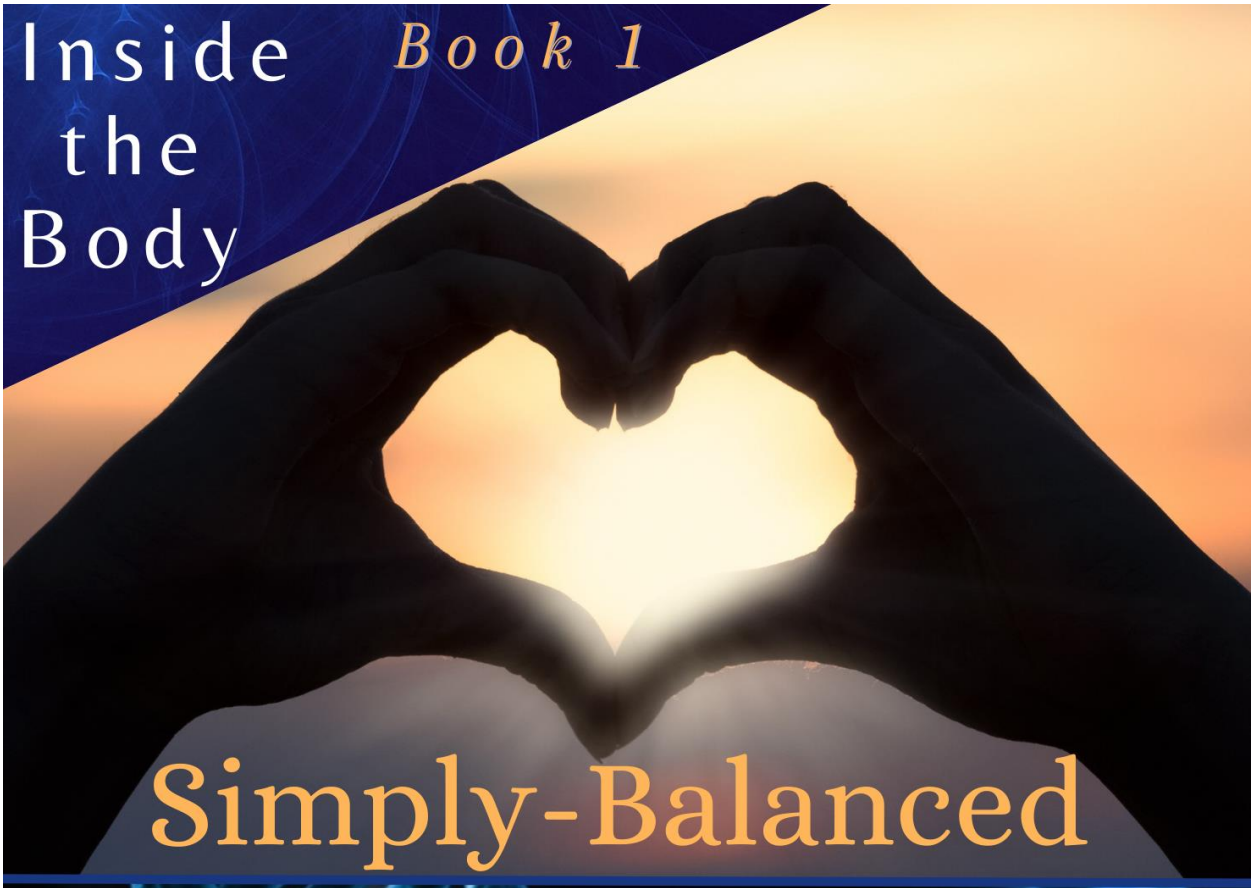
Inside the Body

Book 1



Simply-Balanced Health & Life

The 6 Essential Nutrients

By Brian and Ruth-Ellen

Simply-Balanced Health & Life

Inside The Body

Let me first start out by saying, as with any health and/or exercise program, first get your doctors approval before implementing it into your lifestyle, just as we did after writing our own health program. *(Disclaimer: I (We) are not doctors of any kind or in any capacity in the medical field at all, just researchers, enthusiasts and writers.)*

My wife and I took our program and showed it to our doctor. Knowing our medical situation, he liked everything he saw, but wanted one change. That was to only take vitamin A once every other day. So we made the change to our program and started it. Of course, being human, from time to time we slip away from it and have to regroup.

Our quality of life is very important and we know this, but this truth doesn't seem real to us until we lose some or most of our freedom to care for ourselves. The longer we live and the more poor food choices we make the more health problems we will encounter.

Through the years we have figured out some things, and one of them is that being healthy is very simple and also one of the hardest things you can do, at the same time. I'll explain below.

Inside this program, the complete four books, you will learn what to eat that's healthy and why it's healthy. You will learn exercises that work out your entire body. Each of these exercises will have modifications to make them easier until you can advance. You will learn about vitamins, minerals, amino acids, carbohydrates, common ailments of the body and so much more.

The most important thing you will learn is about your spiritual health, and I am talking about the Holy Bible, being saved by Jesus Christ.

Once you have gone through this program, you will write down a tailored step by step program from what you've learned that is specific to your needs. Then get it approved by your doctor.

After that comes the hard part, sticking to it.

It should be quite simple, very simple to follow your custom-made program, but it can be hard if you don't have the right mindset. Knowledge is great, but it's only half the battle. The other half is making the change to a healthy life.

A life change is never very easy. We have routines, habits and practices that consume our day. Whether our daily lives were created by our own likes, dislikes and necessities or imposed by the likes, dislikes and necessities of others, our lives are on some level, rigid and hard to change. You must find a way to incorporate healthy ways of living into your life. Maybe start out by adding just one thing and then another.

Just remember, that by adding something to your day you will be replacing what you *were* doing, even if what you are replacing is insignificant. Once both halves, knowledge and the right mindset, are put together you are ready! No more guessing, no more reason for putting it off.

In this book, Inside the Body, we have done our best to present all the information in an organized and understandable way. There is a lot of information on living healthy out there and being overwhelmed by it all is a drastic understatement.

Our bodies need only six essential nutrients to survive and thrive. Anything you can think of to eat or drink falls into one of those six. They are Vitamins, Minerals, Carbohydrates, Protein, Fats and especially Water. If the foods we eat lack any of these six nutrients we eventually become deficient which can lead to numerous health problems. These health problems range from the simplest of ailments to death.

We have formatted this book in a way where each essential nutrient is the main heading and the information for that nutrient is presented below it.

We hope you enjoy and greatly benefit from the Simply-Balanced Health & Life Program.

This book does contain affiliate links. While we were doing research for this book and found the different vitamins and minerals that we recommend, we became affiliated with a vitamin company. We believe this is a great reference for our readers. You know what to buy, why to buy it and now where to get it. If you do consider buying a supplement and using our links we want to thank you for your support.

Table of Contents

Page numbers are linked to the corresponding headings in this book.

Vitamin and Mineral Subheading Information:

Under each vitamin and mineral the information is divided into subheadings. Each subheading is listed below defining its importance.

While reading through the vitamins and minerals, you may want to refer back to this from time to time. It's always recommended to see your physician before beginning anything new so your own unique situation can be examined.

Recommended Dietary Allowance:

The recommended dietary allowance (RDA) was set by the government to help people from becoming deficient in vitamins and minerals. Being deficient brings a lot of symptoms and diseases. So the RDA for vitamins and minerals are requirements that help people fend off these symptoms and diseases, but may not give optimal health from those vitamins and minerals.

Therefore under this heading we will be providing the tolerable upper limit of each.

This recommended dosage is for the average Adult with no special considerations and is safe. If you know or think you have any special considerations such as, but not limited to, allergies, medications or pregnancy talk to your physician first. It is always best to get your vitamin and mineral intake from food, but sometimes a supplement could help.

Consider your supplement intake with the intake coming from your diet, that it does not exceed the upper limit dosage. If it does, quit taking the supplement.

Side Effects and Drug Interactions:

There are different treatments out there using high doses of vitamins and/or minerals to help a condition. If for any reason you are considering taking higher dosages of a vitamin or mineral supplement that is beyond the safe upper limits intake in combination with your dietary intake, please talk to your doctor first. This could very possibly lead to ***side effects***. Some vitamins and minerals do not have an upper limit set. In those cases we research and find studies or examples that show what a tolerable upper limit can be without experiencing side effects. We will make it clear if the upper limit is from studies and examples.

We will list the most common side effects for excess amounts of a vitamin or mineral, but please note that these side effects, when unchecked and ignored, can lead to severe and possibly fatal outcomes.

Also take in account any medications you have recently taken or are continually taking along with any supplements that are part of your daily routine. Adding a supplement may change how your medications work or increase risks for certain side effects.

Some medications and other supplements that are known to interact with high levels of a vitamin or mineral will be listed. Also will be listed are those medications that may lower a vitamin or mineral in your body. In these instances you may want to ask your doctor if taking a supplement would be beneficial. While medications are always evolving, a complete list of medication interactions to a vitamin or mineral is never perfect or complete. Talk with your

doctor about the medications you are taking, if you are thinking about starting or changing a supplement.

Allergic reactions to a vitamin or mineral are always possible and can lead to severe side effects and possibly death. Speak with your doctor about possible allergic reactions that could affect you.

Food is the best and most recommended way to get the vitamins and minerals your body needs, but like all things in life; you can go excessive, even with food.

Benefits of Taking:

If you're healthy, or somewhat healthy, you may not see any noticeable change after starting a supplement plan. In a body that is not vitamin/mineral deficient to an excessive point, the benefits will be gradual. Time will show you the benefits of your efforts by your body's increase and continual performance.

Vitamins and minerals help the body in different ways, but they overlap in the health benefits they give to us. Each vitamin and mineral has acceptable benefits they are widely known for. Therefore we will be listing the greatest acceptable benefits along with some minor ones.

Symptoms of Vitamin and Mineral Deficiency:

In some people deficiencies may not be noticed while others may show themselves in a range from mild to severe. If you are showing symptoms of a vitamin or mineral deficiency, examine what you have been eating and drinking to see if there is indeed a lack of that vitamin or mineral in your diet. If you see that there is a need, try to meet it with food, but take a supplement if you can't.

If you do take a supplement do not exceed the safe upper limit dosage unless you consult with your physician first.

Tips on Buying Supplements:

Some supplements come with the dosage being under or 100% of the RDA. A lot, however, come with a dosage much higher. This is okay as long as the dosage is not over the upper limit for that vitamin or mineral. If it is, look for a lower dosage amount unless you and your doctor have a specific plan for it.

Most vitamins and minerals come in a wide variety of supplement forms. We will include the various forms and recommend, from our research, the best form to take. Our recommendations are our opinions so make sure you doctor approves them for your specific situation before starting a supplement.

It is important to always read the directions and warnings on the bottle of supplements and take as directed.

Always buy supplements that list its ingredients and the amount in it. There are some that say "proprietary blend" which means they don't disclose what they put in or how much of an ingredient they put in. Don't buy these.

Top Foods of the Different Vitamins and Minerals:

Each food will be based on 100 gram servings. This is a unit of weight and is very precise. But, if you're not familiar with the unit grams, 100 grams = 3.53 ounces or ½ cup roughly.

This way all listed food is in equal portions and is a better way to understand the amount of the vitamin or mineral in that food. Plus, when it's appropriate, you can portion your food in this way, if you decide to.

The amount of the vitamin or mineral in that food will be given as a percentage of the RDA as well. It is calculated like this;

Take the amount of the vitamin or mineral that is in the food item and divide by the RDA.

Example:

For vitamin E, the RDA is 15mg.

In raw almonds there is 25.6mg per 100 grams.

25.6/15 = 170.6666 (round up to 171).

So in 100 grams of raw almonds there is 171% of vitamin E.

There are more foods, some with higher amounts of the vitamin or mineral, which will not be included on our lists. We want to give you variety with each vitamin and mineral so that you can apply them to your meal preparation in the home.

Each amount of vitamin or mineral in the food is an approximate amount. That's because depending on where the plant was grown or where the animal was raised and the care in their development, it could have more or less of the amount of that vitamin or mineral.

Essential Nutrient #1: Vitamins

What are vitamins?

Vitamins are organic compounds that are needed for our bodies to function and develop normally, with each vitamin having a specific role to play within the body to keep us healthy. Our bodies either can't make the biological compounds or can't make enough to meet our need so we must obtain them through our diet or supplements. Vitamins are considered to be either fat-soluble or water-soluble which means the vitamin dissolves in either fat or water.

Fat-soluble vitamins are best taken after eating a meal where you are consuming fat. Also fat-soluble vitamins can store inside your fat cells and be used when your body needs them. This means that you can overdose on these types of vitamins.

Water-soluble vitamins dissolve in water so they are easily used by the body. They are not stored in the body, except for vitamin B12 which is stored in the liver. The body uses what it needs at the time and expels the rest through urine. You will need a daily supply of these vitamins to continue benefiting from them. You can overdose on these as well, if you take an extremely high dose day after day. Your body needs time to process these vitamins to use what is needed and expel the rest through urine.

There are 13 vitamins we should concern ourselves with and they are A, C, D, E, K and B1 (Thiamine), B2 (Riboflavin), B3 (Niacin), B5 (Pantothenic Acid), B6 (Pyridoxine), B7 (Biotin), B9 (Folate), and B12 (Cyanocobalamin). Of these vitamins A, E, D and K are fat-soluble, the rest are water-soluble.

Vitamins have different roles they play to keep your body healthy. It's always a good idea to get your vitamins from food rather than pills, but if your diet is lacking in a certain vitamin, taking a supplement would be a good idea.

Vitamin dosages are measured in a few different ways.

- mg – milligram
- mcg – microgram
- IU – international unit

If you need to convert one unit of measure to another here is a quick guide.

Mcg to mg – There are 1,000mcg in 1mg, so divide your mcg by 1000 to get mg.

Mg to mcg – Multiply your mg by 1000 to get mcg.

IU to mcg and mg – Only four vitamins are measured in IU and we will convert three of them to mcg because the amount is so small, and Vitamin E will be converted to mg.

Vitamin A – 1IU is 0.3mcg RAE of retinol or 0.5mcg RAE of beta-carotene.

Vitamin C – 1IU is 50mcg of L-ascorbic acid.

Vitamin D – 1IU is 0.025mcg of cholecalciferol (D3) or ergocalciferol (D2).

Vitamin E – 1IU is 0.67mg of d-alpha tocopherol (natural) or 0.45mg of dl-alpha tocopherol (synthetic).

Multiply the amount of IU of the vitamin by the amount that 1IU is equal to.

Example of this is:

You have 1,000 IU of vitamin A as retinol. Multiply 1,000 X 0.3mcg = 300mcg.

If you want to reverse the process:

You have 300mcg of vitamin A as retinol. Divide 300 / 0.3mcg = 1,000 IU.

Note: Mg, mcg and IU can get confusing, especially if you're looking at different supplements long enough. Be careful to keep the right unit of measure with the right supplement.

Vitamin A

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin A is 900 micrograms (mcg) for men and 700 micrograms (mcg) for women. The upper limit amount is 3,000mcg from retinol (the active form of vitamin A) for both men and women.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin A:

- Bone thinning.
- Sunlight sensitivity.
- Hair loss.
- Joint pain.
- Blurred vision.

Possible drug interactions in taking vitamin A can include:

- A rise of pressure in the brain fluid when taken with Tetracycline class antibiotics.
- Medications such as Isotretinoin and Tretinoin (treatments for acne) and Acitretin and Etretinate (treatments for skin conditions like psoriasis) can raise Vitamin A levels in the body adding to your intake. This could possibly bring about vitamin A side effects.

Benefits of Taking Vitamin A:

- Helps to keep skin and hair healthy.
- Helps the lungs, kidneys and heart to function properly.
- Fertility.
- Helps with infections.
- Some studies claim it helps in reducing the risk of certain types of cancer.
- Supports bone health.
- Protects your eyes from night blindness and the effects of aging.
- Supports a healthy immune system.

Symptoms of Vitamin A deficiency:

- Dry skin.
- Dry eyes.
- Night blindness.
- Infertility and trouble conceiving.

- Poor wound healing.
- Acne and breakouts.

Tips on Buying Supplements:

There are two main forms of vitamin A.

- Performed vitamin A (retinol and retinyl esters). This is found in animal products and is the active form of vitamin A.
- Provitamin A (carotenoids such as beta-carotene). This is found in plants. The body converts this form of vitamin A into retinol, being the active form of vitamin A.

Some supplements will have RAE on the ingredients list. This stands for Retinol Activity Equivalences and it means that this is the amount of vitamin A provided after the body converts it into the active form.

Both forms are great, but we recommend the preformed vitamin A form of retinyl acetate or retinyl palmitate.

Click Here to get the Vitamin A we recommend.

Tip: Skin creams that have vitamin A in them can make your skin sensitive to light, so it is better to use them at night.

Top Five Foods with Vitamin A: All servings are 100 grams.

1. Carrots (boiled) - 852mcg of A in the form of beta-carotene, which is 95% of the Daily Value for men and 122% for women.

2. Butternut Squash (baked) - 558mcg of A in the form of beta-carotene and alpha-carotene, which is 62% of the DV for men and 80% for women.

3. Cantaloupe (raw) - 169mcg of A in the form of beta-carotene, which is 19% of the DV for men and 24% for women.

4. Kale (raw) - 240mcg of A in the form of beta-carotene, which is 27% of the DV for men and 34% for women.

5. Bluefin Tuna (pan fried, seared) - 757mcg of A in the form of retinol, which is 84% of the DV for men and 108% for women.

Vitamin C

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin C is 90 milligrams (mg) for men and 75 milligrams (mg) for women. The safe upper limit for vitamin C is 2,000mg per day for both men and women. If you have kidney, liver disease or gout do not go above 1,000mg per day.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin C:

- Heartburn.
- Nausea.
- Vomiting.
- Headaches.
- Stomach cramps and bloating.

Possible drug interactions in taking vitamin C can include:

- Reduces the effectiveness of medicines like Warfarin (blood thinner), antiviral drugs and chemotherapy.
- Increases estrogen levels when taken with oral contraceptives or hormone replacement therapy.
- Increases sodium levels.
- Helps produce kidney stones.

Benefits of Taking Vitamin C:

- Helps form collagen.
- Lowers blood pressure.
- Assists with weight loss.
- Joint health.
- Aids in fighting against inflammation. Inflammation is the beginning of numerous health problems in the body.
- Helps the immune system function properly.
- Helps with wound healing.
- Many studies have shown it helps with keeping uric acid levels down in the blood. This keeps the attacks of gout down.
- Increases antioxidant levels in the blood helping to fight against free radicals. (Free radicals are unstable molecules that are made when normal cells change food into

energy and from external sources like smoke, radiation and medications. Free radicals can build up and cause damage to other molecules in the body).

Symptoms of Vitamin C deficiency:

- Inflammation of the gums (also called gingivitis).
- Slow wound healing.
- Dry and splitting hair.
- Rough and dry skin.
- Weak immune system.
- Swollen and painful joints.

Tips on Buying Supplements:

There are many ways to take a vitamin C supplement. They have tablets, capsules, powder, liquid and gummies. Vitamin C is ascorbic acid and powder form is a great alternative to a pill with a set dosage. You can adjust your dosage as you need to day by day.

There are also two other great choices for vitamin C:

• A supplement that gives you Vitamin C from raw whole foods.

• A time released version of vitamin C. Your body can absorb more vitamin C if it's released in the body slowly over time.

Click Here to get the Vitamin C Powder.

Click Here to get Vitamin C from Whole Foods.

Click here to get Vitamin C Time Released.

Top Five Foods with Vitamin C: All servings are 100 grams.

1. Oranges (raw) - 53mg of C, which is 59% of the Daily Value for men and 71% for women.

2. Strawberries (raw) - 59mg of C, which is 66% of the DV for men and 79% for women.

3. Broccoli (raw) - 89mg of C, which is 99% of the DV for men and 119% for women.

4. Tomato (raw) - 23mg of C, which is 26% of the DV for men and 31% for women.

5. Snow Peas (raw, out of pods) - 60mg of C, which is 67% of the DV for men and 80% for women.

Vitamin D

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin D is 15mcg or 600 international units (IU) for both men and women under the age of 70. Starting at age 71 the recommended dosage is 20mcg or 800 international units (IU) for both men and women. The best way to get Vitamin D is 20 to 30 minutes of sunlight a day. But if that's not a possibility then go for the supplements.

The safe upper limit for vitamin D is 100mcg or 4,000IU.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin D:

- Feeling weak.
- Dry mouth.
- Nausea/ Vomiting.
- Confusion.
- Depression.
- Damage to the kidneys and heart.
- Also high levels of vitamin D can lead to high levels of calcium.

Possible drug interactions in taking vitamin D can include:

- Developing Hypercalcemia (excessive amounts of Calcium) when taken with blood pressure medication or diuretics. Hypercalcemia can weaken bones, create kidney stones and interfere with how your heart and brain works.
- Taking vitamin D with Magnesium can increase magnesium levels causing Hypermagnesemia (excessive amounts of Magnesium). This can lead to low blood pressure, arrhythmias, confusion and lethargy.

Benefits of Taking Vitamin D:

- Strengthens bones and teeth.
- Strengthens muscles.
- You need Vitamin D to absorb Calcium.
- Helps support the immune system.
- Helps fight inflammation.
- Can help battle depression.
- Helps with Type 2 Diabetes.
- Helps with healthy brain function.

Symptoms of Vitamin D deficiency:

- Fatigue.
- Tiredness.
- Bone and back pain.
- Depression.
- Slow wound healing.
- Bone loss.
- Hair loss.
- Muscle pain.

Tips on Buying Supplements:

Vitamin D2 and D3 are the main forms of vitamin D. They play the same role in the body and collectively are known as vitamin D, but they come from different sources. D3 (also called cholecalciferol) comes from animal sources and is produced by your skin when you're in the sunshine. D2 (also called ergocalciferol) comes from plants.

In several studies D3 raises vitamin D levels higher and for a longer period of time. If you need a supplement for vitamin D go with D3. As always make sure the brand you buy is natural, pure and solid company.

Click Here for the Vitamin D3 we recommend.

Top Five Foods with Vitamin D: All servings are 100 grams.

1. Eggs (hard boiled) – 2.2mcg or 88(IU) of D, which is 15% of the Daily Value (DV) for both men and women until age 70. After age 70 it is the DV of 11% for both men and women.

2. Sockeye Salmon (grilled, roasted) – 16.7mcg or 668(IU) of D, which is 111% of the DV for both men and women until age 70. After age 70 it is the DV of 84% for both men and women.

3. Whole Milk (store bought) – 1.3mcg or 52(IU) of D, which is 9% of the DV for both men and women until age 70. After age 70 it is the DV of 7% for both men and women.

4. Pork Spare Ribs (braised) – 2.6mcg or 104(IU) of D, which is 17% of the DV for both men and women until age 70. After age 70 it is the DV of 13% for both men and women.

5. White Button Mushrooms (raw) – 5mcg or 200(IU) of D, which is 33% of the DV for both men and women until age 70. After age 70 it is the DV of 25% for both men and women.

Mushrooms can take sunlight and make vitamin D2 just like our bodies can make D3, so look on the label and see if the mushrooms have been done this way. It should say high in vitamin D or exposed to light. The amount of vitamin D can vary so read the label for the amount of vitamin D.

You can also buy fresh mushrooms from the store that is not marked in this way and put them in sunlight or under a UV lamp and have your mushrooms gain vitamin D. The amount of exposed time will determine the added amounts of vitamin D. As a standard from different studies, it seems that if you put mushrooms under the midday sun between 15-20 minutes it raises the vitamin D2 amount up to around 10mcg per 100 grams of mushrooms.

Vitamin E

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin E is 15 milligrams (mg) for both men and women. The recommended upper limit is 1,000mg per day. We have found some studies that say anything around 200mg per day may cause health problems. So we suggest staying to that limit unless otherwise instructed/approved by your doctor.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin E:

- Diarrhea.
- Nausea.
- Headache.
- Muscle weakness and fatigue.
- Stroke.
- Blood thinning which can interfere with blood clotting and lead to fatal bleeding.

Possible drug interactions in taking vitamin E can include:

- An increase in the risk of bleeding when taken with blood thinners and aspirin.
- Taking vitamin E could reduce the effects of some cancer treatment medications, blood pressure medications, antipsychotics and antidepressants.
- Taken with vitamin K, it decreases the effects of vitamin K.

Benefits of Taking Vitamin E:

- Protects cells from damage as an antioxidant.
- Helps the immune system function.
- It helps the skin in a number of ways. Among these are, minimizing the appearance of scars and wrinkles, keeping moisture in the skin and reduces damage from the sun.
- Helps to heal wounds.
- Helps promote healthy hair and nails.
- Helps reduce the risk of heart disease and heart attack.
- Aids the brain to prevent or delay cognitive decline. (This is when a person has trouble remembering, learning, concentrating or making decisions).

Symptoms of Vitamin E deficiency:

- Can cause nerve or muscle damage resulting in the loss of feeling in the arms and legs (numbness and tingling).
- Muscle weakness.
- Poor eyesight.
- Weakened immune system.
- Coordination and walking difficulties.

Tips on Buying Supplements:

Natural is most of the time better than synthetic and it's true with vitamin E supplements. Natural vitamin E has shown to be better for the body and can be identified by the label stating d-alpha-tocopherol with synthetic vitamin E stating dl-alpha-tocopherol or dl-a-tocopherol. Make sure when you're buying that the label doesn't begin with dl-. There are several brands that sell natural vitamin E, just make sure the brand is solid, natural and pure.
Click Here to get the Vitamin E and the dosage we recommend.

Top Five Foods with Vitamin E: All servings are 100 grams.

1. Almonds (raw) – 25.6mg of E, which is 171% of the Daily Value (DV) for both men and women.

2. Olive Oil (salad or cooking oil) – 14.4mg of E, which is 96% of the DV for both men and women.

3. Swiss Chard (boiled) – 1.9mg of E, which is 13% of the DV for both men and women.

4. Smooth Peanut Butter (store bought) – 5.9mg of E, which is 39% of the DV for both men and women.

5. Rainbow Trout (grilled, roasted) – 2.8mg of E, which is 19% of the DV for both men and women.

Vitamin K

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin K is 120 micrograms (mcg) for men and 90 micrograms (mcg) for women. As of now there is no upper limit for vitamin K set. We do believe by consuming vitamin K from foods you really have nothing to worry about. In our research it doesn't appear high levels cause any harm up to 5,000mcg, but if you plan on taking a supplement with a high dosage, ask your doctor about the amount you plan on taking.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin K:

- A change in taste.
- Feelings of warmth.
- Redness of the skin.
- Upset stomach.
- Diarrhea.

Possible drug interactions in taking vitamin K can include:

- Decreases the effects of blood thinners such as Warfarin.
- Antibiotics and certain cholesterol medications can reduce the absorption of vitamin K.

Benefits of Taking Vitamin K:

- Helps with blood clotting.
- Very good at maintaining bone health.
- Promotes heart health by reducing calcium build up in the arteries.
- Several studies have shown that vitamin K helps with mental health by helping brain cells survive.

Symptoms of Vitamin K deficiency:

- You are likely to bruise.
- Oozing from nose or gums.
- Excessive bleeding from wounds, punctures, ejections or surgical sites.
- Heavy menstrual periods.
- Blood in urine and/or stool.
- Bleeding from gastrointestinal tract (GI tract).

Tips on Buying Supplements:

Vitamin K comes in two forms, K1 (phylloquinone) and K2 (menaquinones). K1 comes from leafy greens and vegetables and K2 comes from animal products and fermented foods. Through our research we suggest getting Vitamin K2 in the form of MK-7.

K2 has a lot better absorption rate than K1. Most of K1 is transported to the liver and then is used from there. With K2 it flows in the bloodstream a long time because of its makeup and can fulfill vitamin K benefits better.

Vitamin K is a fat soluble vitamin so it's better taking it after consuming a healthy fat like olive oil or an avocado.

Click Here to get the Vitamin K we recommend.

Top Five Foods with Vitamin K: All servings are 100 grams.

1. Kale (raw) - 390mcg of K, which is 325% of the DV (Daily Value) for men and 433% for women.

2. Brussel Sprouts (boiled) - 140mcg of K, which is 117% of the DV for men and 156% for women.

3. Okra (boiled) - 40mcg of K, which is 33% of the DV for men and 44% for women.

4. Sweet Pickles (out of the bottle) - 77mcg of K, which is 64% of the DV for men and 86% for women.

5. Cabbage (boiled) - 109mcg of K, which is 91% of the DV for men and 121% for women.

Two Foods with Vitamin K2: All servings are 100 grams.

1. Natto (raw) - 1000mcg of K2, which is 833% of the DV for men and 1,100% for women.

2. Pepperoni (cured meat) – 41.7mcg of K2, which is 35% of the DV for men and 46% for women.

Vitamin B1 (Thiamine)

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin B1 (Thiamine) is 1.2 milligrams (mg) for men and 1.1 milligrams (mg) for women. There is no set upper limit for B1. People routinely take up to 100mg a day with no side effects. This is as high as we would suggest taking.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin B1:

- Drowsiness.
- Muscle weakness.

Possible drug interactions in taking vitamin B1 can include:

- Reduces the effectiveness of Tetracycline class antibiotics.
- Medication including antibiotics, diuretics, anti-seizure and heart medications can decrease the level of B1 in the body.

Benefits of Taking Vitamin B1 (Thiamine):

- It is vital for metabolism (chemical change that takes place in a cell).
- Boosts the immune system.
- Supports a healthy function of the brain.
- Helps with digestion.
- Protects the heart.
- Improves mood.

Symptoms of Vitamin B1 (Thiamine) deficiency:

- Loss of appetite.
- Gradual or sudden fatigue.
- Irritability.
- Reduced reflexes.
- Tingling sensation in arms and legs.
- Muscle weakness.
- Blurry vision.
- Nausea and vomiting.

Tips on Buying Supplements:

There are Thiamine and Benfotiamine supplements in different dosing amounts. Benfotiamine is a synthetic version of Thiamine that the body can absorb better. Once in the body, the body converts Benfotiamine to Thiamine. There are studies that say Benfotiamine increases Thiamine levels in the blood and liver but didn't really increase levels for the brain in the same amount.

We would suggest sticking with Thiamine, natural Thiamine. There are synthetic versions available like Thiamine Mononitrate and Thiamine Hydrochloride (Thiamine HCL). Natural versions will have Thiamine coming from food or nutritional yeast (capsules, flakes or powder).

Nutritional yeast is actually really good in other B vitamins like B3, B5 and B6. (This is unfortified, what the yeast naturally makes). They make a fortified version where they add synthetic B vitamins to complete the B vitamins, along with other added nutrients. We would suggest staying natural and getting the unfortified. You can sprinkle it on almost anything and consume your supplement that way.

Click Here to get Unfortified Nutritional Yeast

Top Five Foods with Vitamin B1 (Thiamine): All servings are 100 grams.

1. Lean Pork Chops (roasted or baked) - 0.7 mg of B1, which is 58% of the DV (Daily Value) for men and 64% for women.

2. Flax Seed (raw) – 1.64mg of B1, which is 137% of the DV for men and 149% for women.

3. Brown Long Grain Rice (raw) – 0.401mg of B1, which is 33% of the DV for men and 36% for women. Note: When the measured rice is cooked, brown rice usually doubles in weight and volume.

4. Farmed Salmon (cooked) – 0.34mg of B1, which is 28% of the DV for men and 31% for women. Wild caught Salmon has slightly less at 0.275mg of B1, which is 23% of the DV for men and 25% for women.

5. Plain Sun-Dried Tomatoes – 0.528mg of B1, which is 44% of the DV for men and 48% for women. Sun-dried tomatoes are also sold packaged in oil and there is a difference in the amount of B1. Sun-dried tomatoes packaged in oil are 0.19mg, which is 16% of the DV for men and 17% for women.

Vitamin B2 (Riboflavin)

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin B2 (Riboflavin) is 1.3 milligrams (mg) for men and 1.1 milligrams (mg) for women. There is no upper limit set. In our research high doses is considered safe, but you may start showing some side effects beyond 100mg.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin B2:

- Having yellow to orange urine.
- Nausea.
- Itching.
- Numbness.
- Sensitivity to light.
- Possible liver damage.

Possible drug interactions in taking vitamin B2 can include:

- Reduces the effectiveness and absorption of the Tetracycline class antibiotics.
- Anti-depressants, anti-psychotics, anti-seizure, cancer medications and medications for gout can interfere or lower B2 levels in the body.

Benefits of Taking Vitamin B2 (Riboflavin):

- Helps to metabolize glucose.
- Supports eye health.
- It supports cells by minimizing certain by-products made from metabolism (chemical change that takes place in a cell). By minimizing these by-products, homocysteine in particular, B2 helps with mental diseases, heart disease and possible stroke that high homocysteine levels promote.
  Homocysteine is a sulfur containing amino acid that is formed when the amino acid methionine is metabolized to cysteine. Homocysteine is not a bad thing, B2 and other B vitamins break down homocysteine to very useful chemicals for the body. It's when homocysteine levels get high is when the danger is present.
- By B2 protecting cells it helps to prevent the risk of cancer, since basically cancer is a mutated or damaged cell that begins to divide out of control.
- Helps to ease migraines.

Symptoms of Vitamin B2 (Riboflavin) deficiency:

- Sore throat.
- Redness and swelling of the lining of the mouth and throat.
- Cracks and sores on the outside of the lips and corners of the mouth.
- Cracking heels.
- Inflammation and redness of the tongue.
- Inflamed, moist skin.
- Migraines.
- Bloodshot eyes.

Tips on Buying Supplements:

When choosing a B2 supplement you have a choice between Riboflavin and riboflavin 5'-phosphate. Riboflavin 5'-phosphate is the active form of B2. Active form means that your body can use it as-is instead of your body activating it through the kidney and/or liver. Some research has shown that the active form still needs to go through a transformation of removing phosphorus before being used. Our recommended form is natural riboflavin.
Click Here to get the Vitamin B-2 we recommend.

Top Five Foods with Vitamin B2 (Riboflavin): All servings are 100 grams.

1. Beef Skirt Steak (grilled) – 0.9mg of B2, which is 69% of the DV (Daily Value) for men and 82% for women.

2. Almonds (raw) – 1.1mg of B2, which is 85% of the DV for men and 100% for women.

3. Eggs (hard boiled) – 0.5mg of B2, which is 38% of the DV for men and 45% for women.

4. Swiss Cheese (raw) – 0.3mg of B2, which is 23% of the DV for men and 27% for women.

5. Spinach (boiled) – 0.2mg of B2, which is 15% of the DV for men and 18% for women.

Vitamin B3 (Niacin)

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin B3 (Niacin) is 16 milligrams (mg) for men and 14 milligrams (mg) for women. The upper limit for B3 is 35mg.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin B3:

- Minor to severe headaches.
- Nausea and/or vomiting that persist.
- Flushing (redness) of the skin.
- Tingling and warmth of the skin, especially on the face, throat or upper body.

Possible drug interactions in taking vitamin B3 can include:

- Reduces the effectiveness of Tetracycline class antibiotics.
- Increases the effect of blood thinners.

Benefits of Taking Vitamin B3 (Niacin):

- Regulates digestion.
- Improves skin from sun damage.
- Reduces the symptoms of arthritis.
- Prevents the risk of heart disease.
- Helps treat diabetes.

Symptoms of Vitamin B3 (Niacin) deficiency:

- Fatigue.
- Indigestion.
- Mouth sores.
- Nausea.
- Diarrhea.
- Poor circulation.
- Depressed mood.

Tips on Buying Supplements:

Niacin is known as nicotinic acid. There are three forms that Niacin is sold by, and they are nicotinic acid which is niacin, nicotinamide (or niacin amide) and inositol hexanicotinate.

Nicotinamide (niacin amide) and inositol hexanicotinate works in the body differently than niacin (nicotinic acid). They are usually sold as flush-free versions and don't have nicotinic acid (niacin) in them, but are derived from niacin.

We suggest buying nicotinic acid as vitamin B3 (Niacin).

Click Here to the B-3 we recommend.

You can also get a stronger Extended Release (ER) version. It's a slow release of nicotinic acid over a period of time. This is only by prescription from your doctor.

When taking niacin (nicotinic acid) as a type of therapy, instead of just a supplement, you are taking a higher dosage then the upper limit dosage. People usually take niacin therapy to treat cholesterol problems.

If you are considering taking more than recommended as in Niacin therapy, consult your doctor first.

Top Five Foods with Vitamin B3 (Niacin): All servings are 100 grams.

1. Beef Liver (Pan Fried) – 17.5mg of B3, which is 109% of the Daily Value (DV) for men and 125% for women.

2. Chicken Breast without Skin (Roasted) – 12mg of B3, which is 75% of the DV for men and 86% for women.

3. Portabella Mushrooms (Raw) – 4.5mg of B3, which is 28% of the DV for men and 32% for women.

4. Avocado (Raw) – 1.7mg of B3, which is 11% of the DV for men and 12% for women.

5. Potato with Skin (Baked) - 3mg of B3, which is 19% of the DV for men and 21% for women.

Vitamin B5 (Pantothenic Acid)

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin B5 (Pantothenic Acid) is 5 milligrams (mg) for both men and women. There is no upper limit for B5 set, but side effects have been noticed on high doses of 500mg and above.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin B5:

- An increased risk of bleeding.
- Diarrhea.
- Depression.
- Calcification of the blood vessels (buildup of calcium).

Possible drug interactions in taking vitamin B5 can include:

- Reduces the effectiveness and absorption of Tetracycline class antibiotics.
- When taken with medications to treat Alzheimer's, B5 can increase the effects of them and possibly lead to severe side effects.

Benefits of Taking Vitamin B5 (Pantothenic Acid):

- Helps to convert food to energy.
- It's necessary for making red blood cells that carry oxygen throughout the body.
- Regulates stress and sex hormones.
- Helps with keeping the skin soft and elastic.
- Can help to control cholesterol.
- Helps with your bodies healing process.

Symptoms of Vitamin B5 (Pantothenic Acid) deficiency:

- Headache.
- Fatigue.
- Irritability.
- Restlessness.
- Disturbed sleep.
- Nausea and/or vomiting.
- Stomach cramps.
- Numbness or burning sensation in hands or feet.

- Muscle cramps.

Tips on Buying Supplements:

Vitamin B5 comes in a synthetic version, Calcium D-Panthothenate, an active version of Pantothenic acid called Pantethine and natural Pantothenic Acid. We suggest getting the natural form of Vitamin B5, Pantothenic Acid. The best way we seen to get this is from Nutritional Yeast. It's the same as we recommended for vitamin B1.
Click Here to get Unfortified Nutritional Yeast.

Top Five Foods with Vitamin B5 (Pantothenic Acid): All servings are 100 grams.

1. Sweet Potato (baked) – 1.8mg of B5, which is 36% of the Daily Value (DV) for both men and women.

2. Sunflower Seeds (dry roasted) – 7mg of B5, which is 140% of the DV for both men and women.

3. Lentils (boiled) – 0.6mg of B5, which is 12% of the DV for both men and women.

4. Bluefin Tuna (grilled, baked, roasted) – 2.3mg of B5, which is 46% of the DV for both men and women.

5. Yellow Sweet Corn (boiled) – 0.8mg of B5, which is 16% of the DV for both men and women.

Vitamin B6 (Pyridoxine)

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin B6 (pyridoxine) is 1.3 milligrams for adults, both men and women up to the age of 50. Starting at the age of 51 the recommended dosage for men is 1.7 milligrams (mg) and 1.5 milligrams for women. The upper limit set for B6 is 100mg.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin B6:

- Nausea.
- Heartburn.
- A lack of muscle control.
- Numbness in the extremities.
- Headaches.
- Skin lesions.
- Sensitivity to light.

Possible drug interactions in taking vitamin B6 can include:

- Reducing the effectiveness of certain antibiotics, anti-seizure medications and Levodopa (used to treat Parkinson's disease).
- Some medications may reduce the levels of B6 in the body including medications to treat tuberculosis, arthritis and asthma.
- In certain chemotherapy drugs B6 can reduce side effects, which is a good thing. In other chemotherapy drugs B6 can reduce their effectiveness. If this pertains to you ask your doctor if B6 could help or hurt your situation.

Benefits of Taking Vitamin B6 (Pyridoxine):

- Improves your mood and therefore helps with depression by creating neurotransmitters (these are chemical messenger molecules used by the nervous system to transmit messages from a neuron (nerve cell) to other neurons, muscles or glands).
- Decreases homocysteine levels.
- Helps prevent eye diseases.
- Helps with anemia.
- B6 has anti-inflammatory benefits which helps with pain associated with rheumatoid arthritis.

Symptoms of Vitamin B6 (Pyridoxine) deficiency:

- Skin rashes.
- Cracked and sore lips.
- Glossy sore tongue.
- Mood changes.
- Weakened immune function.
- Tiredness and low energy.
- Tingling and pain in hands and feet.
- Seizures.

Tips on Buying Supplements:

For B6 there is a synthetic form called Pyridoxine Hydrochloride (HCI), an active form called Pyridoxal Phosphate (PLP, pyridoxal 5 '-phosphate, P5P) and the natural form Pyridoxine. The active form does give the benefits of B6 better than the rest and that is why we do recommend this form. We also recommend the Nutritional Yeast for B6 as a natural form from food.
Click Here to get the active form of this Vitamin.
Click Here to get Unfortified Nutritional Yeast.

Top Five Foods with Vitamin B6 (Pyridoxine): All servings are 100 grams.

1. Bananas (raw) – 0.4mg of B6, which is 31% of the Daily Value (DV) for both men and women until age 50. After age 50 it is 24% of the DV for men and 27% for women.

2. Pistachio Nuts (raw) – 1.7mg of B6, which is 131% of the DV for both men and women until age 50. After age 50 it is 100% of the DV for men and 113% for women.

3. Ground Turkey (pan fried or sautéed) – 0.6mg of B6, which is 46% of the DV for both men and women until age 50. After 50 it is 35% of the DV for men and 40% for women.

4. Jalapeno Pepper (raw) – 0.4mg of B6, which is 31% of the DV for both men and women until age 50. After age 50 it is 24% of the DV for men and 27% for women.

5. Chicken Livers (fried) – 0.6mg of B6, which is 46% of the DV for both men and women until age 50. After age 50 it is 35% of the DV for men and 40% for women.

Vitamin B7 (Biotin) also known as Vitamin H

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin B7 (Biotin) is 30 micrograms (mcg) for both men and women. There is no upper limit set for B7. There have been studies where 5,000mcg have been taken for long periods of time without any side effects. Other reports claim that 10,000mcg is safe. We recommend staying with 5,000mcg or lower.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin B7:

- Trouble sleeping.
- Lowers vitamin C level.
- Skin rashes.
- Can distort lab tests such as pregnancy, certain forms of cancer, thyroid and heart failure. If you are taking high doses of B7 and you have some lab tests coming, you can stop taking it 3 to 4 days beforehand.

Possible drug interactions in taking vitamin B7 can include:

- B7 can be reduced in the body by the repeat use of antibiotics and by anticonvulsant medications.

Benefits of Taking Vitamin B7 (Biotin):

- Helps the digestive tract.
- Is needed to metabolize carbohydrates, fats and protein in the liver.
- Is well known for strengthening hair, nails and skin.
- Helps manage blood sugar levels in diabetics.
- Promotes child development in pregnant women.
- Boosts the immune system.

Symptoms of Vitamin B7 (Biotin) deficiency:

- Scaly patches and redness usually on the scalp.
- Brittle hair or hair loss.
- Pink eye.
- Poor coordination of body movements.
- A lack of energy and motivation.
- Loss of appetite.

- Nausea.
- Mild depression.
- Hallucinations.

Tips on Buying Supplements:

For B7 there are 2 forms out there, Biotin and D-biotin (biotin-D). Biotin is good but in our research D-biotin seems to be the best. It is the more natural and active form of B7. D-biotin is the one we are recommending.
Click Here for our recommended Biotin.

Top Five Foods with Vitamin B7 (Biotin): All servings are 100 grams.

1. Egg Yolk (boiled, scrambled) – 20mcg of B7, which is 67% of the Daily Value (DV) for both men and women. (Raw whites can inhibit your body's use of biotin. When the whites are cooked your body can make the most use of Biotin in the yolk).

2. Soybeans (boiled) – 19.3mcg of B7, which is 64% of the DV for both men and women.

3. Pork Loin (roasted, sautéed) – 3.7mcg of B7, which is 12% of the DV for both men and women.

4. Broccoli (raw or boil for 3 minutes or less) – 9.3mcg of B7, which is 31% of the DV for both men and women.

5. Active Dry Yeast (added to make breads) – 309.7mcg of B7, which is 1,032% of the DV for both men and women. This has a longer shelf life than baker's yeast and requires very little time to ferment.

Vitamin B9 (Folate)

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin B9 (Folate) is 400 micrograms (mcg) for both men and women. The upper limit is set at 1,000mcg.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin B9:

- An upset stomach.
- Confusion.
- Behavior changes.
- Skin reactions.
- Seizures.
- Cancer development and growth.

Possible drug interactions in taking vitamin B9 can include:

- Reducing the effectiveness of anti-seizure drugs, Daraprim (used for treating parasites) and Tetracycline class antibiotics.
- B9 can increase the side effects from some cancer treatment medications.
- Cholesterol medication and diuretics can lower the levels of B9 in the body.

Benefits of Taking Vitamin B9 (Folate):

- Helps to form our DNA and RNA.
- Maintains a healthy pregnancy.
- It is needed in forming healthy red blood cells and maintaining their health.
- Is needed for cell division.
- Helps the immune system.
- Helps prevent heart disease.

Symptoms of Vitamin B9 (Folate) deficiency:

- Persistent fatigue.
- Weakness.
- A lack of energy and motivation.
- Pale skin.
- Shortness of breath.
- Irritability.

Tips on Buying Supplements:

Folate is the natural form of Vitamin B9. Folic acid is the usual synthetic form that comes in a supplement and it's more absorbed by the body than folate found in foods. Still folic acid needs to be converted to the active form of folate which is Methylfolate. Enzymes are used by the body to break folic acid down and some people are limited in these enzymes so the body doesn't absorb a lot.

Methylfolate also known as (L-Methylfolate) (5-Methyltetrahydrofolate) (6S-5-Methyltetrahydrofolate) (5-MTHF) is our recommended method because it's a natural form of B9 and it doesn't need these enzymes so it's ready for the body to use them as is. A great way of seeing if you are getting enough B9 and other B-vitamins is by your doctor checking your homocysteine levels.

As stated earlier, homocysteine is a sulfur containing amino acid that is formed when the amino acid methionine is metabolized (chemical change that takes place in a cell) to cysteine. Homocysteine is broken down by B9 and other B vitamins to be very useful chemicals for the body. When there are not enough of B vitamins to break down homocysteine, the homocysteine levels can rise and present danger for heart disease, stroke and mental illness. Click Here to get our recommended supplement.

Top Five Foods with Vitamin B9 (Folate): All servings are 100 grams.

1. Black-Eyed Peas (boiled) – 208mcg of B9, which is 52% of the Daily Value (DV) for both men and women.

2. Asparagus (boiled) – 149mcg of B9, which is 37% of the DV for both men and women.

3. Mangos (raw) – 43mcg of B9, which is 11% of the DV for both men and women.

4. Romaine Lettuce (raw) – 136mcg of B9, which is 34% of the DV for both men and women.

5. White Bread (store bought) – 111mcg of B9, which is 28% of the DV for both men and women.

Vitamin B12 (Cyanocobalamin)

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Recommended Dietary Allowance:

The recommended dosage for Vitamin B12 (Cyanocobalamin) is 2.4 micrograms (mcg) for both men and women. There is no set upper limit. With our research we suggest that you not take over 2,000mcg.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of vitamin B12:

- Headaches.
- Diarrhea.
- Fatigue and weakness.
- Tingling sensations in your hands and feet.

Possible drug interactions in taking vitamin B12 can include:

- Reduces the effectiveness of Tetracycline class antibiotics.
- B12 can be lowered in the body by repeated use of antibiotics, anti-seizure and cholesterol medications, Metformin (used to control blood sugar), Colchine (gout treatment) and stomach acid reducing medications.

Benefits of Taking Vitamin B12 (Cyanocobalamin):

- Is necessary along with B6 in production of healthy red blood cells.
- Supports bone health and density.
- It helps with depression by it producing serotonin, which is a neurotransmitter that stabilizes mood.
- Is essential in helping the body create DNA.
- Helps protect your nervous system.
- Helps to keep Homocysteine levels down.

Symptoms of Vitamin B12 (Cyanocobalamin) deficiency:

- A pale yellow tinge to your skin.
- A sore and red tongue.
- Mouth ulcers.
- A pins and needles sensation, usually in the arms, hands, legs and feet.
- Changes in the way you walk and move around.
- Disturbed vision.

- Irritability.
- Depression.
- *Note:* Taking high doses of B9 can make it appear that you have a B12 deficiency.

Tips on Buying Supplements:

Cyanocobalamin is the synthetic form of Vitamin B12 and not found in nature. There are 2 natural versions of B12 that are supplements and they are Methylcobalamin and Adenosylcobalamin. Both of these natural versions offer a lot of the same benefits, but in some ways they help the body differently. Adenosylcobalamin works by helping our cells stay energized while Methylcobalamin helps break down homocysteine to chemicals the body can use while at the same time keeping homocysteine levels down.

We suggest getting a supplement that has both natural forms. In researching supplements we found a supplement containing both Methylcobalamin and Adenosylcobalamin.
Click Here to get this supplement.

Top Five Foods with Vitamin B12 (Cyanocobalamin): All servings are 100 grams.

1. Clams (steamed) – 99mcg of B12, which is 4,120% of the Daily Value (DV) for both men and women.

2. Atlantic Mackerel (grilled, baked, roasted) – 32mcg of B12, which is 1,332% of the DV for both men and women.

3. Ribeye Steak (grilled) – 3.4mcg of B12, which is 142% of the DV for both men and women.

4. Milk 2% (store bought) – 0.5mcg of B12, which is 21% of the DV for both men and women.

5. Ground Beef (pan-fried) – 2.7mcg of B12, which is 113% of the DV for both men and women.

Vitamin B Complex

If you believe that it would be beneficial to take multiple B-Vitamins then a B-Complex is probably a better solution. It combines all the B-Vitamins into one dose. Our recommended supplement is– Click Here to check it out.

Essential Nutrient #2: Minerals

What are minerals?

Minerals are inorganic compounds that naturally occur on earth that have a chemical make-up. Our bodies need these essential minerals to stay healthy, to develop and to regulate many of the body's functions. Minerals are labeled into two categories and both are very important for the body.

Macrominerals: We require more of these minerals, usually 100 milligrams or more per day.

Micro Minerals (trace elements): Our body needs these in very small amounts, usually 15 milligrams (mg) or less.

There are 7 macrominerals and 9 trace minerals we need to consider.

The 7 macrominerals are:

Sodium

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Most of us know this one as part of salt and it is a crucial mineral for us to have in our bodies. It's probably the most over used mineral we have. Sodium is an electrolyte and electrolytes are substances that break down into charged particles in a fluid that can conduct electricity. Sodium is one of those minerals we tend to overload on. So, year after year we consume it and reap the effects of a continually high intake of sodium.

Recommended Dietary Allowance:

Many health organizations have done their research to give you a RDA to go by. They have turned out different results, probably since this issue is taken seriously. Going by the health authorities you should keep your sodium intake between 1,500mg to 2,300mg per day. If you are an active person and sweat you will need to up your intake a little more. The upper limit intake is considered to be 2,300mg, which is also the upper limit for the recommended intake per day.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Sodium:

- High blood pressure.
- Heart disease.
- Swelling of the stomach lining.

Possible drug interactions in taking Sodium can include:

- Reduced effectiveness of high blood pressure medications.
- Sodium can be increased in the body by taking Tolvaptan (used to treat low sodium), Videx (HIV treatment) and Corticosteroids (reduce inflammation and suppress the immune system).

The Benefits of Sodium:

- Balancing fluid levels in the body through the kidney.
- Supports nerve cell communication.
- Sodium is needed for muscle contraction by communicating to muscle fibers to release calcium.
- Helps stabilize blood pressure.

Symptoms of Sodium Deficiency:

- Nausea and/or vomiting.
- Headache.
- Confusion.
- Muscle weakness and cramps.
- Loss of energy.

Tips on Buying Supplements:

The best supplement to take if you need to increase your sodium intake is sodium chloride, which is table salt. One teaspoon of table salt has 2,325mg of sodium.
We are not recommending any supplement for sodium, so we don't have a link.

Top Five Foods with Sodium: All servings are 100 grams.

1. Salt (table salt) – 38,758mg of Sodium, which is 1,685% of the Daily Value (DV) for both men and women.

2. Ham (cured) – 1,500mg of Sodium, which is 65% of the DV for both men and women.

3. Sunflower seeds (roasted with salt) – 6,008mg of Sodium, which is 261% of the DV for both men and women.

4. Clams (steamed) – 1,202mg of Sodium, which is 52% of the DV for men and women.

5. Bread (white) – 491mg of Sodium, which is 21% of the DV for both men and women.

Chloride

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

This is a very important electrolyte in the blood and works well with sodium. As an electrolyte it helps many functions of the body. The level of chloride in your body is managed by the kidneys. As you need more or less, depending on your chloride intake, the kidney limits or increases the output. Chloride is another mineral that we get a lot of through table salt and processed foods, as we said above for sodium. Salt is made up of about 40% sodium and about 60% chloride.

Recommended Dietary Allowance:

Chloride intake per day should be around 2,300mg per day for both men and women. The upper limit per day of Chloride is 3,600mg for both men and women.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Chloride:

- An imbalance of the body's PH levels. This can lead to higher acid blood levels that can cause kidney stones and kidney failure, along with heart and muscle problems.
- Excessively thirsty.
- Muscle weakness.
- High blood pressure.

Possible drug interactions in taking Chloride can include:

- Capreomycin (an antibacterial prescription) can increase chloride levels in the blood.

The Benefits of Chloride:

- Helps balance the amount of fluid inside and outside your cells.
- Helps balance the amount of acids and bases in your body (your PH balance).
- Aids in maintaining blood volume.
- Promotes healthy blood pressure.
- Helps to achieve the normal functioning of the digestive system.

Symptoms of Chloride Deficiency:

- Fluid loss.
- Dehydration.
- Weakness.
- Confusion.

- Difficulty in breathing.

Tips on Buying Supplements:

As with sodium, the best supplement to take if you need to increase your chloride intake is sodium chloride, which is table salt. One teaspoon of table salt has 3,400mg of chloride.

As with sodium we are not recommending any supplement.

Top Five Foods with Chloride: All servings are 100 grams.

1. Salt (table salt) – 57,460mg of Chloride, which is 2,498% of the Daily Value (DV) for both men and women.

2. Lettuce (raw) – 250mg of Chloride, which is 11% of the DV for both men and women.

3. Celery (raw) – 360mg of Chloride, which is 16% of the DV for both men and women.

4. Prawns (boiled) – 2,125mg of Chloride, which is 92% of the DV for both men and women.

5. Tomatoes (raw) – 42mg of Chloride, which is 2% of the DV for both men and women.

Potassium

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

This is the most abundant positively charged electrolyte in the body and is very reactive in water. As with other electrolytes when dissolved in a solution, it helps the body's cells to communicate with each other through electrical signals. About 80% of potassium stays in the cells and regulates the fluid within the cell, working with sodium that regulates the fluid outside the cell.

Recommended Dietary Allowance:

Potassium intake is 4,000mg per day from food for men and 3,500mg per day from food for women. There is no upper limit suggested amount. Studies have found there are really no added benefits to consuming more than the recommended amount. For supplements the daily intake is different because a lot of over the counter medicines and prescriptions raise your potassium levels. The FDA recommended intake from supplements is 100mg for both men and women.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Potassium:

- Chest pains.
- Irregular heartbeat, like a fluttering sensation.
- Fatigue and muscle weakness.
- Stomach pains.
- Diarrhea.
- Numbness in the arms or legs.

Possible drug interactions in taking Potassium can include:

- Medicines prescribed for high blood pressure, over the counter pain killers and many other medications could increase the amount of potassium. So, it's best to get your potassium from food instead of supplements.
- Medications such as insulin, laxatives and diuretics can lower your levels of potassium.
- Avoid taking potassium supplements if you take an anticholinergic. An anticholinergic basically turns off the body's reaction for fight or flight. Examples are Benadryl, Clozaril (Antipsychotic medication) and Pamelor (Antidepressant). Anticholinergic slows down how often you poop, so the potassium supplement can irritate your intestines.

The Benefits of Potassium:

- Helps the heart stay regular.
- Reduces the risk of kidney stones.
- Helps our muscles contract.
- Minimizes bone loss as we age.
- Helps with digestion.

Symptoms of Potassium Deficiency:

- Weakness and fatigue, usually the first signs of potassium deficiency.
- Muscle cramps and spasms.
- Heart palpitations.
- Tingling and numbness in the hands, arms, legs and feet.
- Mood changes.

Tips on Buying Supplements:

There are a lot of forms of potassium supplements. These include potassium citrate, potassium gluconate, potassium phosphate, potassium aspartate, potassium bicarbonate and potassium chloride.

Potassium Chloride is the type most widely used in treating low potassium levels (hypokalemia) and it's our recommended supplement. We recommend the form being in a powder so you can adjust your dosage.

Click Here for the recommended supplement.

We do want to mention Potassium Citrate. It can be used to help prevent and treat kidney stones and gout. It is also a diuretic as well as raising your potassium level.

Click Here for this supplement.

Top Five Foods with Potassium: All servings are 100 grams.

1. Beet Greens (cooked) – 909mg of Potassium, which is 23% of the DV for men and 26% for women.

2. Yams (baked) – 670mg of Potassium, which is 17% of the DV for men and 19% for women.

3. Portabella Mushrooms (grilled or seared) – 521mg of Potassium, which is 13% of the DV for men and 15% for women.

4. Salmon (baked, roasted or grilled) – 628mg of Potassium, which is 16% of the DV for men and 18% for women.

5. Bananas (raw) – 358mg of Potassium, which is 9% of the DV for men and 10% for women.

Calcium

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Calcium is one of the most abundant minerals in the body. Most of this mineral is found in the bones and teeth, where it helps maintain their hardness and structure. The rest helps with muscle movement, communication between cells and helps blood vessels expand and contract.

To effectively absorb Calcium our bodies need vitamin D. When we don't get enough calcium, our bodies will pull calcium from where it is stored, in our bones and this could lead to weak and brittle bones and teeth. One condition that could result of this is osteoporosis.

Recommended Dietary Allowance:

The recommended daily amount for calcium is 1,000mg per day for both men and women. As you get older, around 60, begin an intake of 1,200mg per day. The upper limit per day for both men and women is 2,500mg.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Calcium:

- Nausea and vomiting.
- Loss of appetite.
- Confusion.
- Muscle weakness.

Possible drug interactions in taking Calcium can include:

- Calcium decreases the absorption and effectiveness of some antibiotics, Alendronate (treatment for Osteoporosis), Tivicay and Vitekta (HIV treatments) and Levothyroxine (treatment for underactive thyroid gland).
- Digoxin increases Calcium levels in cells and can be a dangerous combination. If you take Digoxin talk with your doctor before you take a Calcium supplement.
- Certain cholesterol medications can lower Calcium levels in the body.
- Taking Dovonex (used to treat plaque psoriasis), Estrogen and diuretics could cause your calcium level to increase.

The Benefits of Calcium:

- Promotes bone and teeth health.
- Calcium helps muscle contractions.
- Is included as one of the key components in blood clotting.
- Helps with lowering high blood pressure.

- Eases symptoms of PMS.

Symptoms of Calcium Deficiency:

- Muscle cramps, spasms or aches.
- Changing moods and depression.
- Brittle fingernails.
- Red, itchiness and blisters on the skin.
- Insomnia and sleepiness.

Tips on Buying Supplements:

There are four types of Calcium supplements to consider. Calcium carbonate, calcium citrate, calcium gluconate and calcium lactate. The main two types are calcium carbonate and calcium citrate. Calcium carbonate contains more elemental calcium (the amount of Calcium that is actually used by the body), around 40%. Calcium citrate has about 21% elemental calcium.

Our suggestion is Calcium citrate because it's absorbed more easily, can be taken on an empty stomach, gentler on the system and calcium taken at lower doses are better used by the body. Also we suggest this form to contain a small amount of vitamin D.
Click Here for our recommended supplement.

Top Five Foods with Calcium: All servings are 100 grams.

1. Spinach (boiled) – 136mg of Calcium, which is 14% of the Daily Value (DV) for both men and women.

2. Black Eyed Peas (boiled) – 128mg of Calcium, which is 13% of the DV for both men and women.

3. Firm Tofu (raw) – 683mg of Calcium, which is 68% of the DV for both men and women.

4. Whole milk – 113mg of Calcium, which is 11% of the DV for both men and women.

5. Grated Parmesan (hard) – 1184mg of Calcium, which is 118% of the DV for both men and women.

Phosphorus

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Phosphorus is the second most abundant mineral in our bodies. Along with calcium, which is the first most abundant mineral, it helps keep teeth and bones healthy. Phosphorus is a very important mineral that is part of and aids in every cell of our bodies. A deficiency is very uncommon since phosphorus is in most foods and in most food additives.

Recommended Dietary Allowance:

The recommended intake for both men and women per day is 700mg. If you are between the ages of 9-18 the recommended intake is 1,250mg. The upper limit is 4,000mg for men and women.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Phosphorus:

- Diarrhea.
- Stomach cramps.
- Joint pain.
- Muscle pain and weakness.

Possible drug interactions in taking Phosphorus can include:

- ACE inhibitors, insulin, antacids, anticonvulsants and cholesterol medicines can lower phosphorus levels in the body.
- Corticosteroids and potassium supplements can raise phosphorus levels in the body.

The Benefits of Phosphorus:

- Aids in keeping your teeth and bones healthy.
- Creates energy for the body.
- Helps regulate oxygen delivery to the body.
- Promotes a healthy PH balance.
- Is needed to make protein for cell repair, maintenance and growth.
- Helps to produce bowel movements.

Symptoms of Phosphorus Deficiency:

- Stiff joints.
- Bone pain.
- Weakness.

- Irregular breathing.
- Loss of appetite.

Tips on Buying Supplements:

Phosphorus supplements come in a few different forms:

- Phosphate salts - dipotassium phosphate and disodium phosphate.
- Phospholipids (fatty compounds that contain phosphate) - phosphatidylcholine (PC) and phosphatidylserine (PS).

Our suggested form is phosphatidylcholine (PC). PC can make PS in the body if it needs to, but it does not work the other way. Also PC has choline in it which has a lot of great benefits itself, such as helping to form cell membranes, regulates healthy brain, liver and nervous system functions and boosts mood.

Click Here for our recommended supplement.

Top Five Foods with Phosphorus: All servings are 100 grams.

1. Yellowfin Tuna (broiled, baked, grilled) – 333mg of Phosphorus, which is 48% of the Daily Value (DV) for both men and women.

2. Garlic (raw) – 153mg of Phosphorus, which is 22% of the DV for men and women.

3. Avocados (raw) – 52mg of Phosphorus, which is 7% of the DV for men and women.

4. Romano Cheese – 760mg of Phosphorus, which is 108% of the DV for men and women.

5. Lentils (boiled) – 180mg of Phosphorus, which is 26% of the DV for men and women.

Magnesium

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Magnesium is the fourth most abundant mineral in our bodies with most being stored in our bones. This mineral acts as a helper to enzymes. Meaning magnesium helps to bring about chemical reactions, such as converting food to energy and producing protein. Magnesium also regulates other vitamins and minerals within our bodies.

Recommended Dietary Allowance:

This mineral has different requirements for different age groups. This program is for adults, so we will begin from ages 14 - 18. And for that age group the RDA is 410mg for men and 360mg for women. The next age group 19 - 30 is 400mg for men and 310mg for women. And last 31+ is 420mg for men and 320mg for women.

Before we get into the upper limit amount, the above recommended amounts are including food, liquids and supplements. The upper limit amount is solely the amount of magnesium supplements. That is why this upper limit amount is lower than some of the RDA values. I don't know why the FDA based the upper limit this way.

Upper limit intake for magnesium supplements is 350mg for both men and women.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Magnesium:

- Diarrhea.
- Nausea.
- Vomiting.
- A slow or fast heart rate.
- Low blood pressure.
- Difficulty breathing.

Possible drug interactions in taking Magnesium can include:

- Magnesium can reduce the effects and absorption of certain antibiotics, Levothyroxine, Gabapentin (anticonvulsant and nerve pain medication), Sinemet (treatment for Parkinson disease) and Digoxin (treatment for heart failure and irregular heartbeat).
- Magnesium can increase the effects of diabetic medicines, muscle relaxers and high blood pressure medications.

The Benefits of Magnesium:

- Can help lower your blood pressure.
- Aids in the prevention of migraine headaches.
- Helps reduce inflammation of the body.
- Promotes teeth and bone health.
- Reduces the symptoms of anxiety and depression.

Symptoms of Magnesium Deficiency:

- Muscle cramps, twitches and/or tremors.
- Could cause mental health issues.
- Nausea.
- Irregular heartbeat.
- Loss of appetite.
- Stiffness.

Tips on Buying Supplements:

Magnesium supplements come in many forms. They are magnesium glycinate, magnesium citrate, magnesium chloride, magnesium sulfate, magnesium oxide and magnesium malate. Our suggestion for a supplement is magnesium glycinate. In this supplement magnesium is mixed with an amino acid glycine that makes it well tolerable and easily absorbed by the body.
Click Here for our recommended supplement.

Top Five Foods with Magnesium: All servings are 100 grams.

1. Dark Chocolate – 228mg of Magnesium, which is 57% of the Daily Value for men and 74% for women in the age group 19 - 30. 54% for men and 71% for women ages 31+.

2. Peanut Butter – 154mg of Magnesium, which is 39% of the DV for men and 50% for women in the age group 19 - 30. 37% for men and 48% for women ages 31+.

3. Spinach (boiled) – 87mg of Magnesium, which is 22% of the DV for men and 28% for women in the age group 19 - 30. 21% for men and 27% for women ages 31+.

4. Lima Beans (boiled) – 74mg of Magnesium, which is 19% of the DV for men and 24% for women in the age group 19 - 30. 18% for men and 23% for women ages 31+.

5. Mackerel (grilled, baked) – 60mg of Magnesium, which is 15% of the DV for men and 19% for women in the age group 19 - 30. 14% for men and 18% for women ages 31+.

Sulfur

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Sulfur is stored in every cell of our bodies and is especially present in our hair, nails and skin. Sulfur helps to form connective tissue such as cartilage and collagen. Sulfur also helps to prevent cell damage by making cells' structure tougher and more flexible. Two amino acids contain sulfur, methionine and cysteine. These amino acids are the ones incorporated into proteins and are part of glutathione. Glutathione is a very important and powerful antioxidant that combats free radicals.

Recommended Dietary Allowance:

There is no recommended intake for sulfur. Since sulfur is present in all living things, it is considered that we get enough of this mineral through our diet.

Through our research we found several trials having been done to get a general understanding of how much is a required amount from sulfur. It seems as though 2,000mg is a good estimate for the daily intake. 3,000mg would be the upper limit. The FDA does consider these amounts safe.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Sulfur:

- Diarrhea.
- Bloating.
- Itching.
- Insomnia.
- Headaches.

Possible drug interactions in taking Sulfur can include:

- As of this time there are no reported side effects.

The Benefits of Sulfur:

- Helps with joint inflammation.
- Builds strong cells and strengthens bones. So it can help with osteoporosis.
- Aids in muscle recovery from injury or exercise.
- Stabilizes mood disorders like depression and PMS.
- Promotes healthy hair, skin and nails.

Symptoms of Sulfur Deficiency:

- With a deficiency in sulfur, your mood could change or you could generally feel bad. This is because your cells aren't in great shape and are struggling to get their supply of oxygen.
- Brittle hair and nails.
- Could lead to acne and rosacea.
- Muscle cramps.
- Wounds take longer to heal.

Tips on Buying Supplements:

There are two main forms of sulfur supplements, dimethylsulfoxide (DMSO) and methylsulfonylmethane (MSM). DMSO has other uses, such as being sold as a solvent. It is a lot easier to possibly buy this supplement with chemical impurities in it. Also a significant amount of DMSO is broken down into MSM.

Our recommended supplement is MSM.

Click Here for our recommended supplement.

Top Five Foods with Sulfur: All servings are 100 grams, for liquid 100ml. (The following is based on the estimate 2,000mg from the different studies.)

1. Coffee (instant) – 230mg of Sulfur, which is 12% of the Daily Value (DV) for both men and women.

2. Tomato (sundried) – 210mg of Sulfur, which is 11% of the DV for both men and women.

3. Mustard (powder) – 900mg of Sulfur, which is 45% of the DV for both men and women.

4. Gelatin (unflavored powder) – 1500mg of Sulfur, which is 75% of the DV for both men and women.

5. Pork Loin (roasted) – 296mg of Sulfur, which is 15% of the DV for both men and women.

The 9 Trace Minerals are:

Iron

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Iron allows our bodies to perform different and very important functions that involve our growth and development. The most important use of iron is in the production of red blood cells. Around 70% of iron in the body is in red blood cells called hemoglobin and in muscles cells called myoglobin. Myoglobin uses oxygen for muscle use and hemoglobin transports oxygen from the lungs to all parts of the body.

There are two forms of iron that we eat; heme and non-heme iron. Heme iron, we get from animal meat and non-heme comes from plants. Heme iron is the more absorbed iron by the body, between 15% - 35%. Non-heme contains phytates, which lead the iron straight through and out of us with only a small amount being absorbed, about 2% - 20%. Vitamin C can help the absorption of iron greatly. Add vitamin C to your meal or take a supplement before your meal.

Recommended Dietary Allowance:

For men 19 years of age and older the recommended intake is 8mg.

For women 19 – 50 years of age the recommended intake is 18mg. For women 51 and older the recommended intake is 8mg. The upper limit amount for both men and women is 45mg.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Iron:

- Nausea.
- Stomach pain.
- Diarrhea.
- Vomiting.
- Too much iron over time can accumulate in your system and affect your organs to the point of failure.

Possible drug interactions in taking Iron can include:

- Iron supplements can interfere with the effectiveness of antibiotics, bisphosphonates (drugs that limit the loss of bone density), Levodopa (treatment of Parkinson's disease), Levothyroxine (for low thyroid function), Methyldopa (for high blood pressure) and Mycophenolate Mofetil (organ anti-rejection medicine).

The Benefits of Iron:

- Helps your muscles work better and for longer.

- Strengthens the immune system.
- Improves concentration and attention span.
- Helps in many areas for restoring peaceful sleep.
- Aids in regulating body temperature.

Symptoms of Iron Deficiency:

- Muscle weakness.
- Headache or dizziness.
- Cold hands and feet.
- Soreness or inflammation of the tongue.
- Really fatigued.

Tips on Buying Supplements:

There are several types of iron supplements available including; ferrous sulfate, ferrous gluconate, ferrous fumarate and ferrous bisglycinate chelate. After researching, all these can help increase iron levels of the body, but one is more absorbable and gentler on the body, ferrous bisglycinate chelate.
Click Here for our recommended form.

Top Five Foods with Iron: All servings are 100 grams.

1. Oysters (steamed) – 9.2mg of heme iron, which is 115% of the Daily Value for men ages 19 and older and for women 51 and older. For women ages 19 – 50 it's 51% of the DV.

2. Spinach (boiled) – 3.6mg of non-heme iron, which is 45% of the DV for men ages 19 and older and for women 51 and older. For women ages 19 – 50 it's 20% of the DV.

3. Beef Skirt Steak (grilled or baked) – 5.5mg of heme iron, which is 69% of the DV for men 19 and older and for women 51 and older. For women ages 19 - 50 it's 31% of the DV.

4. Sweet Potato (baked) – 1.4mg of non-heme iron, which is 18% of the DV for men ages 19 and older and for women 51 and older. For women ages 19 – 50 it's 8% of the DV.

5. Beef Liver (pan fried) – 6.2mg of heme iron, which is 78% of the DV for men ages 19 and older and for women 51 and older. For women ages 19 – 50 it's 34% of the DV.

Zinc

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

It is vital that we obtain small amounts of zinc, so our bodies can function properly. Over 100 enzymes (proteins produced by living organisms used to accelerate biochemical reactions) need zinc to perform their roles. A biochemical reaction is the transformation of one molecule into a different molecule inside the cell. This gives energy to the cell.

Recommended Dietary Allowance:

Zinc's recommended amount for men is 11mg and for women it's 8mg. The upper limit for both male and female is 40mg.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Zinc:

- Diarrhea.
- Stomach pains.
- Nausea or vomiting.
- Headache.
- Indigestion.
- Causes Copper levels to drop.
- The FDA has stated that using zinc infused nasal products can have long term damage or even permanent damage to our sense of smell.

Possible drug interactions in taking Zinc can include:

- Zinc will reduce the effectiveness of certain antibiotics, Penicillamine (treats rheumatoid arthritis and binds with copper to lower body levels) and Thiazide diuretics.
- Blood pressure medication and Deferoxamine (used to remove excess iron in the blood) can lower your bodies zinc levels.

The Benefits of Zinc:

- Helps the immune system.
- Aids in blood clotting and wound healing.
- Promotes healthy skin.
- Helps in the digestive system.
- Lowers the risk of age related vision problems.
- Helps in forming DNA.

Symptoms of Zinc Deficiency:

- Unexpected weight loss.
- Sluggish in thinking.
- Loss of appetite and less pleasure in food.
- Hair loss and hair thinning.
- Reduced sense of taste, smell and vision.

Tips on Buying Supplements:

Like so many other supplements, zinc has many forms which include; zinc orotate, zinc gluconate, zinc citrate, zinc acetate and zinc picolinate. Our suggested type is zinc picolinate. Through our research zinc picolinate is the best form of zinc to take because it is well absorbed by the body to raise zinc levels.

Click Here for our recommended supplement.

Top Five Foods with Zinc: All servings are 100 grams.

1. Oysters (steamed) – 78.3mg of Zinc, which is 712% of the Daily Value (DV) for men and 979% for women.

2. Ribeye Steak (grilled) – 11mg of Zinc, which is 100% of the DV for men and 138% for women.

3. Shiitake Mushrooms (roasted or pan seared) – 1.3mg of Zinc, which is 12% of the DV for men and 16% for women.

4. Cheddar Cheese (raw) – 3.6mg of Zinc, which is 33% of the DV for men and 45% for women.

5. Eggs (fried) – 1.4mg of Zinc, which is 13% of the DV for men and 18% for women.

Iodine

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Iodine is a mineral that is most important to our thyroid gland to make hormones. And these hormones regulate many biochemical reactions in the body. In the beginning part of the 1900's and earlier, a lot of people were iodine deficient. Iodine was added to salt to help combat that situation. So now, most of us get the majority of our iodine from iodized salt, but there are foods that you can eat to get your dietary allowance.

Recommended Dietary Allowance:

The recommended allowance for iodine is 150mcg (micrograms) for both men and women. The upper limits of iodine for 14 to 18 years old is 900mcg and for 18+ is 1,100mcg for both men and women.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Iodine:

- Fluid in the lungs.
- Joint pain.
- Headaches.
- Hives.
- Fever.
- Having a metallic taste.

Possible drug interactions in taking Iodine can include:

- Iodine should not be taken with medications taken for an overactive thyroid. This could prevent your body from making enough thyroid hormones.
- Iodine can cause blood thinners, such as Warfarin, to be less effective.
- Amiodarone (medication for an irregular heartbeat) can cause increased levels of iodine in your system.

The Benefits of Iodine:

- Aids the thyroid to function properly.
- Can be used on the body to treat and prevent infections.
- Helps in treating fibrocystic breast cysts.
- Iodine can disinfect water where it can be safe to drink. Manufacturers of iodine for this purpose may have different directions for how much is to be used based on water conditions and potency of the iodine.

- Can reduce the risk of goiters. Goiters are enlarged thyroid glands.

Symptoms of Iodine Deficiency:

- Feeling weak and tired.
- Losing hair.
- Swollen neck.
- Having a slow heart rate and feeling cold.
- Dry skin.

Tips on Buying Supplements:

The different types of iodine are potassium iodine, nascent iodine, seaweed derived iodine and iodized table salt. Since the majority of us use salt, we recommend using this form. It only takes about ½ of a tablespoon of iodized salt to get our recommended daily intake of iodine. As an alternative to salt we do recommend a natural derived Kelp iodine supplement.
Click Here for our recommended supplement.

Top Five Foods with Iodine: All servings are 100 grams.

1. Cod (pan fried or roasted) – 256mcg of Iodine, which is 171% of the Daily Value (DV) for both men and women.

2. Shrimp (boiled or pan fried) – 100mcg of Iodine, which is 67% of the DV for both men and women.

3. Nori Seaweed (seaweed that makes sushi) – 1,470mcg of Iodine, which is 980% of the DV for both men and women.

4. Prunes (raw) – 27mcg of Iodine, which is 18% of the DV for both men and women.

5. Eggs (boiled) – 48mcg of Iodine, which is 32% of the DV for both men and women.

Selenium

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Selenium acts as a powerful antioxidant in your body to help prevent cell damage that is caused by free radicals. This mineral also plays important roles in our metabolism, thyroid and immune system functions.

Recommended Dietary Allowance:

The RDA for selenium is very low at 55mcg per day for both men and women. Most of us can get this small amount from the food and water we drink. The upper limit amount is 400mcg.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Selenium:

- Hair loss.
- Itchy skin.
- Irritability.
- Brittle fingernails.
- Really bad breath.

Possible drug interactions in taking Selenium can include:

- Selenium taken with blood thinners, such as Warfarin and Aspirin, can increase the risk of bleeding.
- In some chemotherapy drugs Selenium can reduce the side effects, but it can also reduce the cancer fighting effects of the drugs.
- Taking Selenium with some sedatives can make the effects of the sedative last longer.

The Benefits of Selenium:

- Reduces inflammation in the body.
- Helps prevent mental decline.
- Lowers the risk in certain cancers.
- Aids in thyroid function.
- Boosts fertility.
- Helps the immune system.

Symptoms of Selenium Deficiency:

- Mental fogginess.
- Muscle weakness and fatigue.

- Weakened immune system.
- Depression and/or hostile behavior.
- Shortness of breath.

Tips on Buying Supplements:

Most experts and doctors will not recommend taking a selenium supplement, because it is very easy to get your recommended amount in your diet. In some cases a supplement may be accepted or even necessary.

The best types of selenium supplements are selenomethionine, selenocysteine, selenite, selenium glycinate and selenate. Selenomethionine is our suggested form. It is very absorbable by the body and one of the most natural forms of selenium.

Click Here for our recommended supplement.

Top Five Foods with Selenium: All servings are 100 grams.

1. Brazil Nuts (raw) – 1,917mcg of Selenium, which is 3,485% of the Daily Value (DV) for both men and women.

2. Lean Pork Chops (pan fried) – 47.4mcg of Selenium, which is 86% of the DV for both men and women.

3. Whole Wheat Pasta (cooked) – 36.3mcg of Selenium, which is 66% of the DV for both men and women.

4. T-Bone Steak (grilled) – 29.3mcg of Selenium, which is 53% of the DV for both men and women.

5. Shrimp (steamed) – 49.5mcg of Selenium, which is 90% of the DV for both men and women.

Copper

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Copper is found throughout the body and is necessary for many of the functions the body carries out every day and contributes to the absorption of iron. Copper can be less absorbed if high doses of vitamin C or Zinc are taken.

Recommended Dietary Allowance:

The recommended daily intake is 900mcg of copper for both men and women. The upper limit is 5,000mcg (5mg). Some of the U.S. groups have rated 10,000mcg as an acceptable upper limit amount, but some tests were done in Europe at this high amount and they suggest this could inhibit the immune system.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Copper:

- Black - tar covered like stool.
- Stomach pain.
- Difficulty in breathing.
- An irregular heartbeat.
- Headaches.

Possible drug interactions in taking Copper can include:

- Penicillamine (used to treat Wilson's disease and rheumatoid arthritis), Allopurinol (used to treat gout) and Nifedipine (used to treat high blood pressure) can bring copper levels down in the body.
- Some medicines can raise your copper levels such as birth control, estrogen replacement medications and Cimetidine (used to treat stomach ulcers and acid reflux).

The Benefits of Copper:

- Helps make red blood cells.
- Protects cells from damage and helps them stay healthy.
- Supports the immune system.
- Helps the brain to work more efficient.
- Increases energy production.

Symptoms of Copper Deficiency:

- An irregular heartbeat.
- Fatigue and weakness.
- Getting sick often.
- Pale skin.
- Sensitivity to cold.

Tips on Buying Supplements:

Many multivitamins and other copper supplements contain cupric oxide, a form of copper that is not well absorbed by the body, if any at all. Chelated Copper is our suggested supplement. Chelated means that copper (or any mineral) is combined with other compounds to go through the stomach without breaking apart making them more absorbable.
Click Here for our recommended supplement.

Top Five Food with Copper: All servings are 100 grams.

1. Sweet Potatoes (baked) – 300mcg of Copper, which is 33% of the Daily Value (DV) for both men and women.

2. Cashews (roasted) – 2,200mcg of Copper, which is 244% of the DV for both men and women.

3. Salmon (baked) – 300mcg of Copper, which is 33% of the DV for both men and women.

4. Dark Chocolate – 1,800mcg of Copper, which is 200% of the DV for both men and women.

5. Avocado (raw) – 200mcg of Copper, which is 22% of the DV for both men and women.

Manganese

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Manganese is absorbed in the small intestine and is bound with enzymes. These go on to help build proteins, amino acids and help detoxify the body of some harmful chemicals. Manganese is also part of enzymes that help form cartilage, bone and collagen. The absorption can be limited by higher levels of iron. Calcium and Magnesium also limit Manganese absorption, but only slightly.

Recommended Dietary Allowance:

The recommended daily intake is 2.3mg for men and 1.8mg for women that are 19 and older. The upper limit is 11mg per day for both men and women over 19 years old.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Manganese:

- Loss of appetite.
- Shakiness.
- Headaches.
- Poor balance.
- If you have a condition that slows the process of removing manganese from the body, like liver disease, these symptoms could occur in smaller doses of Manganese.

Possible drug interactions in taking Manganese can include:

- Manganese could reduce the effectiveness of some antibiotics.
- Some antipsychotic medications can increase the side effects of Manganese.
- Certain high blood pressure medicines could reduce Manganese levels in the body.

The Benefits of Manganese:

- Helps the thyroid stay healthy.
- Aids in wound healing.
- Supports bone health.
- Helps lower Epileptic seizure incidents.
- It's a strong antioxidant that greatly helps inflammation.

Symptoms of Manganese Deficiency:

- Muscle and bone weakness.
- Impaired fertility.

- Loss of hair pigment.
- Mood changes.
- Skin lesions or rashes.

Tips on Buying Supplements:

Manganese comes in many forms, manganese gluconate, manganese picolinate, manganese sulfate, manganese citrate, manganese chloride and chelated manganese. Our suggested supplement is an amino acid chelate. This is absorbed well in the body and will raise your levels as needed. The following link has a supplement of 8mg per serving.
Click Here for our recommended supplement.

Top Five Foods with Manganese: All servings are 100 grams.

1. Mussels (steamed) – 6.8mg of Manganese, which is 296% of the Daily Value (DV) for men and 378% for women.

2. Brown Rice (cooked) – 1.1mg of Manganese, which is 48% of the DV for men and 61% for women.

3. Spinach (boiled) – 0.9mg of Manganese, which is 39% of the DV for men and 50% for women.

4. Pineapple (raw) – 0.9mg of Manganese, which is 39% of the DV for men and 50% for women.

5. Lima Beans (boiled) – 1.3mg of Manganese, which is 57% of the DV for men and 72% for women.

Fluoride

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

We all pretty much associate fluoride with oral care. Fluoride is an abundant mineral that can be found in soil, plants, water (both fresh and saltwater), rocks, in the air and in living things. Fluoride is absorbed quickly in the stomach and small intestines and whatever is not delivered to the bones and teeth is urinated out. 99% of fluoride is found in our bones and teeth.

In 1945 fluoride was first put into drinking water and it was deemed a success, because there was a lot less cavities among the children. Many towns picked up this habit and it still goes on today. Since then fluoride has been put into toothpaste, mouthwash, gels, dental floss and many more products.

Recommended Dietary Allowance:

The recommended daily intake for fluoride is 3mg for both men and women. The upper tolerable limit is 7mg per day.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Fluoride:

- Can actually reverse its effects and make bones weaker and joints stiff. This is called skeletal fluorosis.
- It can lead to yellowing of the teeth and weakened enamel.
- Acne or rashes.
- High blood pressure.
- Seizures.

Possible drug interactions in taking Fluoride can include:

- There are no reported side effects of Fluoride.

The Benefits of Fluoride:

- Puts minerals back in your teeth.
- Reduces bacteria overgrowth in the mouth.
- Helps strengthen bones.
- Aids in the prevention of tooth decay.

Symptoms of Fluoride Deficiency:

- Getting cavities (tooth decay).
- Weaker bones.

Tips on Buying Supplements:

Fluoride supplements are by dental prescription only.

Top Five Ways of Obtaining Fluoride: All servings are 100 grams.

This subheading will be a little different from the others.

1. The most abundant source that you can obtain fluoride from is water. Some cities mix their water with fluoride and even if they don't or if you have well water, fluoride is naturally present in water at various levels depending on where you live. So the first way of obtaining fluoride is by drinking water and through your detective work you can find out the fluoride levels. If you get water from the city, call them and ask if they put fluoride into the water and how much (about 0.6 parts per million (ppm) is a good ratio to have). If you have a well you can collect a sample and have the city test it to see how much fluoride is naturally present.

2. After water, your dental care supplies come in. Mouthwashes, toothpastes, gels and dental floss can all have fluoride. Look at the labels of the products you buy for the amount of fluoride.

3. Blue Crab (steamed) – 210mcg of Fluoride, which is 9% of the Daily Value (DV) for men and women.

4. Raisins (packaged) – 234mcg of Fluoride, which is 10% of the DV for men and women.

5. Shrimp (canned) – 201mcg of Fluoride, which is 8% of the DV for men and women.

Chromium

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

Chromium is a mineral found in the body, but only in trace amounts. It comes in two forms Hexavalent and Trivalent. Hexavalent chromium is toxic and is used in industrial purposes like dyes and plastics. Trivalent is the form found in foods and the one our bodies need.

It was discovered to be the active ingredient in a compound called glucose tolerance factor. This is a compound that can interact with insulin to help the body use insulin a lot more efficiently. Chromium helps insulin bring glucose from the blood into the cells for energy.

Recommended Dietary Allowance:

The RDA for chromium is 35mcg for men 19 – 50 years old, 30mcg for 51 and up. For women age 19 – 50 the RDA is 25mcg and 20mcg for 51 and up.

At this time there is no safe upper limit for Chromium. There have been studies where people were given 200mcg per day of chromium for up to two years with no side effects. Based on this study, we suggest this being the upper limit.

High doses of 1,200mcg have been linked to kidney damage.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Chromium:

- Headaches.
- Restless sleep.
- Mood changes.
- Irregular heartbeat.
- There is also a risk of liver and kidney damage.

Possible drug interactions in taking Chromium can include:

- Diabetic medication such as Metformin could cause low blood sugar.
- Antacids could reduce the absorption of Chromium, so avoid taking them at the same time.
- Chromium can reduce the absorption of thyroid medications like Levothyroxine.

The Benefits of Chromium:

- Improves insulin sensitivity. Insulin sensitivity is referring to how responsive your cells are to insulin. The less sensitive your body is to insulin means the more resistant to insulin it is. By being resistant to insulin your blood sugar can remain high. This is

because the insulin can't move sugar from the blood to your cells for energy. This can cause several illnesses including diabetes.

- Helps in weight loss by helping clear the blood of sugar so less is stored as fat.
- Helps with the symptoms of depression.

Symptoms of Chromium Deficiency:

- Higher blood sugar levels.
- Increased risk of illness involved with high blood sugar.
- Risk of nerve damage.
- Muscle weakness and fatigue.
- Anxiety.

Tips on Buying Supplements:

There are many different kinds of chromium supplements including; high-chromium yeast, chromium chloride, chromium nicotinate, chromium picolinate, chromium citrate and chromium chelvite. From our research we suggest chromium picolinate. It is the most absorbable form of chromium.

Click Here for our recommended supplement.

Top Five Foods with Chromium: All servings are 100 grams. #4 is measured 100ml.

1. Garlic (dried) – 60mcg of Chromium, which is 171% of the Daily Value (DV) for men and 240% for women until age 50. After age 50 it is 200% of the DV for men and 300% for women.

2. Broccoli (steamed) – 18.3mcg of Chromium, which is 52% of the DV for men and 73% for women until age 50. After age 50 it is 61% of the DV for men and 92% for women.

3. Whole Wheat Flour (raw) – 21mcg of Chromium, which is 60% of the DV for men and 84% for women until age 50. After age 50 it is 70% of the DV for men and 105% for women.

4. Grape Juice (packaged with no sweeteners and no additives) – 3.3mcg of Chromium, which is 9% of the DV for men and 13% for women until age 50. After age 50 it is 11% of the DV for men and 17% for women.

5. Turkey (roasted) – 2.4mcg of Chromium, which is 7% of the DV for men and 10% for women until age 50. After age 50 it is 8% of the DV for men and 12% for women.

Molybdenum

(For additional information on these subheadings refer to the Vitamin and Mineral Subheading Information)

It is named after the Greek word meaning “lead” though it’s not lead. It was first mistaken for a type of lead, but in 1778 it was discovered to be a new element and is found to be crucial for the health in humans, animals and plants.

The kidneys have the highest content of this mineral and after them the liver. This mineral helps to produce enzymes, amino acids, uric acid and DNA as well as helping to detoxify the body of harmful substances.

Recommended Dietary Allowance:

For both men and women 19 years and older the RDA of Molybdenum is 45mcg. The upper limit is 2,000mcg.

Side Effects and Drug Interactions:

Possible side effects in taking high doses of Molybdenum:

- Gout.
- Joint pain.
- A copper deficiency.
- High levels of uric acid.
- Kidney failure.

Possible drug interactions in taking Molybdenum can include:

- Molybdenum can reduce the effects of acetaminophen.

The Benefits of Molybdenum:

- It helps to detoxify the body.
- Can help the liver break down drugs and alcohol.
- Helps to regulate copper in the body.
- Used to transport iron in the body, which helps oxygenate the blood.
- Helps with asthma. Asthma is the result of an allergy that is triggered by an allergen. Molybdenum helps to reduce asthma attacks associated with sulfites. Sulfites are naturally found in foods and are also added to many foods for color, shelf life and to prevent growth of bacteria.
- Activates enzymes that produce antioxidants that react with free radicals.

Symptoms of Molybdenum Deficiency:

Being deficient in this mineral is a very rare condition because it's found in most of the foods we eat.

- Increased risk of esophageal cancer.
- Low uric acid.
- Reduces the productivity of sperm.
- Confusion.
- Raised sulfur levels in the blood.

Tips on Buying Supplements:

There are a few different forms of molybdenum; Molybdenum chloride, molybdenum glycinate and sodium molybdate. The supplement that seems to be best absorbed is Molybdenum Glycinate. This is where molybdenum is bonded with the amino acid Glycine and is the form we are suggesting.

Click Here for the recommended supplement.

Top Five Foods with Molybdenum: All servings are 100 grams.

1. Lentils (boiled) – 180mcg of Molybdenum, which is 400% of the Daily Value (DV) for both men and women.

2. Black-eyed Peas (boiled) – 380mcg of Molybdenum, which is 844% of the DV for both men and women.

3. Oatmeal (raw) – 110mcg of Molybdenum, which is 244% of the DV for both men and women.

4. Peanuts (roasted and salted) – 68mcg of Molybdenum, which is 151% of the DV for both men and women.

5. Parsley (raw) – 39mcg of Molybdenum, which is 87% of the DV for both men and women.

Essential Nutrient #3: Proteins

Proteins are what build our bodies. They are the building blocks of our muscles, skin and hair. Our hormones and antibodies are also composed of protein.

But what are proteins? Proteins are made up of different and numerous chains of amino acids. There are 20 amino acids that make up protein and are divided into 2 groups, *essential amino acids* and *non-essential amino acids*.

Don't think because it is labeled non-essential amino acids that they aren't vital to our health or to our survival, they most certainly are. They are labeled this way because our bodies can make these amino acids from other sources.

It's not really recommended to take an amino acid supplement; it could do more harm than good. Most of us get all the amino acids we need from our diet (foods with protein).

There are always exceptions. Talk with your doctor if you think you may have a condition that requires more of an amino acid, or if you are simply curious to see if you could benefit from an amino acid supplement.

There are nine essential amino acids and eleven non-essential amino acids. For each essential amino acid we will give the important roles each one plays in our bodies and the recommended amounts.

For the non-essential amino acids we will give the important roles each one performs in our bodies, but there will be no recommended amounts listed. Consume enough protein and carbohydrates and your body will have plenty of non-essential amino acids available.

All amino acids have a mirror image of themselves except glycine. Amino acids are labeled as:

- L-(name of the amino acid) – these amino acids are used to produce proteins in the body. They are named L- because this stands for left moving. Imagine focusing your eyes in one place and have the structures that form these amino acids move counterclockwise before you. The names of these structures would be in alphabetical order.
- D-(name of the amino acid) – these amino acids are not used to make proteins but are found in the cell walls of bacteria. D- stands for *dextro,* meaning to the right. So, as before focus your eyes in one place and have the structures that form these amino acids move clockwise before you. The names of these structures would be in alphabetical order in this way.
- DL-(name of the amino acid) – a combination of both forms.

Most of the following will be focusing on the L- versions.
These are considered to be the more natural versions of amino acids.

For the essential amino acids the best RDA comes specific to the individual, and the recommended dietary allowance will read like this example –

23mg/kg/per day

The first set in the example is 23mg, this is the dosage amount set for each essential amino acid.

The second set in the example is kg, this is your weight.

Then the third set in the example is the frequency in taking it, which is per day.

To convert to your specific needs, here is an example of a person weighing 200lbs:

• First, get your weight into kg. A kilogram equals 2.20462lbs.
200lbs divided by 2.20462 = 90.7185kg.

• Now the specific formula for this person is 23mg/90.7185kg/per day.

• Now multiply 90.7185 by 23mg which equals 2,087mg or 2,100mg rounding up.
So a 200lbs person would need to take 2,100mg per day of this essential amino acid.

Essential Amino Acids:

Histidine –

- An important function of this amino acid is to help break down heavy metal trace elements and use them for energy.
- It is used to make histamine, which plays a major role in helping your body get rid of allergens by helping you sneeze, itch or tear up.
- Histidine helps growth and repair of tissues and produces red blood cells.
- This amino acid surrounds nerves and protects them and enables them to have a faster transmission to the brain.
- Helps produce urocanic acid which covers your skin to act as a natural sunscreen, protecting you from UV radiation.

Recommended Dietary Allowance:

The recommended dosage for Histidine is 11mg/kg/per day.

Isoleucine –

- This amino acid helps to form hemoglobin (a protein that transports oxygen in the blood).
- Improves the immune system by maintaining the development of immune organs, cells and immune activation.
- Helps to develop, protect and grow muscles.
- Isoleucine helps with producing glucose and transporting it in the body to help control blood sugar and boost energy levels.
- Breaks down fatty acids that aid to some weight loss and even more energy to your body.

Recommended Dietary Allowance:

The recommended dosage for Isoleucine is 19mg/kg/per day.

Leucine –

- This helps the body's skin, tissue and bones to heal by helping to direct amino acids during the production of proteins.
- Promotes muscle growth, recovery and endurance.
- This amino acid helps with regulating blood sugar by enhancing the release of insulin.

Recommended Dietary Allowance:

The recommended dosage for Leucine is 39mg/kg/per day.

Lysine –

- There are many important functions that Lysine offers. The first is that it helps your body to absorb calcium.
- Helps to move fat across cells to be burned for energy.
- Lowers blood pressure.
- Can help lower the body's production of a stress hormone, cortisol.
- Lysine is involved in the production of elastin and collagen. This means that Lysine is vital in the healing of wounds. In studies, Lysine has accelerated skin repair and fractures a great deal.

Recommended Dietary Allowance:

The recommended dosage for Lysine is 38mg/kg/per day.

Methionine –

- This amino acid helps the absorption of other minerals including Selenium and Zinc.
- It's an important factor in creating other molecules that perform vital functions in the body.
- Helps detoxify our bodies including heavy metal.
- Methionine assists with breaking down fats.
- Promotes healthy DNA.
- Its Sulphur content leads to healthy skin, hair and nails.

Recommended Dietary Allowance:

The recommended dosage for Methionine is 13mg/kg/per day.

Phenylalanine –

- This helps to make non-essential amino acids as well as enzymes. Your body uses phenylalanine mainly by converting it into the non-essential amino acid Tyrosine. This is an amino acid needed to make brain chemicals such as epinephrine, norepinephrine and dopamine. These chemicals which are neurotransmitters (molecules that are used for communication between the small gaps of neurons) help the brain and nervous system to function healthier, affects our mood, fight or flight response, memory and focus.
- Helps to produce melanin, which gives your skin its color.
- D-phenylalanine can be mixed with L-phenylalanine to make DLPA. This is a natural pain killer. This can help when other pain killers can't and instead of increasing in dosage through time you actually decrease.

Recommended Dietary Allowance:

The recommended dosage for Phenylalanine is 20mg/kg/per day.

Threonine –

- This amino acid helps to form collagen, elastin and tooth enamel.
- Helps the body to absorb nutrients.
- Threonine is used to produce glycine and serine.
- It helps to metabolize fat (turning fat into energy) and this can aid in fighting fatty liver.
- Your immune system can find this amino acid particular helpful because it helps produce antibodies. Antibodies fight against foreign invaders in your body like viruses, bacteria and infection.

Recommended Dietary Allowance:

The recommended dosage for Threonine is 18mg/kg/per day.

Tryptophan –

- This is an important amino acid in the making of Melatonin and Serotonin. Serotonin helps regulate mood, appetite and sleep while Melatonin helps with your sleep cycles.
- Our liver benefits from Tryptophan by being able to produce Niacin (Vitamin B3).

Recommended Dietary Allowance:

The recommended dosage for Tryptophan is 5mg/kg/per day.

Valine –

- This amino acid stimulates muscle growth, endurance and tissue regeneration.
- It helps to keep your body with a proper nitrogen balance also known as protein balance. With a negative protein balance your body starts to breakdown muscle and consume it to provide its basic protein needs. A positive protein balance is good during the stage of growing into adulthood or working out. Building and strengthening muscle needs this type of positive environment to grow. Valine supports the fluctuating need for protein.
- Involved in the production of neurotransmitters. This helps mental focus and clarity.
- Improves liver and gallbladder functions.

Recommended Dietary Allowance:

The recommended dosage for Valine is 24mg/kg/per day.

Non-Essential Amino Acids:

Glutamine –

- It's the most abundant amino acid we have. It helps to make protein for muscle tissue.
- Supports immune system cells and gives energy to cells that protect our intestines.
- Glutamine is important in removing ammonia from the body.
- Helps repair the gut lining by promoting gut cells to regenerate more quickly.
- Produces neurotransmitters to increase focus and calmness.
- Vitamin B3 (Niacin) and B6 (Pyridoxine) are necessary to make glutamine.

Aspartate –

- Also known as Aspartic Acid. Its main use is to increase the absorption of combined minerals to enhance athletic performance.
- It helps to maintain good chemical balance in the brain.
- Aspartic acid encourages the production of antibodies that support how the immune system works.
- Works to lower high ammonia blood levels.

Glutamate –

- This amino acid is a neurotransmitter (molecule that is used for communication between the small gaps of neurons) and it is the most abundant neurotransmitter in our brains.
- It's very vital for brain health and function, especially playing a key role in memory and learning.
- Nerve cells use Glutamate to send signals to other cells in the central nervous system.
- Helps produce the antioxidant glutathione.
- Aids in bone formation and muscle tissue repair.
- Helps to activate the digestive system.

Arginine –

- Inside the body this amino acid makes nitric oxide. Nitric oxide helps blood vessels relax and improves blood flow. This helps to reduce plaque build-up and lowers cholesterol levels.
- It helps to supply blood flow to the sex organs of both men and women.
- Arginine also helps to release growth hormone from the pituitary gland. With age, growth hormone output declines and this amino acid can help to control that decline.
- Helps the kidneys to remove body waste.
- Improves insulin sensitivity and the production of glucose.

Alanine –

- In periods of fasting muscles begin to break down and release alanine. This goes to the liver and is converted into glucose. This is energy for the body. During this process muscles are also being detoxified.
- Alanine can also lower blood sugar levels by activating an enzyme that increases energy production in cells.
- Help strengthen the immune system.
- Is used to break down tryptophan and vitamin B6.
- Can protect the prostate from enlarging and some studies suggest it can inhibit the production of prostate cancer cells.

Proline –

- This amino acid is converted into proteins that help form collagen, which is the most abundant protein in the body.
- Since collagen is a vital aspect in wound healing, proline is necessary in this act of healing.
- Helps with joint pain by regenerating cartilage.
- Proline helps to repair the lining of the gut so it can absorb nutrients better and to treat leaky gut syndrome.
- Promotes healthy skin.
- Helps the cardiovascular system by keeping arteries flexible and repairs damage to them.

Cysteine –

- Is produced through the metabolism (chemical change that takes place in a cell) of the amino acid methionine and the amino acid serine.
- Cysteine is the main protein in beta-keratin, so it's very important for nails, skin and hair.
- This amino acid is converted in the body to Glutathione, a powerful antioxidant which fights free radicals in the body. Free radicals cause damage to cells and DNA and are linked to a lot of conditions we face in life. Some are cancer, heart disease, Alzheimer's disease and even aging. Free radicals are not something we can avoid since our own bodies produce them natural as a byproduct of functioning. And even our environment (water and air pollution) coupled with bad habits like smoking or eating bad raises the amount of free radicals in the body.
- Helps the body detoxify dangerous chemicals and toxins.
- Can be used to treat impotence in men.
- Supports the body's natural ability to control blood sugar.

Asparagine –

- It was the first amino isolated and it came from asparagus.
- This amino acid aids in detoxifying our bodies and it does this by removing toxic ammonia from cells.
- One of asparagine's crucial role is in the formation of other amino acids.
- Helps the conversion of food to energy to be more efficient, therefore we gain more stamina.
- It is produced in the liver and can protect the liver.

Serine –

- Helps to make phosphatidylserine which covers and protects brain cells. It has also been thought to help delay mental diseases like Alzheimer's.
- Serine is important for the immune system by helping in the production of antibodies.
- Helps to form the amino acids glycine and cysteine.
- In studies serine has been shown to help you wake up feeling like you had a good night's sleep. It does this by helping you go to sleep, stay asleep and improves the quality of sleep.
- Helps produce other amino acids that relieve stress and fights Fibromyalgia.

Glycine –

- Helps to produce a compound that fights free radicals.
- This amino acid is also great for digestive health by helping to heal your gut lining and preventing inflammation.
- Glycine is an important part in collagen production so our joints, skin and hair can all benefit.
- It can help with mental difficulties, like depression and OCD by calming down the brain. This calming effect can also help to get better sleep.
- Glycine can help insulin respond to glucose to regulate blood sugar by stimulating a gut hormone to help remove sugar from the bloodstream.
- Can protect your liver from alcohol damage.

Tyrosine –

- Is made from the essential amino acid Phenylalanine.
- Tyrosine is an essential building block for the neurotransmitters dopamine, epinephrine and norepinephrine. This can help with stress and depression.
- It helps nerve cells communicate and influence mood.
- Regulates hormone function of the thyroid, adrenal and pituitary glands.
- Tyrosine also helps to produce melanin, which gives the color to our hair and skin.

Additional Note:

These vitamins, minerals and amino acids have some great benefits. It seems so easy to magnify these benefits by taking a lot of the ones that has the benefits we want. Our bodies have many needs and are balanced by many things to stay healthy. When one need is greatly exceeded, this could be very dangerous.

We can gain certain health benefits by increasing some needs beyond our body's normal intake, but your doctor or health care provider needs to be the one to determine if it is beneficial to you. We want you to understand even though our research yields the results that you are reading; it is not a green light to abandon your doctor's approval.

You should form your ideas and plans concerning your health by the help of our research and submit it to your doctor for questions, concerns and then ultimately their approval.

Essential Nutrient #4: Fats

The body can't make fat for itself so it must be consumed by our diet. There are good benefits to eating fat. Some vitamins, as we have learned need fat to be absorbed by the body. It gives your body energy and it is the material needed to build cell membranes, which is the outside of a cell. Fats are also needed for blood clotting and muscle movement.

Some types of fats are good for you and some, not so much. Fats are broken into four types. We will explore each fat and the different foods that we get these fats from, so we can adjust our diets to include more of the healthy fats and limit the bad fats.

The four types of fats are:

Monounsaturated Fat – These fats are considered good for you. Omega-9 is part of this fat family. This fat can help with weight loss and protects your heart from heart disease and stroke by reducing the bad cholesterol (LDL) in your blood. This fat contributes vitamin E to your diet and is a liquid at room temperature. The recommended intake is 15% to 20% of your calorie intake for that day.

Foods with Monounsaturated Fats:

- Peanut Butter.
- Peanut Oil.
- Olive Oil (and olives).
- Canola Oil.
- Safflower Oil.
- Avocados.
- Sesame Oil.
- Pumpkin Seeds.
- Most nuts have this kind of fat including pecans, cashews, peanuts, hazelnuts, pistachios and macadamias.

Polyunsaturated Fat – This is another fat that is very good for you and is necessary for healthy brain function and cell growth. This healthy fat includes omega-3s and omega-6s and can reduce the risk of diabetes and of developing an irregular heartbeat. It lowers blood pressure and your bad cholesterol levels, so it reduces the chance for heart disease and stroke. This fat is a liquid at room temperature and the recommended intake is 5% to 10% of your calorie intake for that day.

Foods with Polyunsaturated Fats:

- Salmon.

- Sunflower Oil and Sunflower Seeds.
- Corn Oil.
- Soybean Oil.
- Walnuts.
- Flaxseed Oil and Flaxseed.
- Chia Seed.
- Eggs.
- Tofu.

Saturated Fat – This fat is thought to be really bad for you. Saturated fat increases your bad cholesterol, thereby increasing your risk of heart disease and stroke. This kind of fat was a contributor to the low fat, diet craze.

Current research is starting to show that saturated fats are not as bad as they had thought. Some studies are showing that it does not pose a threat to heart health at all. This debate on how bad or how healthy saturated fat is will probably go on for a while until enough accepted studies are done.

This fat is found in animal products and tropical oils and at room temperature is usually a solid. Consuming this fat in moderation is the best way to go. The recommended intake is 5% to 8% of the calorie intake for that day.

Foods with Saturated Fats:

- Lard.
- Dairy Products such as cheese, butter and cream.
- Coconut and Coconut Oil.
- Pork.
- Poultry with the Skin.
- Beef Fat.
- Palm Oil.
- Lamb.
- Bologna.

Trans-Fat – This is a fat to stay away from, as much as you can. It's personally hard for me because it seems all the best foods I like to eat make this list. Trans-fat raises bad cholesterol (LDL) and lowers good cholesterol (HDL) which can lead to heart disease and stroke. It's also associated with developing type 2 diabetes.

Trans-fat is made industrially by a process known as hydrogenation. Hydrogenation is when hydrogen is added to liquid oil to make them a solid.

These oils are easy to use, cheap and last a long time. Trans-fat makes food taste good and gives a great texture. This is why trans-fat has become a favorite in the food industry to cook with.

There is natural trans-fat. It is created in the stomach of cows, sheep and goats, but it makes a very small percentage of fat in these animal products we eat.

The recommended intake is less than 1% of your calorie intake for that day.

Foods with Trans-Fats:

- Doughnuts.
- Margarine.
- French Fries.
- Crackers and Chips.
- Frozen Pizza.
- Non-Dairy Creamers.
- Vegetable Shortening.
- Some Varieties of Microwave Popcorn.
- Most things fried in a fast food setting. There are some exceptions. You will need to research what the food is fried in.

Essential Nutrient #5: Carbohydrates

Carbohydrates are a main supply of energy for the body and though there are debates about how much carbs we need, the bottom line is that our bodies need carbohydrates to function properly. The dietary guidelines recommend that between 45% to 65% of your daily calories come from carbohydrates. Continue reading and choose good carbs in your diet rather than the ones that are not so good for you.

Carbohydrates can be either simple or complex and what determines this is the amount of time our bodies take to digest it. Complex carbs takes longer.

There are 3 types of carbohydrates:

- Sugars (simple carbohydrates).
- Starches (complex carbohydrates).
- Fiber (complex carbohydrates).

Note: After writing this section we never thought carbohydrates would be so involved. We hope that the information is laid out for you in a way that it is informative and understanding, but not overwhelming. That way you can make the most out of this knowledge and apply it to your eating habits.

Defining Simple Carbohydrates:

Simple Carbohydrates – this is sugar and simple carbs containing one or two sugar molecules. The body can easily break these carbs down for energy and as a result raise your blood sugar levels quickly. A release of insulin helps to lower it, but this can leave you feeling tired and hungry. Also simple carbs are considered "empty calories" because they really have no nutritional benefit. Simple carbs, also known as simple sugars can be either monosaccharides or disaccharides.

Monosaccharides –

These have only one sugar molecule making it the easiest for the body to use for energy. Our bodies use Glycolysis or the Glycolytic pathway to convert glucose into energy. Our bodies understand how to do this with glucose, but some monosaccharides are not glucose, so the body doesn't know how to use them for energy. They must be converted into glucose so then our bodies can use the Glycolytic pathway and convert it into energy.

The three most common types of monosaccharides:

Glucose – It's a simple carbohydrate that our bodies breakdown and use for energy. Glucose molecules do not need to be converted to enter the Glycolytic pathway. The body can use them as-is. When too much is introduced and the body doesn't need them for energy the body links glucose together forming glycogen. When your body needs glucose, glycogen can be broken down and used as glucose.

Fructose – also known as fruit sugar, fructose needs to be converted for the glycolytic pathway. This primarily happens in the liver. Fructose is converted into glycogen, where it can be broken down into glucose and used when the body needs it.
When needed for energy immediately, fructose can be converted in a different way. It is converted into glucose but then this glucose skips several steps of the glycolytic pathway. These steps that are skipped regulate the amount of glucose in this pathway. As a result this can lead to raised cholesterol, triglycerides and body fat.

Galactose – this monosaccharide has to be converted before being used by the body for energy. It is converted to glucose in the liver and most of it is then stored as glycogen, until the body needs it. So this simple sugar has very little impact on raising your blood sugar levels.

Galactose is also known as brain sugar. It is very helpful in brain function and development in infants and children. It especially helps to form long-term memory and helps brain cells stay healthy in adults. Galactose has also shown its ability to inhibit the growth of tumors in the body.

Disaccharides –

This is sugar that is formed when two monosaccharides are linked together. Disaccharides are also known as double sugar.

The three most common types of disaccharides:

Sucrose – is a bond between glucose and fructose. Sucrose is most commonly known as table sugar, but is also a natural sugar found in fruits, vegetables and nuts. So, sucrose can be both natural and added sugar. The main commercial sources for sucrose are from sugarcane and sugar beets. Raw sucrose is extracted from these sources in sugar mills and sent to other places for refinement into the final product.

Our bodies need to separate sucrose into the two individual sugar molecules that it is made of, glucose and fructose. It begins slightly in the mouth with your saliva, but the majority of

sucrose is broken down in the small intestines. It does this with the aid of an enzyme named sucrase. Our bodies can then handle them as monosaccharides.

Lactose – is a bond between glucose and galactose. It's the sugar we find in milk. In the small intestines an enzyme known as Lactase breaks down Lactose into the two monosaccharides so our bodies can handle them.

A lot of people have a condition called lactose intolerant. How do our bodies handle lactose then?

Lactose still goes to the small intestines. But for people who are lactose intolerant, they don't have enough of the enzyme lactase, to break down the lactose. The body needs lactose broken down into monosaccharides so it can be used. Since it can't, lactose goes into the colon where it mixes with bacteria and ferments. This creates bloating, gas and diarrhea. The symptoms aren't dangerous, but are very uncomfortable.

Maltose – is a bond between glucose and glucose. It's also called malt sugar and it only happens in nature when whole grain seeds just begin to sprout. Maltose is made when an enzyme named Amylase begins breaking down a component of starch named Amylose. When the seeds begin to grow, this enzyme starts breaking down the starch and makes maltose for energy.

When we cook starchy foods like sweet potatoes or breads, amylase gets active and starts breaking down the amylose to form maltose. This is the key to making beer taste a little sweet to offset the bitterness. Amylase is added to the grains and is heated so this enzyme can begin breaking down the amylose and start forming maltose.

We can consume maltose through our cooked foods, but our bodies have this enzyme, amylase as well. Our saliva is loaded with them along with our pancreas. As we eat starch we begin breaking it down and turning it into maltose. It continues to be broken down in our small intestines with the added amylase enzymes from the pancreas.

Once we have maltose our bodies needs to break it down further into monosaccharides. This is where the enzyme maltase comes in. Maltase breaks down maltose into two glucose molecules of sugar and then our bodies can use it for energy, or be stored for later as glycogen.

Defining Complex Carbohydrates:

Complex Carbohydrates – also known as polysaccharides. Complex carbohydrates take longer to digest because they have long chains of sugar molecules. The greater breakdown time means that it supplies longer and more stable energy to the body. For the role that carbohydrates play in our bodies, meaning our source of energy, complex carbohydrates do a more effective job than simple carbs.
There are two types of complex carbohydrates and they are starches and fiber.

Starches –

Starch is produced by a wide variety of plants for energy storage. There are two main components of starch and they are amylose and amylopectin.

Amylose makes up only about 20% to 25% of starch while amylopectin makes up about 75% to 80%. When we eat starch an enzyme in our saliva called amylase begins breaking down both components of starch.

Once in the stomach the chemical breakdown temporarily stops because of the acidic conditions of the stomach. The contractions of the stomach digesting the food continue the breakdown until it reaches the small intestines. There the chemical breakdown restarts with new amylase enzymes from the pancreas. The result from this breakdown of starch is disaccharides - maltose, sucrose and lactose.

The enzymes maltase, sucrase and lactase then are released to break these disaccharides down even further, to monosaccharides so the body knows how to use them for energy.

Most of the breakdown of starches results in maltose. With maltose being two glucose molecules it's not surprising that the final result of the breakdown of starches is about 80% being the monosaccharide glucose. The monosaccharides, fructose and galactose are about 10% each of the final breakdown.
Some sources of starch include: potatoes, rice, corn, lima beans, peas and breads.

Fiber –

Fiber, it is true that it helps to keep us regular, but there is a lot more to learn. What else can it do for me? Where does it come from? How does it do it and is all fiber the same?

Fiber, also known as roughage, is the parts of plants that are not digestible or not completely digestible. Fiber is plant based foods, like vegetables, grains, beans, fruits, nuts and seeds.

There are two types of fiber, insoluble and soluble. Under these umbrella headings there are many different kinds of fiber and the benefits of each are mainly are contributed to the type of fiber it is, but there are some fibers that the benefits are more than this.

The amount of fiber we should try to reach daily is 25g for women and 38g for men.

Soluble Fiber –

This type of fiber dissolves in water and other fluids. In the gut it attracts water and turns into a gel-like substance. Soluble fiber helps you fill full faster and for a longer period of time by slowing down the digestion of food, this can also help you lose weight. This slower digestion helps your body to not get sugar spikes because sugar is also processed more slowly.

Since soluble fiber can't be digested, the gel-like substance makes it to the small intestines and binds itself to some cholesterol. Soluble fiber bulks up the stool (poop) to help with constipation and diarrhea and carries out the cholesterol that it picked up with it.

Some soluble fibers are prebiotics. Prebiotics feed probiotics in the large intestines.

Below is a list of soluble fibers. These fibers provide the benefits of what defines a soluble fiber plus added benefits. Food sources for the different kinds of fiber will be given for each one.

Inulin:

This fiber is a type of prebiotic and it is not digested or absorbed in the stomach. It gets to the large intestines where gut bacteria breaks down (ferments) inulin into fatty acids. This feeds healthy bacteria, also known as probiotics. Inulin doesn't feed the bad bacteria, just the good ones. This helps them multiply and survive in their surroundings that are filled with microorganisms and pathogens. These probiotics keep you healthy in many ways and it also helps block the production of cholesterol and visceral fat (fat that is stored inside your stomach and wraps around organs).

Some of the natural sources for inulin include chicory root, onions, garlic, asparagus, bananas and barley. Supplements of inulin are commonly made from chicory root, because of its high inulin content. It's soaked in hot water and then mechanically extracted and dried.

You might also see inulin being called Oligofructose or Fructooligosaccharides. These are inulin with shorter chains; basically they are made up with fewer molecules.

Pectin:

This fiber contains almost no calories or nutrients, but it is a useful form of fiber beyond its soluble fiber benefits. We mainly use it to make jams and jellies. Pectin is what makes these preserves set up and become a gel. It also can be a thickening agent for other desserts, baked goods and savory dishes.

In some studies pectin has killed different forms of cancer cells. More research needs to be done at how effective pectin is as a cancer fighter, but the fact is that pectin does kill cancer

cells. In the colon pectin helps with inflammation and preventing cellular damage that can develop colon cancer.

This fiber is found in fruits and vegetables, but the highest amounts are found in fruits such as apples, plums, strawberries, citrus (lemons, limes and oranges) peelings and the pulp.

Gums:

This is a type of fiber extracted from various natural materials. Their uses vary from their source. Acacia gum, a more popular tree sap gum, is used to keep oils and waters from separating (also called an emulsifier). It is added to different foods for them to have a longer shelf life and can also be used as a thickening agent.

Guar gum is a better known example of gums from seeds. It is used to thicken soups, sauces, beverages and dairy products. Guar gum and/or Konjac gum, a root extract, can be added to ice cream to keep its consistency while melting and refreezing. Konjac gum also is used as a thickening agent and is used to make Konjac noodles, a gluten free Asian noodle.

There are also gums from using a fermentation process. One of the well-known gums from this process is xanthan gum. Xanthan gum is made by fermenting a bacteria found on leaf surfaces of green vegetables. After fermentation it is dried and ground to powder. It's mainly used for food stabilization and a thickening agent for texture and flavor.

Seaweed brings a few gums with one of the best known being agar gum. It is used to set desserts and thicken soups.

These different gums are added to foods to boost the nutritional value of fiber in your diet. The benefits these gums bring are pretty much what you get from any soluble fiber, which are great benefits and something most of us are not getting enough of.

Polydextrose:

This type of fiber is made in a lab from 89% glucose, 10% sorbitol (sugar alcohol with a sweet taste) and 1% citric acid. It was made as a food additive to increase the fiber content in foods and to reduce the sugar, calorie and fat content in those foods. It has the benefits of a soluble fiber and is considered a prebiotic, meaning it can be converted to fatty acids and feed probiotics.

Polyols:

This type of fiber is sugar alcohols. They are sugar substitutes that are only partially digested with the bulk of it making it to the large intestines. Since polyols are not sugar it doesn't give sugar spikes. These sugar alcohols like sorbitol and mannitol are natural in some fruits like apples, apricots, blackberries and cherries and in some vegetables like mushrooms, cauliflower and sweet potatoes.

There is another type of polyol that is synthetic (made in the lab) and this type is added to packaged foods. They include isomalt and lactitol. The synthetic version is okay in moderation, but if you can avoid them it's best to do so. Eating too much can cause symptoms of irritable bowel syndrome that include bloating, gas, cramps and diarrhea.

The natural polyols you get from food is great. They give the benefits of soluble fiber with some polyols being more soluble then others, and it acts as a prebiotic.

Beta Glucans:

This type of fiber is located in the cell walls of bacteria, fungi, some plants, yeasts and algae. So some good sources of beta glucans are mushrooms, oats, barley, wheat and seaweed. The benefits of this natural fiber are very similar to inulin. Both inulin and beta glucan can feed probiotics with each one showing better support to different probiotics. Beta glucan can help with lowering the bad cholesterol, helping to boost the immune system and help to activate cancer fighting cells. This along with the soluble fiber benefits makes it a great fiber to eat.

The effects of beta glucans can very a little depending on where you get your beta glucans from. The more complex the structure of beta glucans is the more immune health and cancer fighting properties are going to result from it. Sources for these complex beta glucans are mushrooms and yeast.

Mucilage:

This kind of fiber is not a dry fiber but one that is high in water content and it is slimy and gelatinous. Mucilage is a prebiotic and has all the benefits of a soluble fiber. This kind of fiber has been shown to attract and absorb toxins then eliminates them through bowel movements. Research is also underway for using this fiber to clean water sources and possibly oil spills.

Mucilage can heal your gut lining by getting the gut to secrete more mucus. This mucus covers the gut lining protecting it from excessive acidity and the formation of ulcers.

Food sources for mucilage fiber include okra, figs, chia seed, slipper elm and cactus.

Psyllium:

This type of fiber comes from the husks of the seeds from the Plantago Ovata plant mainly found in India. This is the main ingredient of some fiber supplements because the body can tolerate this fiber better than most. In the large intestines a small portion of this fiber breaks down (ferments) and helps feed probiotics, but it does it slower than the other fibers. This decreases gas, bloating and other discomforts that can be felt with other prebiotic fibers.

You can find this type of fiber as a supplement or added to foods. It has all the added benefits of a soluble fiber, some prebiotic benefits and is gentler than other fibers. This is an all-around good fiber supplement.

Resistant Starch:

This is the part of all starches that are not digested and pass through to the large intestines. The available amount of resistant starch depends on the preparation of the food, but there are foods that have a greater amount including unripe bananas, oatmeal flakes and legumes (peas, beans, lentils and chickpeas).

There are four different types of resistant starch. They are labeled different because of where they come from.

- Type 1 (RS1) – Found in legumes, seeds and grain. This type of resistant starch is bound to the cell walls so it can resist digestion.
- Type 2 (RS2) – Also considered an insoluble fiber - Found in unripe bananas and raw potatoes among other starchy foods.
- Type 3 (RS3) – This type of resistant starch is made when potatoes, rice or other certain starches are cooked and then allowed to cool. The cooling process turns some of the digestible starch into resistant starch.
- Type 4 (RS4) – This is a synthetic form, lab made from chemicals that are added to foods.

Resistant starch acts like a soluble fiber that feeds probiotics by also being fermentable.

Wheat Dextrin:

This type of fiber is made from different starches including potatoes, corn and wheat. Gluten is extracted leaving wheat starch and then converted to wheat dextrin. The conversion is a little different depending on what the final product is intended for. In addition to being added to foods as a food thickener or by replacing fat for reduced calorie foods, wheat dextrin is used as an adhesive for stamps, envelopes and some tapes. Also the textile industry benefits from this fiber by it helping in the printing process of cotton fabrics.

This is a good form of soluble fiber as it also acts as a prebiotic, feeding all those probiotics. Though it is considered Gluten free there could be traces of gluten in the final product. Wheat dextrin is the fiber used in some fiber supplements such as Benefiber.

Insoluble Fiber –

This is a fiber that can't be dissolved in water or other body fluids. Instead insoluble fiber absorbs water which leads to a bulkier and softer stool that keeps you more regular. This kind of fiber goes through the digestive system pretty much intact sticking to by-products of digestion that are ready to become part of the stool. This water absorption and stool formation speeds up the transferring of waste through and out of the body.

Insoluble fiber helps relieve constipation and also can help with a lot of conditions that would form hemorrhoids, like having to sit on the toilet for long periods of time, straining to use the bathroom and constant diarrhea or constipation.

Another great plus for staying regular is that you're less likely to get diverticulitis (a flare up of small bulging pouches in the large intestines that limits what you can eat). It's usually caused from years of straining through constipations and your body moving hard stools through your large intestines.

Cellulose:

This type of fiber is a major structural component of the cell walls in green plants, vegetables, algae and bacteria. Cellulose is the most abundant organic compound on Earth with each plant containing around 33% of cellulose and some plants having a higher content.

Cellulose is taken from plants and has become a popular food additive. It's added to several foods such as diet foods, low fat yogurts, ice creams and shredded cheese to replace fat and boost the fiber content.

Good sources of this insoluble fiber include celery, broccoli, nuts, seeds and kale and give all the benefits of insoluble fiber.

Lignin:

This type of fiber is NOT a carbohydrate. I do want to include it with the fibers because it is a fiber, just not a carbohydrate. Like Cellulose it is found in the cell walls of green plants, vegetables and algae and fills in the gaps of cellulose. Lignin is the second most abundant organic compound on Earth following cellulose. It's very important to plants by giving them structural strength and support and it also regulates the flow of fluids.

Lignin is a very important component of dietary fibers because it controls how much fiber is non-digestible. A fiber having more lignin or lignification the more resistant that fiber is to being digested. It's also a good antioxidant.

A certain amount of lignin is in every plant on Earth, but some of the best sources include zucchini, wheat, rye, beans, avocados and flaxseed.

Essential Nutrient #6: Water

Water is an obvious nutrient. It's a necessity that our body needs that we can't produce within our own bodies, so we must consume it. When our bodies need water, we feel it. We thirst. Unfortunately, these days there are so many alternatives to water that we don't usually reach for water most of the time.

Water is still one of the best choices for your health. Drinks that have electrolytes in them and are sold as being better than water is only good if you vigorously workout and pour sweat. If this isn't you then you're just consuming another form of sugary drink.

How much water do we really need each day?

The best practice for knowing the amount of water that you personally need, is to drink a half an ounce of water for every pound you weigh. Drink closer to an ounce if you're active and/or live in a hot, dry climate.

What does water really do for you?

- Water is the main component of saliva. It's very much needed to help breakdown foods and to keep the mouth healthy and prevents bad breath.
- It helps regulate your body temperature through sweating.
- Water helps lubricate and cushion your joints, spinal cord and tissues.
- Drinking enough water can prevent constipation.
- Helps in the digestion of food.
- Supports kidney health and can prevent kidney stones.
- Drinking water plumps up the skin and helps with minimizing aging of the skin as well as flushing toxins from the skin.
- Dehydration can trigger stress, so water can improve your mood.
- Keeps you energized.
- Water can help you lose weight and keep a healthy weight.
- Water plays a critical role in flushing out toxins and waste from the body.
- Aids the immune system in fighting the flu, colds and viruses.
- Boosts your brain power and prevents headaches.
- Helps keep your blood at the correct thickness. This in turn helps the heart.
- Water carries nutrients throughout the body.
- Water carries oxygen throughout the body.

Water's great journey on how it moves through the body.

The journey first starts out with us consuming water; we can get water from other liquids and a small amount from food. We get thirsty so we drink water until our brains tell us we have had enough. Our brains tell us this well before the water quenches the dehydration of the cells. If it didn't we would drink a dangerous amount.

Water makes it into the stomach and then into the small intestines where water is absorbed through its walls and enters the bloodstream. How quick this happens depends on if you're eating while drinking. Food slows the rate that water makes it into the small intestines, but actually is great for digestion and speeds it up. Water drank by itself can be absorbed by the small intestines in about 5 minutes. Water drank with a meal can be absorbed between 45 minutes to two hours.

In the bloodstream water travels throughout the body hydrating the inside and outside of every cell in your body. Water accounts for about 60% of our weight and two-thirds of that water is stored inside the cells.

Water traveling to the outside of cells has two main areas it can be routed. The water within these areas helps the body in different ways.

Plasma: is the liquid part of blood that makes up about 55% of blood. It carries water, protein, hormones, electrolytes and other nutrients to the body and waste to the kidneys and the liver. Plasma helps to clot blood, regulate body temperature, immunity, blood pressure and many other vital functions.

Interstitial Fluid: this forms the environment directly outside of the cells. It is delivered by plasma through capillaries bringing new water and nutrients. The older water containing waste is absorbed by the lymph vessel which returns it to the bloodstream so it can travel to the kidneys or liver to have the waste removed. (Lymph vessels are thin tubes that carry fluid to the Lymphatic System. The Lymphatic system helps to control fluid levels in the body – preventing edema, and is part of the immune system).

Water outside the cells also, in smaller amounts, include:
- Spinal and brain fluid.
- Joint fluid.
- Eye fluid.
- Lung, heart and chest fluid.
- Saliva and mucus production.

The water outside the cells is the first to be lost mainly through three ways:

Urine –

Our kidneys are great filters having about a million of them. Plasma carries waste to the kidneys where the blood is filtered and recirculated into the blood stream. All the waste is sent to the bladder along with water.

Your kidneys regulate how much water is delivered to the bladder depending on your hydration level. They reserve water when you are getting dehydrated to keep more water in your system. Urine can turn a darker yellow with less water available to dilute the toxins.

When there is enough water or more than enough water in your system the kidneys will deliver more water to the bladder diluting the toxins. Urine will be a lighter yellow to clear color.

Sweat –

When your body temperature rises because of your activity or environment, water comes up through your sweat glands which are located in the 2nd layer or the dermis layer of the skin. This water then evaporates to cool you down. Supplying this water is your blood plasma.

Respiratory Droplets –

When you take a breath in your lungs it becomes saturated with water vapor. As you breath out that water vapor is exhaled. This is a minute amount, but it adds up when you think about how often you breathe. This type of water loss also includes talking, singing, coughing and sneezing.

When water from outside the cells is being used the water inside the cells releases some of their water to replace the loss. And as the water inside the cells is used we begin to thirst. Thirst can start when cells have only lost about 1% of their water.

As we drink to quench our thirst, the body once again cycles the water through our bodies.

Your Personal Health Plan:

This is some work you will need to do.

First, before making any changes examine your eating habits. What nutrients are you already bringing to the table?

Then see what nutrients you are lacking in and what nutrients you could benefit from by getting more then you already do.

Below we have a few different logs to aid in the discovery and planning of your personal health program. A brief explanation will come before each one so there is no guess work on writing out your health plan.

The first log, My Specific Health

On the first column (Health Concern/Situation) write down if you have a health situation that is specific to you. Like if you are allergic to anything or you have a condition that makes you need an excess of this or that.

On the second column (What it Influences) make a detailed note of how that health situation affects your life. Such as not being able to eat certain foods or liquids or having to eat this or that. Not being able to do particular activities or having to do them.

My Specific Health Log

Health Concern/Situation	***What it Influences***

Nutrition and Rx Weekly Program Log

On the first column (Medications/Supplements) write down any prescription medications you are taking and any supplements that you are already taking. Then add the supplements that you believe would aid in your health. Put a star beside these, as these are potential supplements you will take depending on your doctor's approval.

On the second column (Dosage Amount) write down the prescription medication amount and the supplement amount that you take. For the supplements you want to take, write down the amount that you are considering taking.

On the third column (Dosage Frequency) write down how often you take the prescription medications and the supplements. For the supplements you want to take, write down the frequency you plan on taking them.

On the fourth column (RDA) write down what the recommended dietary allowance for the supplements you take and for the supplements you want to take. For prescription medications you can leave this column blank because your doctor has set this value for you.

On the fifth column (Notes) write down the reason you want to take this nutrient and any questions about this nutrient that you want to ask.

*TIP - If you are seeing that you would like to take several different B vitamins, think about taking a B complex. This contains all the B vitamins into one pill.

If you are considering taking multiple vitamins, think about taking a multi-vitamin. You can get multi-vitamins that includes a B complex or without.

Here is an example:

Medications/ Supplements	Dosage Amount	Dosage Frequency	RDA	Notes
Vitamin C	500mg	1 time a day after breakfast	90mg – male 75mg - female	I want to take this supplement because I don't get a lot through my diet and it could help my immune system.

Nutrition and Rx Program Log

Medications/ Supplements	Dosage Amount	Dosage Frequency	RDA	Notes

Daily Food Log

In this log you can keep on track with eating the right foods at the right portions and list what vitamins and minerals it gives you.

The first column labels each meal of the day.

On the second column (Food) write down the food you are eating for that meal. You can look to the foods listed in this book or from your knowledge or research.

On the third column (Preparation) write down how the food was cooked. We all know deep frying is not that good for us, but did you know cooking with olive oil in excess can make you gain weight. Even though it's a healthy oil a tablespoon of olive oil has 120 calories.

On the fourth column (Serving Size) write down how much of that food you ate. The portion size in this book has been 100g. It's a good measure that can be simply duplicated or either added or subtracted from. You can easily find the value of the mineral or vitamin in 50g, 150g or 200g.

On the fifth column (Nutrition) write down what nutrient is important to you to keep track of. People have different needs and goals, so I left this blank for you to fill out the nutrition needs you want to place there. Such as Calories, Fat, Vitamins, Minerals, Amino Acids, Protein, Sugars, Carbs, Sodium, etc…

If you're interested in calories, fat, carbs, protein and much more then this website has a great database for seeing these in different foods; verywellfit. It gives a nutritional label for a single item or a complete meal for one or more servings. We did notice when you enter a serving size, it basically ignores it and gives the nutritional facts for the recommended serving size. This we didn't like, because we all eat different size portions. But we did find that you can go back to the recipe, where you entered your food items, and click the pencil icon, which is the edit button, and then click Select Measurement. From the dropdown you can select Custom Measurement and enter in your personal serving size and the nutritional label will change to meet that new serving size.

Also here is another site that just gives the calories; myfitnesspal. You don't need to join either one; just put in the food and it will give you the information for them.

On the sixth column (Notes) you can write down additional thoughts you may have, goals, when you ate, how you felt afterward, where you ate your meal. Anything that can help with your health needs.

The following page has an example of the daily food chart.

Here is an example:

	Food	Preparation	Serving Size	Nutrition	Notes
Lunch	Lean Pork Chops	Roasted	170 grams	Calories - 381 Fat - 7.3 grams Protein - 47.1 grams	Added mushrooms, seared in a little bit of butter, on top of my potatoes instead of cheese, butter and sour cream. It was very good. I did add a small amount of cheddar cheese to my broccoli. 5 grams of cheese at 20 calories.
	Potato	Baked	160 grams	Calories - 206 Fat - 0.1 grams Protein - 5.6 grams	
	Broccoli	Boiled	110 grams	Calories - 37 Fat - 0 Protein - 3.1 grams	
	Portabella Mushrooms	Seared	90 grams	Calories - 23 Fat - 0 Protein - 2.3 grams	

Note: If what you are wanting to track is not included with the information provided in the nutritional label from verywellfit use the information we provided.

If I was going to track B1 (thiamine) I can do it like this. I know from the section on vitamin B1 that 100 grams of lean pork chops has 0.7mg, which is 58% of the DV.

I ate 170 grams.

I can see how much B1 is in 1 gram by dividing 0.7 by 100. It would like this - 0.7/100 = 0.007

So for every 1 gram there is 0.007mg of B1 in these pork chops.

Now multiply 0.007 by 170 grams (the amount I ate). It looks like this - 0.007 x 170 = 1.19

So 1.19mg of B1 is in 170 grams of pork chops I ate.

Daily Food Log Date _____

	Food/Drink	Preparation	Serving Size	Nutrition	Notes
Breakfast					
Lunch					
Dinner					
Snacks					

Nutrient Chart

In this book we covered a lot of nutrients. We wanted you to have a chart that you could quickly look at to keep up with all the different nutrients, their RDA and the upper limits. Below you can find this chart.

These logs we have presented in this book along with your Exercise Log from book 3, Outside the Body, is your health program. Use these in addition to your own knowledge and previous experiences to shape a personalized health program that's designed for you.

Remember to get this approved by your doctor before you begin it.

Nutrient Chart: Quick Reference

Category	Specific Nutrient	RDA	Upper Limit
Vitamins	*Vitamin A*	900mcg for men and 700mcg for women.	3,000mcg for men and women.
	Vitamin C	90mg for men and 75mg for women.	2,000mg for men and women.
	Vitamin D	15mcg for men and women until 70. 20mcg for men and women 71 and up.	100mcg for men and women.
	Vitamin E	15mg for men and women.	1,000mg for men and women. From studies 180mg is a good UL.
	Vitamin K	120mcg for men and 90mcg for women.	No set UL. 5,000mcg from research.
	Vitamin B1	1.2mg for men and 1.1mg for women.	No set UL. 100mg from research.
	Vitamin B2	1.3mg for men and 1.1mg for women.	No set UL. 100mg from research.
	Vitamin B3	16mg for men and 14mg for women.	35mg for men and women.
	Vitamin B5	5mg for men and women.	No set UL. 500mg from research.
	Vitamin B6	1.3mg for men and women until 50. 1.7mg for men and 1.5mg for women 51+.	100mg for men and women.
	Vitamin B7	30mcg for men and women.	No set UL. 5,000mcg from research.
	Vitamin B9	400mcg for men and women.	1,000mcg for men and women.
	Vitamin B12	2.4mcg for men and women.	No set UL. 1,000mcg from research.
Macro-Minerals	*Sodium*	1,500mg-2,300mg for men and women.	2,300mg for men and women.
	Chloride	2,300mg for men and women.	3,600mg for men and women.
	Potassium	4,000mg for men and 3,500mg for women from food. 100mg from supplements.	From research there are no added benefits taking above RDA.
	Calcium	1,000mg for men and women until age 50. 1,200mg for men and women 51+.	2,500mg for men and women.
	Phosphorus	700mg for men and women over 18.	4,000mg for men and women.
	Magnesium	Ages 19-30 400mg for men, 310mg for women Ages 31+ 420mg for men, 320mg for women.	350mg for men and women from only supplements.
	Sulfur	2,000mg for men and women from research.	No set UL. 3,000mg from research.
Trace Elements	*Iron*	8mg for men. Women ages 19-50 is 18mg and 51+ is 8mg.	45mg for men and women.
	Zinc	11mg for men and 8mg for women.	40mg for men and women.
	Iodine	150mcg for men and women.	1,100mcg for men and women.
	Selenium	55mcg for men and women.	400mcg for men and women.
	Copper	900mcg for men and women.	5,000mcg for men and women.
	Manganese	2.3mg for men and 1.8mg for women.	11mg for men and women.
	Fluoride	3mg for men and women.	7mg for men and women.
	Chromium	Men ages 19-50 is 35mcg, 51+ is 30mcg. Women ages 19-50 is 25mcg, 51+ is 20mcg.	No set UL. 200mcg from research.
	Molybdenum	45mcg for men and women.	2,000mcg for men and women.
Fats	*Mono-unsaturated Fat*	15% to 20% of a day's calorie intake.	
	Poly-Unsaturated Fat	5% to 10% of a day's calorie intake.	
	Saturated Fat	5% to 8% of a day's calorie intake.	
	Trans-Fat	Less than 1% of a day's calorie intake.	

Category	Specific Nutrient	RDA	Upper Limit
Essential Amino Acids	*Histidine*	11mg/kg/per day	
	Isoleucine	19mg/kg/per day	
	Leucine	39mg/kg/per day	
	Lysine	38mg/kg/per day	
	Methionine	13mg/kg/per day	
	Phenylalanine	20mg/kg/per day	
	Threonine	18mg/kg/per day	
	Tryptophan	5mg/kg/per day	
	Valine	24mg/kg/per day	
Non Essential Amino Acids	*Glutamine*	Make sure to consume enough protein and carbohydrates and your body will have plenty of non-essential amino acids available.	
	Aspartate		
	Glutamate		
	Arginine		
	Alanine		
	Proline		
	Cysteine		
	Asparagine		
	Serine		
	Glycine		
	Tyrosine		
Carbo-hydrates	*Simple*	The dietary guidelines recommend that between 45% to 65% of your daily calories come from carbohydrates. Select good carbs to meet this.	
	Complex		
Fiber - Soluble	*Inulin*		
	Pectin		
	Gums		
	Polydextrose		
	Polyols		
	Beta Glucans		
	Mucilage		
	Psyllium		
	Resistant Starch		
	Wheat Dextrin		
Insoluble	*Cellulose*		
	Lignin		
Water		Drink a half an ounce of water for every pound you weigh.	Drink closer to an ounce if you're active and/or live in a hot, dry climate.

We wanted to add a duplicate quick reference chart for all the nutrients without any data added in the fields. As we all know, in time a lot of changes take place. We are sure that RDA's and upper limits will change in the future and we want you to have a clean slate to fill in the changes.

Nutrient Chart: Quick Reference

Category	Specific Nutrient	RDA	Upper Limit
Vitamins	*Vitamin A*		
	Vitamin C		
	Vitamin D		
	Vitamin E		
	Vitamin K		
	Vitamin B1		
	Vitamin B2		
	Vitamin B3		
	Vitamin B5		
	Vitamin B6		
	Vitamin B7		
	Vitamin B9		
	Vitamin B12		
Macro-Minerals	*Sodium*		
	Chloride		
	Potassium		
	Calcium		
	Phosphorus		
	Magnesium		
	Sulfur		
Trace Elements	*Iron*		
	Zinc		
	Iodine		
	Selenium		
	Copper		
	Manganese		
	Fluoride		
	Chromium		
	Molybdenum		
Fats	*Mono-unsaturated Fat*		
	Poly-Unsaturated Fat		
	Saturated Fat		
	Trans-Fat		

Category	Specific Nutrient	RDA	Upper Limit
Essential Amino Acids	*Histidine*		
	Isoleucine		
	Leucine		
	Lysine		
	Methionine		
	Phenylalanine		
	Threonine		
	Tryptophan		
	Valine		
Non Essential Amino Acids	*Glutamine*		
	Aspartate		
	Glutamate		
	Arginine		
	Alanine		
	Proline		
	Cysteine		
	Asparagine		
	Serine		
	Glycine		
	Tyrosine		
Carbo-hydrates	*Simple*		
	Complex		
Fiber - Soluble	*Inulin*		
	Pectin		
	Gums		
	Polydextrose		
	Polyols		
	Beta Glucans		
	Mucilage		
	Psyllium		
	Resistant Starch		
	Wheat Dextrin		
Insoluble	*Cellulose*		
	Lignin		
Water			