

Webinar 3 Handout:
NUTRIENT DEFICIENCIES & CRAVINGS

Cravings are powerful and real and everybody gets them: you, me, your clients, *everyone*. Where they come from, however, is up for debate. They may arise from old habits or memories or could stem from your emotions or mood. There are also times when they could be smarter than they look and be screaming to your body that it's in need of something. While most of the research is young and doesn't show a direct link between specific cravings and nutrient deficiencies, there is some evidence pointing to food cravings as your body's natural, instinctive way of letting you know you that you need more of an important nutrient.

Let's be clear: true vitamin and mineral deficiency is rare in the United States, as we have tremendous availability of different foods and a lot of our foods are supplemented and fortified. But that doesn't mean everyone gets enough of what they need every day and some nutrients are harder to come by than others. Long term nutrient shortfalls can lead to health issues such as cardiovascular disease, stroke, impaired cognitive function, cancer, eye disease, poor bone health and more.

Most people, including nutritionists, aren't total whizzes at calculating every last vitamin and mineral in their food without fancy software, so how can one be sure nutrient needs are being met? A sure fire trick is to eat a varied diet--simple as that. The client who eats exactly the same things, day in and day out may be prone to damaging deficiencies -- even if her diet is healthful. Variety in foods will mean variety in nutrients and will pretty much ensure you get enough of everything.

How else can you tell? Here's where those screaming cravings may come in. There is nothing more important than listening to your body and, though research is limited, a craving could be your body's way of letting you know you that you need to amp up your intake of a specific nutrient. Listening to your biology isn't easy in today's world, but it is important to your welfare. Let's take a look at a few micronutrients that are most commonly missed out on and the cravings that may be indicative of a particular deficiency.

IRON

Why You Need It

Iron is an important part of hemoglobin, a protein in red blood cells that carries oxygen all around the body. The amount of iron that you eat directly corresponds to how much iron is in your body, how much hemoglobin you make, and how much oxygen is carried in your blood and delivered to the cells in your body. When you are iron deficient, levels of oxygen in the blood are low because levels of hemoglobin are low (this is anemia). This might make you feel tired and weak since oxygen is not being delivered to cells. Lack of energy is the most common symptom of iron deficiency.

Children, teens, pregnant women and women of childbearing age are at an increased risk of deficiency. There are several concerns of iron deficiency for these age groups. For instance, iron deficiency in infants can delay normal motor function, in teens can affect memory and other mental functions, and in pregnancy can increase risk for small or preterm babies putting baby at risk for future health problems.

Deficiency Symptoms

- Weakness and tired feelings
- Decreased work and school performance
- Slow cognitive and social development during childhood
- Difficulty maintaining body temperature
- Decreased immune function, which increases susceptibility to infection
- Glossitis (an inflamed tongue)

Cravings

When you lose blood, you lose iron. So, it's not surprising that some women struggle with low-level anemia due to blood loss during their menstrual cycle. Many women report a craving for iron rich red meat during menstruation. Makes sense, right? There have not been any conclusive studies linking menstruation with cravings for iron-rich food, but the possibility of future studies correlating the two is not outlandish considering the logic here. Menstrual cycle=blood loss=iron loss=need for iron rich food such as red meat (a well-stocked source of iron)!

It isn't easy for everyone to meet their iron requirements, because there are several factors that affect its absorption. How well you absorb your iron is somewhat dependent upon the type of iron source you chow down on. There are two types of iron sources —heme and non-heme. Heme iron is found only in animal foods such as meats, poultry and fish. Non-heme iron is found in both plant-derived and animal-derived food. Heme iron is well-absorbed and non-heme iron has several factors that either limit or enhance its absorption. In fact, eating heme iron at the same time as

non-heme iron can actually help you absorb non-heme better because it contains a peptide called MFP factor that is released during digestion. Eating foods rich in vitamin C (such as strawberries, citrus fruits, tomatoes, cabbage and broccoli) at the same time as non-heme iron can also help you better absorb the non-heme iron. On the flip side, there are components in certain foods that bind to the iron in non-heme sources when eaten at the same time or even when they are iron-containing foods—ultimately causing a decrease in the iron that is absorbed. This includes legumes, whole grains, and rice since they contain phytates; soybeans, legumes and nuts because they contain a vegetable protein; milk because of the calcium and tea, coffee, grain products, oregano and red wine due to their polyphenol content.

Our bodies have an in-house thermostat to adjust iron absorption and keep the body's stores in balance to help out with all this. For instance, if you are iron deficient, your body will increase its absorption of iron from food sources and if you are in iron overload, your body will decrease its iron absorption. How do you know if your client isn't getting enough iron? If your client is low energy, you may ask her to pull down her eyelids -- dry, white lower inner eyelids may be a sign of iron deficiency, while red indicates rich iron stores.

Nutritious Life Tip

Meats, fish and poultry contribute the greatest amount of iron per serving. Grain products vary in their iron content, however, whole grain enriched and fortified breads and cereals can deliver a significant amount of iron. Some good vegetarian sources of iron include soy foods (soybeans and tofu), legumes (lentils and kidney beans), nuts (cashews and almonds), seeds (pumpkin seeds and sunflower seeds), cereals (oatmeal), dried fruit (apricots and raisins) and vegetables (greens and potatoes). To maximize iron absorption, pair these foods with sources of vitamin C.

CALCIUM

Why you Need It

Calcium is the most abundant mineral in our body. Our entire skeletal system is made from calcium, giving bone its structure and providing a frame that enables our bodies to move. Even though only 1% of the body's calcium is located in the blood, its presence is extremely important. Calcium helps regulate blood pressure and participates in blood clotting, transmission of nerve communication, secretion of hormones and the activation of enzyme activity. While calcium is so very important for our bone structure, it also acts like a bank reserve for the blood system when it is running low on calcium. Calcium homeostasis involves the intestines either enhancing or inhibiting calcium absorption. The thyroid stimulates both parathyroid hormone (promoting osteoclast cells—cells that break down bone by secreting acids and enzymes) so calcium can enter blood circulation and

calcitonin (inhibiting osteoclast cells from breaking bone down) so no calcium is released. The kidneys either signal to increase or decrease reabsorption of calcium.

Your body makes sure that the calcium levels in your blood are always up to par even if that means sacrificing your bone deposits. Just remember, your blood levels will always take precedence over your bones—even if it means putting you at risk for developing bone loss later in life.

People achieve their maximum peak bone mass by their late 20s. Once you hit 30, your bone mass begins to decline regardless of how much calcium you are consuming.

Deficiency Symptoms

- Osteoporosis
- Bone fractures
- Depression
- Rickets
- Tooth decay
- Insomnia
- Brittle nails
- Menstrual problems
- Tingling in fingers
- Convulsions
- Abnormal heart rhythms (which can lead to death)

Cravings

Studies have shown that women who eat low-calcium diets crave salty food more than women who get adequate amounts of this nutrient. One of the possible reasons for this, according to a researcher at the Monell Chemical Senses Center in Philadelphia— an institute that studies taste and smell -- is that sodium temporarily increases calcium levels in the blood, which tricks the body into thinking the problem is solved.

Nutritious Life Tip

Dairy foods are excellent sources of calcium, including yogurt, cheese and milk. There is good evidence that people who eat whole fat dairy maintain lower weights than those who eat the low fat and nonfat versions. Regardless of the fat content, a cup of milk will provide about 30% of daily calcium needs (calcium is not stored in the milkfat). If you are lactose intolerant, vegan, or don't care for dairy that is no excuse for low calcium intake! There are plenty of non-dairy food sources of

calcium, including tofu, bok choy, kale, broccoli and fortified orange juice (see chart below). Although dark leafy greens are a rich source of calcium, some sources like spinach and chard contain oxalic acid which combines with the calcium making the calcium less available to the body. Nut and hemp milks are also excellent sources of calcium. Particularly almond, cashew and hazelnut. In fact, almond milk provides approximately 45% of RDA. Seeds such as sesame seeds also contain a rich amount of calcium. To ensure you are absorbing calcium you must have plenty of vitamin D. So, make sure to get 10 minutes of late day sun exposure daily.

Non-Dairy Calcium Sources

Food	Serving	Calcium (mg)
Almond Milk	1 cup	516
Tofu	½ cup	434
Sardines	8 ounces	415
Sesame seeds	1 tablespoon	88
White beans	½ cup	81
Bok choy	½ cup	79
Almonds	1 ounce	76
Figs (dried)	¼ cup	61
Orange	1 medium	60
Kale (cooked)	½ cup	47
Pinto beans	½ cup	39
Broccoli	½ cup	31
Red beans	½ cup	25

MAGNESIUM

Why You Need It

Magnesium is an essential part of the 300 plus enzymes found in the body and their regulation of many bodily functions, including energy production, protein and DNA synthesis, and muscle contractions. It also helps regulate blood pressure and heart rhythm, maintain bone strength, and ensure a healthy immune system.

Dietary surveys of people in the US show that magnesium intake is lower than the recommended amount. However, magnesium deficiency is uncommon because the kidneys limit the amount excreted in the urine. Deficiencies are usually due to health conditions such as chronic alcoholism or the use of certain medications.

Deficiency Symptoms

Early signs of magnesium deficiency:

- Loss of appetite
- Nausea, vomiting
- Fatigue, weakness

Later (progressed):

- Numbness and tingling
- Muscle contractions and cramps
- Seizures
- Personality changes
- Abnormal heart rhythms, coronary spasms
- If severe - hypocalcemia or hypokalemia

Cravings

Some women experience a premenstrual increase in appetite and craving for sweets. Current evidence is growing but not yet conclusive on whether or not magnesium deficiency is a causative factor in premenstrual syndrome (PMS). Some studies have shown decreased magnesium concentrations in women with PMS, which is caused by the alteration in the balance of the female hormones during the menstrual cycle. Some studies have suggested that magnesium supplements may help relieve the craving symptoms associated with PMS, as well as moodiness, bloating, insomnia, leg swelling, weight gain, and breast tenderness. A possible explanation is that magnesium helps control neuromuscular stimulations and acts as a natural muscle relaxant.

Although there is a lack of hard scientifically proven evidence, some clinicians have noted that magnesium deficiency leads to sugar and chocolate cravings that disappear as soon as magnesium levels return to normal. Chocolate is high in the mineral, and in one study, taking magnesium supplements was enough to curb a chocolate craving. As for sugar, it is thought that because large amounts of magnesium are found in the hippocampus—the emotional, thought and memory center of the brain—deficiencies may cause carb cravings.

Nutritious Life Tip

Eating a diet rich in plant and animal foods will ensure you don't become deficient in magnesium. Green leafy vegetables such as spinach, legumes, nuts, seeds and whole grains are excellent sources of magnesium. Tap, mineral and bottled waters also contain magnesium but varies by source and brand.

VITAMIN C

Why You Need It

Vitamin C is needed for growth and repair of tissues in all parts of your body. It also protects you from infection by stimulating the formation of antibodies and boosting immunity. This nutrient can aid in protection from seasonal illnesses, such as a nasty cold or the flu. Vitamin C helps make collagen, a vital protein that makes up skin, cartilage, tendons, ligaments and blood vessels. Vitamin C is also needed for healing wounds and repairing and maintaining bones and teeth. It is an antioxidant, which blocks those free radicals floating around inside your body from damaging DNA.

Cravings

Some people find themselves craving fresh fruit when suffering through a cold. Since your body needs those extra vitamins for defense, fresh fruit is an excellent source to get that extra vitamin C boost. Still, scientific research linking this vitamin with fruit cravings is insufficient.

Nutritious Life Tip

All fruits and vegetables have some amount of vitamin C in them. Fruit sources with the highest amount include: cantaloupe, citrus fruits and juices, such as orange and grapefruit, kiwi fruit, mango, papaya, guava, pineapple, strawberries, raspberries, blueberries, cranberries and watermelon. Vegetable sources with the highest amount include: broccoli, Brussels sprouts, cauliflower, green and red peppers, spinach, cabbage, turnip greens, and other leafy greens, sweet and white potatoes, tomatoes and tomato juice and winter squash.

Some foods and beverages such as orange juice and cereal are fortified with vitamin C. Cooking vitamin C rich foods for a long period of time can eliminate the amount of vitamin C present in the food. If you are not going to consume your fruits and vegetables raw, try microwaving or steaming in effort to reduce the effects of vitamin C loss from cooking. Squeezing a little lemon over your veggies is also a great way to up the vitamin C.

Key Takeaway

Since we don't run to the doctor to draw blood and wait for lab values every time we have a food craving, it is hard to tell if you're dealing with a craving or deficiency. Take every reported craving seriously. Before you write off your client's complaints of cravings, look at his/her skin, hair, nails and coloring for signs of poor condition, as these may be linked to deficiency. Review the food journal thoroughly for deficits -- is your client avoiding dairy? Does your client leave off fresh produce often? Are there red flags that you see that could be consistent with a deficient state? Remember, nutrition is an ever-developing science. It's important to take into consideration new research as well as anecdotal evidence and the specific individual you are dealing with.

More often than not, because our food supply is well fortified and we are lucky not to have significant micronutrient malnutrition, you can link cravings to things not associated with deficiency. If your client is craving pasta, chocolate, corn chips or ice cream, have them delay indulging and distract themselves from giving in. Hopefully the feelings will pass. Try to set up a reasonable plan during one of your sessions so they can practice what they will do when the desire for a brownie becomes super strong. There is a lot of glory in NOT indulging in a craving such as these. The more practiced your client gets at not giving in, hopefully the less often the cravings will come. Have a plan for when it is important to indulge the craving if it continues to repeat, despite heroic efforts!