



Unlock Your Immune Potential in the COVID-19 Age and Beyond

“Immune features during each stage of life may affect the types of infections we contract and how well we are able to fight them off. Poor nutrition can compromise immune function and increase the risk of infection.”

Kristy Hall, MS, RNCP, ROHP
Living Well Nutrition:
The Center for Epigenetic Counseling
1435 29th Street
Suite 100
Loveland, CO 80538
970-685-8531
Kristy@LivingWellNutrition.com
<http://www.LivingWellNutrition.com>

Unlock Your Immune Potential in the COVID-19 Age and Beyond

Copyright © 2020 Kristy Hall, MS, RNCP, ROHP, Living Well Nutrition, LLC. All rights reserved. No portion of this publication may be reproduced mechanically, electronically, or by any other means, including photocopying, without written permission of the author. It is illegal to copy this publication, post it to a website, or distribute it by any other means without permission from the author.

Kristy Hall, MS, RNCP, ROHP
Board Certified, Master of Science in Holistic Nutrition
Board Certified Holistic Nutritionist
Certified Culinary Genomics
Certified Epigenetic Nutrition
Certified Medical Nutrition Therapy
Living Well Nutrition:
The Center for Epigenetic Counseling
1435 29th Street
Suite 100
Loveland, CO 80538
970-685-8531
Kristy@LivingWellNutrition.com
<http://www.LivingWellNutrition.com>

Cover Photo credit: Photo by National Cancer Institute on Unsplash

Medical Disclaimer

The statements within this publication have not been evaluated by the Food and Drug Administration. This publication is not intended to diagnose, treat, cure or prevent any disease. If you are pregnant, nursing, taking medication, or have a medical condition, consult your physician before following these guidelines.

Limits of Liability and Disclaimer of Warranty

All information in this publication has been carefully researched and checked for factual accuracy. However, the authors and publishers make no warranty, express or implied, that the information contained herein is appropriate for every individual, situation or purpose, and assume no responsibility for errors or omissions. The reader assumes the risk and full responsibility for all actions, and the authors will not be held responsible for any loss or damage, whether consequential, incidental, special or otherwise that may result from the information presented in this publication.

I have relied on my own experience as well as many different sources for this publication, and we have done our best to check facts and to give credit where it is due. In the event that any material is incorrect or has been used without proper permissions, please contact us so that the oversight can be corrected.

Unlock Your Immune Potential in the COVID-19 Age and Beyond

As we age, risk and severity of infections increases based on how our immune system has developed, matured and declines. There are various factors effecting the state of our immune function including our microbiome, our nutrient status, and more. Our nutrient status has a bidirectional impact on immunity.

Nutrition affects infection affects immunity affects nutrition.

Immune features during each stage of life may affect the types of infections we contract and how well we are able to fight them off. Poor nutrition can compromise immune function and increase the risk of infection.

Key micronutrients needed for a competent immune system: vitamins A, C, D, E, B6, B9, B12 and minerals iron, selenium, and zinc.

Low levels of these nutrients predispose us to certain infections. “Low” levels don’t need to be so low that they are picked up by your doctor or are causing recognizable signs or symptoms. Even ‘subclinical’ levels, meaning they might not be picked up in a clinic as being low. It is important to keep in mind that the recommended levels of nutrients are based on keeping one from getting sick, not based on optimum wellness. For example, vitamin C recommendations are based on what one needs to **not get scurvy**. It is not set for an optimized immune system.

Immune function is supported by restoring low levels of nutrients to optimal levels by increasing resistance to infection. Speed of recovery from infection is also increased when the body has a competent immune system.

OPTIMIZING NUTRIENT LEVELS

It is difficult to restore micronutrient levels to optimal once there is a deficiency. It is best to work with a nutrition professional to identify deficiencies through testing. The best test is a functional micronutrient test that lets us know the four-month average of nutrients on a cellular level.

Analyzing this data, your nutritionist can create a targeted supplement protocol for your unique needs. The best way to replete nutrient deficiencies is with a combination of both diet and supplements.

No Quick Fix

Like healing a broken arm or a sprain, this does not happen overnight. It typically takes 4-6 months to optimize nutrient levels. This is the time the human body needs to have the tools it needs for critical immune function.

Hopefully that gives you the motivation to start NOW!

The Immune System

Our immune system is broadly divided into two main components:

- Innate immunity
- Adaptive immunity

The system has three main players:

- **Physical and biochemical barriers**
- **Various immune cell** (monocytes, neutrophils, complement system, cytokines, and more)
- **Antibodies** (immunoglobulins)

The innate and adaptive immune systems have different working methods, but work hand-in-hand to provide an optimal response to invaders.

The innate immunity uses physical (skin), chemical (gastric acid), and biological barriers (microbiomes) to protect us. It also uses the immune cells to attack and kill invaders.

The adaptive immune system is our second line of defense against invaders, and this is where the antibodies come in.

The adaptive immune system is comprised of B cells and T cells. It takes a much longer time to mount a full adaptive immune defense. The wonderful thing about the adaptive immune system is the system's ability to "remember" invaders. This memory allows it to respond more quickly when it "sees" an invader a second time.

There are several kinds of T cells

- Killer T cells
- Helper T cells
- Regulatory T cells.

The regulatory T cells turn down an immune response. That is very important and is what allows the body to balance an inflammatory response.

The Role of Nutrition

Macronutrients vs Micronutrients

Nutrient status and immune function are tightly linked. Oregon State University reports that "malnutrition is the most common cause of immune deficiency in the world."

While the typical U.S. citizen isn't facing malnutrition, **under nutrition** is actually a very common problem.

With obesity rates rising, we are seeing an abundance of macronutrients (read: food) while seeing subclinical micronutrient deficiencies increasing.

Low levels of micronutrients, even at subclinical levels as mentioned earlier, negatively impact both innate and adaptive immune responses. Obesity, or overnutrition (too many macronutrients) also negatively impacts immune response.

Dietary and lifestyle choices that we make day after day have resulted in excess weight and at the same time low levels of micronutrients. This has increased our risk of infection leading to illness.

Illness in turn increases micronutrient demand, creating a self-perpetuating cycle.

Balance is Everything

It is important to optimize macronutrient and micronutrients to optimize immune response and health.

Macronutrients are proteins, fats, and carbohydrates. Some would argue that fiber should be considered here as well. Certainly, fiber plays a direct role in feeding our microbiome and therefore has a direct impact on immune function.

Proteins are needed in adequate amounts. In the US, protein intake is generally only problematic in the elderly. This is due in part to lower intake, but also can be due to poor digestion. As we age, we produce lower amounts of hydrochloric acid. This begins around age 40 but may be hastened by illness, periods of intense stress, and when micronutrient status is compromised. Improving digestion is key to proper protein status.

Fats, or more specifically our fatty acid balance, is another key function. The standard American Diet (SAD) is high in inflammatory fats and low in anti-inflammatory fats. This imbalance in fats leads to chronic inflammation and sometimes pains.

Inflammation: Foundation for Illness

Chronic inflammation lays the foundation for diseases such as heart disease, cancer, and Type 2 diabetes. These diseases make us more susceptible to Covid-19 and other viruses and infections.

In order to fix this fatty acid imbalance and reduce inflammation, we need to make smarter choices regarding fats.

Selecting and Using Vegetable Oils

First, avoid highly processed poly-unsaturated vegetable oils.

Purchase cold-pressed organic vegetable oils that are sold in dark glass jars. Store these jars away from heat and don't use them for high heat cooking.

For cooking, use oils that are more stable, such as avocado oil. Avocado oil is more saturated which means stable at high heat. It is also very neutral in flavor making it a versatile oil in the kitchen.

Another wonderful oil for making dressings or for low temperature cooking is extra-virgin olive oil. Be sure you're buying extra-virgin olive oil. Stay away from "Light" olive oil. They are frequently cut with a highly processed soy oil that is inflammatory.

Another popular oil for cooking is coconut oil. It is highly saturated making it very stable. Coconut oil also has strong anti-microbial properties. However, even good things can be overdone--including coconut oil. With our gut microbiome playing such an important role in our health, we don't want to use coconut oil to an extreme, due to the anti-microbial properties.

Animal Fats

Another area to consider when thinking about fats is in our choice of animal protein. Corn fed beef is higher in inflammatory fats whereas grass finished beef is higher in anti-inflammatory fats. Today, it is getting easier to find grass fed beef, even being offered many traditional grocery stores.

When choosing animal protein, pick out sources where the animals are allowed to eat a natural diet and live in a natural environment. For example, when choosing eggs, buy eggs from hens that are allowed to spend their days out-of-doors. The way we feed and treat animals has a direct impact on the quality of the food we harvest.

Nuts and Seeds

Nuts and seeds are a great place to get healthy fats as long as they aren't roasted at high temperatures. Instead of buying roasted nuts and seeds, buy raw varieties.

High temperatures damage the fragile fats in nuts and seeds. When you eat these damaged fats, they can set off a cascade of inflammation in you.

You can make delicious "Crispy Nuts" at home by soaking, dehydrating, and seasoning your own snacks at home. These make a great healthier snack alternative to chips. (see recipe section)

Carbohydrates is our last macronutrient. It is arguably the area of our society's greatest weakness and sources of confusion.

When you read carbohydrates, you probably think doughnuts, cookies, cakes, pies, buns, crackers, chips, and more JUNK!

These kinds of foods should be avoided all the time, not just during a pandemic. Foods high in sugar or foods from highly processed grains literally tell our immune system to go on a break for hours at a time.

However, **healthy carbohydrates** nourish our bodies, fuel our immune system, and should fill your plate.

Healthy carbohydrates are vegetables, fruits, and whole grains with the bran intact. These carbohydrates give us fiber to feed the microbiome and give us a full spectrum of micronutrients.

Micronutrients

Several micronutrients have been identified as being critical to immune function. Those critical vitamins and minerals are vitamins A, C, D, E, B6, B9, B12 and minerals iron, selenium, and zinc.

Vitamin A

Vitamin A is well known for supporting healthy eyesight, but it also supports the mucosal layers of the lungs, digestive tract, and genitourinary tracts. It is also necessary for the T cells, B cells and in the development and differentiation of Th1 and Th2 cells. Vitamin A plays an important role in both innate and adaptive immune function. Having optimal levels of vitamin A reduces your risk of infection.

Your body can synthesize vitamin A from beta carotene found in colorful vegetables in your diet. That is, unless you have a genetic weakness in the BCMO1 gene. SNPs, or weaknesses, in this gene significantly reduce your conversion from beta carotene into the active form of vitamin A.

Your [epigenetic nutritionist](#) will be able to see if you have this genetic weakness. They will also be able to help guide you on how much you need to boost your vitamin A levels. While it would be difficult to get too much Vitamin A from your diet alone, because vitamin A is fat-soluble, it will accumulate in your body and therefore it is possible to end up with too much vitamin A if you are taking too much in supplement form.

Signs that you may be low in vitamin A include:

- Dry eyes
- Dry mouth
- Dry skin
- Night blindness
- Frequent respiratory infections
- Fertility problems
- Failure to thrive in children.

If you are low in vitamin A, begin incorporating more active forms of vitamin A into your diet:

Beef liver (Grandma was right!)

Chicken liver (See recipe following)

Butter

Egg yolks

Also, include plenty of servings of vegetables high in beta carotene:

Butternut Squash

Yams

Kale

Carrots

Spinach

Dried apricots

Broccoli

Red bell peppers.

Vitamin C

There are several forms of supplemental vitamin C; ascorbic acid, buffered (usually ascorbic acid with calcium and magnesium), whole foods form (often from cherries or rose hips), and liposomal vitamin C.

I recommend liposomal vitamin C because it gets directly into the cell and doesn't degrade as quickly as other forms of C. The half-life of vitamin C is very short meaning the body uses it up very quickly. Ascorbic acid is active in the body for about an hour and a half whereas liposomal vitamin C is active for about 6 hours.

Vitamin C is a powerful antioxidant and helps to regenerate vitamin E and glutathione, the body's master antioxidant. It is the most important co-factor for creating collagen. In the immune system it promotes the production of leukocytes and natural killer cells, key defense players. It is involved in both innate and adaptive immune function.

As a nutrition professional, I test nutrient levels for clients on a regular basis. Vitamin C is ALWAYS low.

Signs that you may be low in vitamin C include:

Bleeding gums

Bruising

Dry rough skin and hair

Poor immune function

Foods high in vitamin C

- Red and green bell peppers
- Broccoli
- Kiwi
- Oranges
- Papaya
- Kale
- Parsley (see recipes)
- Brussels sprouts
- Cauliflower

Vitamin D

You want the action of vitamin D working for you.

We can get vitamin D from the sun, from our diet, and from supplements. Many people rely solely on the sun, but that can be a costly mistake. There are several genes involved in the synthesis, storage, and transport of vitamin D. I regularly see weaknesses in these genes causing clients to have low levels of this critical nutrient. Even if you have “perfect” vitamin D genes, we usually don’t get enough sun in Colorado during the late fall, winter, early spring to meet our physiological needs—especially since we often use sunscreen which inhibits our absorption of vitamin D from the sun.

[This nutrient is so critical to immune function that I tell my clients to test their levels at least once a year.](#) It is impossible to know how much vitamin D you need to get in your diet or in supplements without testing. There are simply too many genetic variables.

Vitamin D plays a key role in the innate immune system. It stimulates immune cell proliferation and regulates antimicrobial proteins that kill pathogens. In the adaptive immune system, vitamin D is more involved in the suppression of inflammation. Excess inflammation is the focus of many chronic diseases and has been implicated in the worse Covid-19 cases.

Signs that you might be low in vitamin D include:

- Fatigue
- Back pain
- Muscle pain
- Depression
- Bone loss

Sources of dietary vitamin D:

- Cold water fatty fish, wild caught
- Beef liver
- Eggs from free range chickens allowed eat their natural diet (FYI, chickens aren't vegetarians)
- Cheese

You can supplement with vitamin D as well. I personally like [Cod Liver Oil](#) as a supplement. This ensures that you're getting both vitamin A and D in proper ratios and eliminates the concern of vitamin toxicity.

Vitamin E

Vitamin E is really an umbrella term for a family of 8 nutrients known for their antioxidant activity.

Focus on whole food sources of vitamin E for the best balance of the nutrients. More importantly, avoid any synthetic form of vitamin E.

Vitamin E is a potent fighter against reactive oxygen species, (ROS), and plays a role in cardiovascular health and fighting inflammation. It also protects cellular membrane from damage caused by free radicals. In the adaptive immune system, it boosts T cell and Th1 function.

We've seen in Covid-19 that some of the more vulnerable of our population are those with hypertension or cardiovascular disease. I recommend having your intracellular levels tested so you know if improved dietary intake is adequate or if supplementation is needed.

Signs of low vitamin E:

- Poor immune function
- Vision problems
- Balance issues
- Muscle pain
- Numbness and tingling

Sources of dietary vitamin E

- Nuts and seeds (by far your best sources and great on salads or for snacking)
- Avocado
- Leafy greens

Vitamin B6

Vitamin B6, pyrodoxine, fights inflammation, and supports natural killer cells. It is required to metabolize proteins that help build antibodies and cytokines.

Signs that you may be low:

- Fatigue
- Sores in the corner of your mouth
- Poor immune function
- Numbness and tingling in feet

Dietary sources of B6

- Pork
- Chicken, turkey, and other poultry
- Whole grains

Vitamin B9

Vitamin B9 is better known as folate. Folate is sometimes called folic acid, but they are not the same.

We get folate from our diet. *Folic acid is the synthetic form of folate and is not as bioavailable in the body as folate.*

You can get other, more bioavailable forms of folate in supplements. You have access to a variety of [high-quality supplements](#) when you order through my site.

These forms are typically called 5-MTH folate, methylfolate, folinic acid, or methyltetrahydrofolate. All of these are good forms. If you take a multi vitamin and it contains folic acid, that is a clue that you may not be taking a good quality multi.

Folate is critical for methylation, the second most important biochemical pathway in the body. Methylation is involved in detoxification, neurotransmitter production, and in cardiovascular health. In the innate immune system, it maintains natural killer cells. In the adaptive immune system, it is involved in the production of T cells.

Signs that you may be low in folate:

- Fatigue
- Weakness
- Pale skin
- Shortness of breath
- Miscarriage
- High homocysteine lab values

Dietary sources of folate

- Legumes (best by far)
- Asparagus
- Eggs
- Leafy greens
- Beets
- Citrus fruits
- Broccoli
- Beef liver
- Avocado

B12

B12 is often the nutrient that comes to mind when we are feeling fatigue. It is also the nutrient we are often low in when diagnosed with macrocytic or pernicious anemia.

In order to benefit from the B12 in our diet, we must have adequate gastric acid and intrinsic factor. When someone is low in either of these, they will have very low levels of B12 and commonly a genetic weakness in the GIF gene. Each lab will define their “normal” ranges, but books have been written on the need for much higher “normal” ranges for B12.

Ideally, you want numbers above 800 ng/mL, a much higher number than currently recommended. This will ensure that you are not experiencing symptoms of deficiency (I recommend the book, “Could It Be B12?”) Occasionally, I will see a high serum level of B12, but a low intracellular level of B12. In that case, we typically see a problem in the TCN genes. We can support movement of B12 into the cell even when there is genetic weakness, but occasionally, someone will need regular B12 shots. The elder population is particularly at risk for low B12 levels due to declining hydrochloric acid. [I recommend all clients over the age of 55 have their B12 levels checked annually.](#)

For immune function, B12 plays a role in the function of natural killer cells, is an immunomodulator for cellular immunity, and facilitates production of T cells. It is involved in both innate and adaptive immune function.

Signs that you may be low in B12:

- Neurological symptoms
- dementia
- depression
- Balance issues
- Irregular heart rhythm
- Numbness in hands and feet

Dietary Sources high in B12

- Sardines
- Salmon
- Tuna
- Cod
- Lamb
- Scallops
- Shrimp
- Beef
- Yogurt (to a much lesser degree)

Vegan sources of B12 do not provide the same form of cobalamin that you need. If you are a vegetarian or a vegan, please supplement B12. [There are four sources of supplemental B12.](#) One of these should be avoided: cyanocobalamin. The other forms are all bioavailable and suitable for supplementation: adenosylcobalamin, hydroxocobalamin, or methylcobalamin.

Minerals

Zinc

Zinc is known for supporting the epithelial lining of the digestive tract and for helping to clear acne. It also enables us to have a sense of smell. When elderly lose their sense of smell, it is often due to low zinc levels. In order to cleave minerals from our food, we need gastric acid just like we need for B12 and protein digestion.

Zinc also plays a key role in immune function. It helps in immune cell development and differentiation and in Th1 response. And remember, gut health is on the front line of immune function so supporting the epithelial layer is good for our immunity.

Signs that you may be low in zinc:

- Loss of smell
- Loss of appetite
- Loss of hair
- White marks on nails
- Eczema
- Balance issues
- Diarrhea

Dietary sources of zinc

- Shellfish
- Meat
- Nuts and seeds

Dairy and Eggs
Legumes
Dark chocolate

Iron

Iron is critical for energy levels because it moves oxygen from the lungs around the body. Low iron levels are the most common reason for anemia and something we see in the elderly population.

Iron is involved in the regulation of cytokine production and action. It is also involved in the process of killing bacteria by neutrophils. It is important in the differentiation and proliferation of T cells. Iron is involved in DNA synthesis as well. Iron is involved in both the innate and adaptive immune function.

Iron can be found in both animal sources and plant sources. Animal sources of iron are heme iron and are highly bioavailable. Plant sources of iron are non-heme sources. Non-heme iron is not as bioavailable. If you are a vegetarian, plan on eating three times the amount iron suggested by the RDA to make up for the metabolism of the plant-based iron.

Signs that you may iron deficient

Anemia
Fatigue
Shortness of breath
Irregular heart rhythm
Cold hands and feet
Brittle nails

Dietary sources of iron

Oysters, clams, mussels
Beef and chicken liver
Organ meats
Sardines
Beef
Poultry
Tuna
Legumes
Tofu
Baked potatoes
Cashews
Dark green leafy vegetables

Whole grain bread

Selenium

Selenium is an important co-factor for enzymes that act as antioxidants. These enzymes are important for natural killer cells function and T cell proliferation. Selenium is one of the nutrients easiest to meet with dietary intake. Simply eating 2-3 Brazil nuts daily will meet your needs. The only caution with Brazil nuts is to be sure to get fresh nuts due to the issue with mold in Brazil nuts in bulk bins.

Signs you may be low in selenium:

- Poor immune function
- Hair loss
- Muscle weakness
- Mental fog
- Infertility

Dietary sources of selenium:

- Brazil nuts and almonds
- Animal sources, especially Yellowfin tuna
- Baked beans
- Oatmeal
- Spinach

SUMMARY:

Now you have the keys to Unlock Your Immune Potential in the COVID-19 Age and Beyond.

You know what a vital role nutrition plays in your immune response system. You understand that your body needs both macronutrients and micronutrients and what they are. You learned what to look for when at the grocery store, and tips on how to recognize that you may be suffering from subclinical deficiency levels.

Try the following recipes to get your new immune system ally, nutrition, working for you. With the information you learned here, you can adapt some of your own favorite recipes to help your immune system keep you strong.

Give me a call if you have further questions about how you can boost your immune system or improve your health, naturally, through nutrition and lifestyle changes. For now, virtual appointments are available. Call 970-685-8531 or visit our website, LivingWellNutrition.com.

To your health!

Kristy

Recipes

Immune Boosting Breakfast Frittata

Serves: 6-8

- 8 Free Range Eggs (higher in vitamin D vs. Conventional eggs)
- 1 lb Grass-fed ground beef (high in zinc)
- 2 c. Broccoli florets (high in vitamin C)
- ½ Red Bell Pepper (high in vitamin C)
- 2 Leeks (supports gut health)
- 1 c. Shiitake mushrooms (good source of zinc, selenium, vitamins B2, B5, B6, B9, and D)
- ½ c. whole milk or milk substitute such as almond milk
- 1 T avocado oil
- 1.5 t sea salt, divided (higher in trace minerals vs. Table salt)
- 1 t garlic powder
- ½ t red pepper flakes
- ¾ rubbed sage
- ½ c shredded cheese (optional)

Directions

1. Put over rack on third level down and turn on broiler.
2. In a large skillet with slanted sides over medium high heat, add avocado oil, meat, ½ t salt, garlic powder, red pepper flakes, sage.
3. While meat is browning, blanch the broccoli florets.
4. Once meat is browned, add broccoli, red bell pepper, leeks, and mushrooms. Cook just until vegetables begin to soften.
5. Whisk 8 eggs with 1 t. salt and ½ c milk.
6. Evenly spread the meat and vegetables in the skillet and pour eggs over mixture.
7. Cook over medium heat for about 5 minutes until eggs begin to set. With a silicon spatula, gently lift the edges and tilt the skillet so the runny eggs pour underneath.
8. When eggs are almost set, move skillet to the oven. If using cheese, add it on top of your frittata before putting it in the oven. Broil for 10-12 minutes or until the eggs are puffy and set.
9. Serve with a side of berries for an extra immune boost.

Quick and Easy Creole Shrimp

Serves 2

¼ yellow bell pepper, sliced

½ red bell pepper, sliced

1 carrot, cut into match sticks

¼ lg purple onion

1 c. spinach, chiffonade

½ t garlic

1 T. creole seasoning, plus more to taste

½ t. red pepper flakes

1 T. coconut oil

16 medium shrimp, peeled

Directions

Heat pan over medium heat, add coconut oil. Add vegetables except spinach. Cook until crisp tender, about 5-10 minutes. While the vegetables are cooking, season shrimp with the creole seasoning. When the vegetables are crisp tender, add spinach and cover with lid just until wilted, about 30 seconds. Add shrimp. Cook 2-3 minutes until done.

Serve on a bed of wild rice or with a side of baked potatoes dressed with extra virgin olive oil, salt, and pepper.

This dish is high in vitamins A, C, B12, and fiber.

Bacon Wrapped Chicken Liver

Getting people to eat liver is a hard sell! It can be challenging to get a recipe that you like, but the rewards are fantastic. Liver is a nutritional powerhouse! And, when you combine it with bacon, it's a winning combination.

I took these to a New Year's Eve party several years ago to the home of some vegetarian friends. Their kids gobbled them up so fast I hardly had time to grab one. I firmly believe those kids needed the nutrient density the liver offered.

I got a recipe from Monica Corrado several years ago. I have long since lost the actual recipe, but this is what I pull together in my kitchen:

- One container of chicken livers (*this makes a lot, so feel free to start with just a few!*)
- One package of thinly sliced bacon without added nitrites and nitrates, I like the brand Sunday Best
- Brown mustard
- Toothpicks

Directions:

Cut your bacon strips in half.

Cut your liver into bite size or slightly bigger. I'll cut a chicken liver into about 4 bites.

Put just a dab, about $\frac{1}{4}$ t, of brown mustard on the liver and wrap with the bacon. Use a toothpick to secure the bacon. Place the wrapped goodness in a dutch oven. I like to cook these in a dish with high sides because the grease will splatter. You could even put a splatter screen on top.

Broil the wraps until the bacon is done. You'll need to turn them after cooking on one side.

Serve with extra brown mustard.

Crispy Nuts

Nuts are a great everyday treat that give great health benefits when properly prepared. Roasted nuts in the store have been cooked at too high a temperature damaging the fragile oils inside. Instead of buying roasted nuts, prepare raw nuts at home for a guilt free, healthy snack.

Prep time: 10 minutes

Serves: a crowd

Ingredients

- bag raw nuts. Be sure the bag says "raw." Walnuts, almonds, cashews or Brazil nuts are packed with nutrients, but pecans are still my favorite.
- 1 Tbs lemon juice, whey or white vinegar
- 2 quarts warm water

Directions:

1. Pour your nuts into a large bowl, add water and acidic liquid. Stir and cover overnight. The acidic liquid helps to break down phytates that can interfere with absorption of vital minerals.
2. The next morning, pour off the liquid and rinse your nuts. Pour the nuts onto a lined cookie sheet, sprinkle with your desired seasonings, and put in a slow oven. Set your oven on the lowest setting. 160 degrees in best. It will take several hours to dehydrate your nuts. The nuts will not crisp up fully until cool. If your nuts are not crispy, pop them back in the oven.
3. Store in a sealed glass jar. Any amount that will not be eaten within two to three weeks can be frozen for later.

Recipe Note: I like to sprinkle my nuts with sea salt or a spice blend from my favorite herb shop. The Pearl Street Rub tastes just like a popular BBQ chip. For holiday treats, I will slow roast with a little butter and sea salt. You'll have no problem saying no to the chips when you have these little nuggets of goodness available. Eat them plain, sprinkle on salads or sprinkle on a lettuce wrap filled with your favorite meat and vegetables.

Chimichurri

Parsley isn't just pretty. It protects your health by preventing or even treating bad breath, cancer, constipation, type II diabetes, heart disease and ulcers.

It's inexpensive, and when made into chimichurri is simply irresistible.

This recipe came from John, the goat rancher.

This parsley based sauce not only tastes fabulous, it is a nutritional rock star! Make some this week. I dare you not to eat it all.

Prep time: 15 minutes

Serves: 6

Ingredients

- 1 bunch flat leaf parsley
- 8 cloves garlic
- 2 Tablespoons oregano leaves
- 1/2 cup extra virgin olive oil
- 1/8 cup red wine vinegar
- 1/2 teaspoon pink Himalayan sea salt
- 1/2 teaspoon black pepper fresh ground
- 1/4 teaspoon red pepper flakes

Directions:

1. Using a food processor, chop the parsley, oregano, and garlic.
2. Add oil, vinegar, salt, pepper, and red pepper flakes pulsing just until mixed. This should have the same consistency of pesto. Add oil as needed to achieve desired consistency.
3. Serve immediately as a topping for your favorite meat, chicken, fish, pasta, or simply dip vegies in it. This never lasts at my house. Enjoy!

References

Immunity In Depth. (2020, January 02). Retrieved April 14, 2020, from Oregon State <https://lpi.oregonstate.edu/mic/health-disease/immunity>

Maggini, S., Pierre, A., & Calder, P. (2018, October 17). Immune Function and Micronutrient Requirements Change over the Life Course. Retrieved April 14, 2020, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6212925/>