oil has been shown— you have about three tablespoons a day to decrease your risk of breast cancer. These oils and foods yes have a lot of fat people complain about, but they are heart healthy, like I said, they lower your LDL, raise your HDL. Your book goes through and summarizes which fats have from which foods, you can take a look at that. And keep in mind what this slide talks about is any food that has fat has a little bit of all three types of fat, saturated, mono and poly. It's just that these foods have usually more of one type; olive oil is mostly monounsaturated, but of course it has some saturated and polyunsaturated. Butter, mostly saturated but it does have some mono and polyunsaturated. And I don't know if you guys have heard but butter is back, as they say. Years ago, everyone was switching to margarine because it didn't have much cholesterol, or any cholesterol for that matter, it was made from vegetable oils, but we know margarine is a trans-fat, it's hydrogenated, butter is a natural ingredient, margarine is made in a lab. Even Dr. Oz had a show on this a few months ago how butter is back and so much healthier for you than margarine. So, there are still guidelines for saturated fat. Again, you don't want to overdo it. It can increase your risk of heart disease if you have too much so you want to keep your intake to about no more than 10% of your total calories; your nutri-calc will calculate that for you. So now let's move on to triglycerides; what are these? You've probably heard of triglycerides; they

measure this in your blood. Tri means three. All a triglyceride is are these fatty acids we just talked about in groups of three. So, when you eat a food that has fat it usually is in the form of a triglyceride, and also in your body you store fat in the form of a triglyceride; it's just these three fats attached to a glycerol molecule and we call that a triglyceride. This is what it looks like, this is the glycerol molecule, and here are the three fats. It could be— depending on what— if you had a salad with olive oil, probably two of these three fats would be monounsaturated. If you have a piece of steak maybe all three are saturated; it depends on what you eat. Now to digest it, just like carbs, we have to break down that polysaccharide to a disaccharide to a monosaccharide. Same thing here; you take a triglyceride, you digest it with enzymes, remove a fat to get a diglyceride, that means two fats, to a monoglyceride where you're left with just one fatty acid. That is what gets absorbed through the villi in the small intestine. So, we need to digest these fats just like we do carbs into smaller pieces. And we need fats; fats are really really healthy. Again, years ago everything was low fat and low fat became low fat high carb and replaced the fat with carbs and then obesity and diabetes skyrocketed. Now the experts are starting to reverse their stance and say, oh, really we need to go higher on the fat and lower on the carbs. So we need fat for ATP production; we use a lot of fat for energy; every cell in your body except the brain uses fats for energy. We— we need it for insulation and protection, we'll get into that in a minute here. But again, we use fats for energy when we're resting, so if you're sitting, watching TV, reading, studying, you're burning fats for energy, and then during light activity, let's say you're walking or a very slow jog you will also burn fats for energy. We can store endless amounts of fat in our body. Adipose cells, or fat cells, can increase in their size about 50 times their size, and also in number, and that's how weight gain occurs. We have fat beneath our skin, we have fat around our organs and we can— you can Google these pictures, when you see how much and what it looks like in your body it kind of has an impression on you. Some fat, again, we need; too much is not healthy. In insulin— fat insulates our body, keeps us warm, that's why thin people are usually on the cold side. Heavy people tend to get warm very easily and overheat. It does a little bit of fat around our organs helps protect them from injury, and like I said, it does keep us warm. Fats also help us absorb our fat-soluble vitamins A, D, E and K. That's just a— basically what I'm showing you here is when you take vitamins, particularly the fat-soluble vitamins that's in a multi-vitamin, you need to have fat in with that meal so those vitamins absorb and we'll talk more about that in chapter nine. Now let's switch to cholesterol. We've all heard of cholesterol. This is a different structure than the fatty acids. But please start the slide, very very important, we need cholesterol; we need it to make our hormones; estrogen, testosterone and other hormones is made from cholesterol. We make bile to digest our fats from cholesterol. Every cell membrane in our body needs cholesterol and vitamin D is made from cholesterol, which I'll show you in a minute. We must have cholesterol. As a matter of fact, you've probably seen Olympic athletes like gymnasts or figure skaters that are so so thin, they're so thin they're not sexually developed, and usually very thin female athletes look

sexually undeveloped because they don't have enough fat in their body to make their hormones, which is not healthy at all. Because cholesterol is so important for our body our body does make; we make cholesterol in our liver and also in our intestinal cells; these must must have it. We also get some from our food, of course. And again, about 2/3 of the cholesterol in your body is made by the body and about 1/3 is from our foods. You don't need to know this, but again, it's crucial that we have cholesterol. Keep in mind that cholesterol is only found in animal products; meat, dairy and eggs. Peanut butter, french fries, people think they have cholesterol; they do not because they're not from animal products. Do french fries raise your blood cholesterol levels? Yes, because of the vegetable oils, the fried oils, but they do not contain them. And please cross this out. Last year the American Heart Association took out its recommendation to keep cholesterol intake under 300 milligrams. Please remove that. We now have no maximum because research has found that cholesterol in food is not what is increasing our heart disease, it is not what's increasing plaque in our arteries; what is doing it is the sugars, the trans fats and the vegetable oils. So again, well I'm not saying go out, eat tons of steak, but eggs, everyone used to say be careful about the eggs, don't eat the egg yolk; that is old news, that has been proven to not be true. Cholesterol in foods does not raise cholesterol in your arteries; it is the sugar, it's the vegetable oils that are heated, and the trans fats. Okay, I will stop this video and we will again take off in ch- part three.