How to Reverse Insulin Resistance: The Secret is Sensitive Cells

The relationship between your cells and your hormones determines, to a large extent, how healthy you are.

For example, when our cells are resistant to the effects of insulin (one of the main anabolic and energy-storage hormones in the body), we have a higher chance of developing metabolic diseases such as type 2 diabetes, obesity, and heart disease.

In contrast, insulin sensitive cells are able to efficiently and effectively respond to insulin in a way that allows us to carry out many of the vital mechanisms needed to maintain health and prevent disease.

Altogether, this biological phenomenon is known as insulin sensitivity, and it plays a significant role in fat loss, hormone balance, metabolic function, and disease prevention. When the majority of our cells aren't insulin sensitive, this can lead to a condition called insulin resistance, which significantly increases the risk of heart disease and type 2 diabetes.

Fortunately, you won't be stuck at a specific level of insulin resistance for the rest of your life. In fact, there are several strategies you can use to increase your receptivity to insulin and reverse insulin resistance – but before we implement them, let's take a closer look at insulin and insulin resistance.

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What is Insulin? The Lifesaving Effects of a Highly Misunderstood Hormone

Insulin is a protein-based hormone secreted by the pancreas in response to increases in blood sugar and certain amino acids. Insulin's primary role is to regulate the nutrients you absorb from food, primarily carbohydrates.

When you eat and digest carbs, it increases how much sugar is in your bloodstream. This is detected by the cells in your pancreas which will then secrete insulin into the blood. Once the insulin is traveling in your bloodstream, it will start binding to your cells and stimulate them to take in and utilize the sugar.

The purpose of this action is to reduce the amount of sugar in your blood and trigger the cells to use it and/or store it. This is essential for our health because abnormally high amounts of sugar in the blood can cause harm throughout the body. In some cases, having high blood sugar levels can even cause major health issues and become fatal if not managed properly.

With that being said, everything about insulin isn't "good." In fact, this (not so) superhero hormone hinders the one key metabolic process that allows us to lose fat: Fat burning.

Insulin, Carbs, Weight Gain, and Fat Loss: What is the Real Cause of the Obesity Epidemic?

With the increasing popularity of low-carb diets and the belief that carbs make you fat, insulin and carbs have been demonized as the reason why we gain fat. Although there is

some truth to this (because insulin tends to stimulate sugar use and shut down fat burning), the hypotheses that arose from this understanding are not supported by the evidence.

For example, one of the most popular explanations for the growing obesity epidemic in westernized countries is that our carb-heavy diets keep our insulin levels so high that it prevents us from burning stored fat. This is known as the "Carbohydrate-Insulin Hypothesis," and it's touted as the main reason for why low carb diets, like the ketogenic diet or the Atkin's diet, are so effective at boosting fat loss.

Makes sense, right? Just cut the carbs to decrease insulin levels, and you will trigger fat burning and lose fat. This hypothesis is accurate in some aspects, but it neglects the bigger picture.

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If we consider the totality of the biochemistry and physiology of digestion and energy metabolism – without exaggerating insulin's effects on fat cells – insulin is simply one piece of information that feeds into what the body decides to do.

Put in another way: insulin provides our cells with info regarding glucose availability and energy status, and our cells will integrate that information with all the other information they have about their own energy status, needs, and abilities to come up with the appropriate actions.

The ultimate result is that cells burn energy when they need fuel and stop burning energy when they don't – insulin is just one of the hormones involved in the decision-making process of the cells. This means that your energy intake (i.e., calorie consumption) is the ultimate determining factor of whether you gain or lose weight. Insulin is but one of the multitude of factors that determines what you do with the calories you consume.

The Relationship between Insulin, Insulin Resistance, and Insulin Sensitivity

With this deeper understanding of the relationship between insulin and our cells, a much more accurate model of insulin resistance arises as well. Although carbs are the main reason why insulin is released, what is going in the cell is the ultimate determinant of how it will respond to that insulin.

Thus, the key to reversing insulin resistance as a whole is increasing the insulin sensitivity of each individual cell. Sounds simple enough, but how can accomplish such a solely cellular feat? To answer this question, we must develop a better sense of insulin sensitivity.

What is Insulin Sensitivity Exactly?

Insulin sensitivity is the term that we use to describe how the cells in our body respond to insulin. The more insulin sensitive your cells are, the more responsive they will be to insulin, and vice versa.

To measure this phenomenon objectively, we need to figure out how much insulin your body needs to produce to deposit a certain amount of glucose (sugar). You are considered insulin sensitive if your body only needs to secrete a small amount of insulin to deposit glucose into the cells, and you are considered insulin resistant when you need a higher than normal dose of insulin for the cells to respond.

Insulin sensitivity has turned into a widespread phenomenon in the weight loss industry because of the strong correlation between insulin sensitivity and body fat percentage. The research literature suggests that increasing your insulin

sensitivity (which also means decreasing your insulin resistance) will reduce your risk of heart disease, type 2 diabetes, obesity, and Alzheimer's disease. In other words, if you want to lose fat and improve your overall health, it is probably best to optimize your insulin sensitivity.

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What Determines How Insulin Resistant You Are?

Both modifiable and non-modifiable factors determine the degree to which you are insulin sensitive or insulin resistant.

Non-modifiable factors are factors that cannot be changed. Some examples of **non-modifiable factors** that decrease insulin sensitivity are:

- **Increasing age.** Research has found increasing age to be associated with increased insulin resistance. However, it is possible to prevent this decline in insulin sensitivity with the lifestyle changes we will talk about later.
- **Genetics.** Your genes can determine how sensitive certain cells are to insulin. For one example of what I mean by this, check out our article on polycystic ovary syndrome – a condition that is intimately linked with cells that were left vulnerable to insulin resistance by specific genes.
- **A family history of type 2 diabetes.** The combination of genetic and environmental factors that come with your family history can leave you with a higher risk of developing insulin resistance.
- **Ethnic background.** If you are of African-American, Asian-American, Latino/Hispanic-American, Native

American, or Pacific Islander descent, you have a greater likelihood of developing insulin resistance.

In contrast, **the modifiable factors** (i.e., what you can actually do to increase your insulin sensitivity) are

- losing weight
- reducing stress levels
- maintaining a calorie deficit
- decreasing caffeine consumption
- eating less processed foods and sugar
- exercising
- getting adequate sleep
- taking specific supplements and/or drugs that decrease insulin resistance
- fasting/intermittent fasting
- and many more that we will take a closer look at later in this article

By neglecting to use these modifiable risk factors to your advantage, you will steadily reduce your insulin sensitivity and set the stage for insulin resistance and the conditions that come with it.

The Big Picture – Insulin Sensitivity and Insulin Resistance

The physiology of insulin resistance is so complex that we aren't even close to explaining it all. However, it is possible to distill our learnings into one simple concept that will help you understand what causes insulin resistance and increases insulin sensitivity for most people:

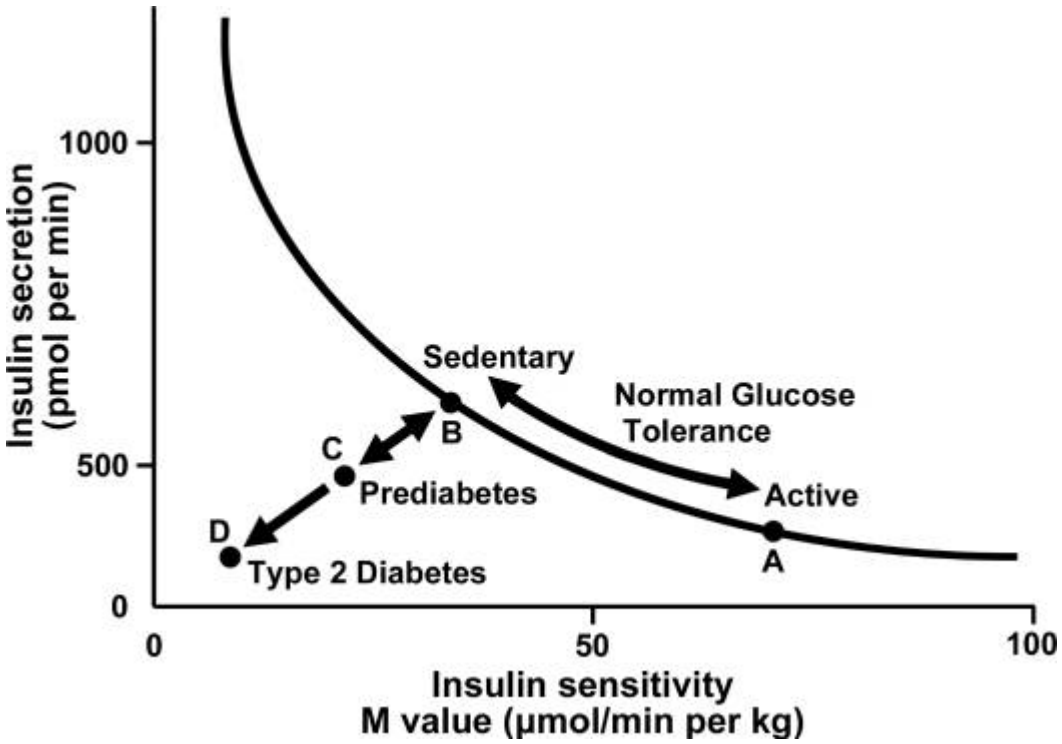
- Increased energy status will cause your cells to become more insulin resistant and less insulin sensitive over time.
- Decreased energy status will cause your cells to become less insulin resistant and more insulin sensitive over

time.

By energy status, I mean the current state of your cells. Are they being bathed in energy molecules without any demand to use it up? This is “high energy status”, and it occurs when we are inactive and overeat.

In contrast, if your cells are in need of more energy to keep up with your body’s demands, then this indicates that you are in “low energy status.” As a result, your cells will increase their sensitivity to insulin so that they don’t miss out on the opportunity to get more fuel.

To further illustrate the big picture of insulin resistance, here is a graph from an article published in Comprehensive Physiology:



This graph depicts the relationships between insulin secretion and insulin sensitivity. Insulin secretion rises as insulin sensitivity falls when an individual goes from a state of exercise training/being physically active (point A) to inactivity/sedentary (point B).

Conversely, insulin secretion decreases as insulin sensitivity

increases when a person goes from inactivity/sedentary (point B) to physically active (point A). This is what commonly occurs in healthy individuals.

However, when insulin secretion fails to compensate for a fall in insulin sensitivity, the person will progress to prediabetes (Point C). If no changes are made at this point, the disease will progress from point C to Point D (type 2 diabetes). The only way to prevent this from happening is by improving your insulin sensitivity.

Ten Ways to Reduce Insulin Resistance and Increase Insulin Sensitivity

Luckily, insulin resistance isn't a fixed mechanism in the body (even if you have all of the non-modifiable factors). It can be drastically improved (and potentially reversed) with simple lifestyle modifications.

Here are ten proven strategies you can use to help you optimize your insulin sensitivity:

1. Follow a Whole Food, Plant-Based Diet.

Simple sugar stimulates the most insulin release of all the macronutrients so, theoretically, removing carb-rich processed foods from your diet should decrease insulin levels and improve insulin sensitivity to some degree. This speculation is backed up by the research on how low carb diets affect patients with type 2 diabetes.

Also worth noting is the fact that whole foods are much more satiating and contain more fiber than processed foods. By increasing the satiety of our diet, we tend to eat fewer calories (decreasing the energy status of our cells), and the extra fiber helps slow carbohydrate and protein absorption,

decreasing our insulin requirements and reducing insulin resistance.

2. Lose Fat.

Studies have shown that having high amounts of fat, especially around your midsection, can produce harmful chemicals and hormones responsible for increasing insulin resistance and inflammation.

Simply by losing excess fat, insulin sensitivity and metabolic function will improve significantly. More specifically, one study found that a weight loss of 5 percent is all obese patients need to experience some of the positive effects of fat loss on insulin sensitivity.

One of the most effective ways to lose fat is by replacing all the processed foods with high-quality whole foods.

3. Add Fasting and/or Intermittent Fasting to Your Lifestyle.

We learned earlier that low energy status increases insulin sensitivity. Although following a healthy diet is one of the best ways to achieve a lower energy status, sprinkling in some fasting and/or intermittent fasting throughout your diet plan can help as well.

A pilot study found that intermittent fasting for 2 weeks (with a 18-20 hour fasting window) helped to improve blood sugar levels with a trend toward improved insulin sensitivity in type 2 diabetics.

The research on dietary interventions for type 2 diabetes also suggests that calorie restriction is one of the major factors that can help manage and potentially reverse the disease. One way to achieve this, which was confirmed by the pilot study on intermittent fasting, is by restricting your feeding window,

so you eat fewer calories throughout the day.

By eating fewer calories, you decrease your energy status, which improves overall insulin sensitivity.

However, there is one caveat to fasting and intermittent fasting for people who have diabetes. Since both forms of fasting can cause significant changes in blood sugar levels, it is best to consult your doctor before adding them to your treatment plan.

4. Add Aerobic and Anaerobic Exercise to Your Weekly Schedule.

Want to improve your insulin sensitivity as rapidly as possible? Start working out, right now.

Exercise draws upon our energy stores so much that many of the cells throughout our body have to make themselves sensitive to insulin to ensure that they will get the energy they need.

Fortunately, both aerobic and anaerobic exercise will reduce your insulin resistance in a variety of ways, so the type of exercise you do is entirely up to you.

Aerobic exercise involves any form of physical activity that requires you to exercise for a prolonged period of time without rest breaks. This includes jogging, swimming, or anything where you're moving your body at a steady state for 30 minutes or longer.

Anaerobic exercise, such as lifting weights, sprinting, and intense rowing/cycling, can also drastically improve your insulin sensitivity.

In general, it is best to aim for five hours of exercise per week. Research suggests that this is the sweet spot for significantly improving your insulin sensitivity.
To get the best results, I recommend doing a combination of

aerobic and anaerobic exercise throughout the week. Anaerobic exercise will help you build more muscle and burn through glycogen stores, which keeps your insulin sensitivity high, while aerobic exercise will ensure that your cells never have a chance to increase their insulin resistance to unhealthy levels.

5. Reduce Your Stress Levels.

Stress, physical or emotional, causes us to secrete cortisol.

When cortisol is circulating through the blood, it stimulates various mechanisms in your body that increase your blood sugar levels, providing you with the energy you need to handle the stressful situation. One way that cortisol does this is by increasing insulin resistance.

Once the body has taken care of the stress-inducing situation, cortisol will be broken down as insulin sensitivity is restored. This response to stress is healthy and normal – in the short term.
However, most people in modern society are typically stressed for the majority of the day. With every stressor comes more cortisol, decreased insulin sensitivity, and more stress. The only way to stop this cycle is by giving your body a chance to relax and recover from your daily stressors.

Here are some helpful strategies you can use reduce your stress levels and decrease insulin resistance:

- Meditate
- Take a short nap
- Do yoga, tai chi, and/or qi gong
- Quit smoking
- Exercise regularly
- Maintain a good sleep schedule
- Use adaptogenic herbs like Rhodiola and Ashwagandha
- Supplement with vitamins and minerals that you may be

deficient in (magnesium and vitamins C, E, B, and D, in particular, can help with stress)

6. Get Adequate Sleep Every Night.

When you don’t get enough sleep, your body’s hunger hormone, ghrelin, begins to fluctuate, and your cortisol levels elevate. Simply put, losing sleep will cause you to feel hungrier than usual while simultaneously increasing your stress levels and insulin resistance (thanks to cortisol).

Altogether, these hormonal changes will typically cause you to eat more and struggle to regulate glucose effectively when you do have those extra calories. The best way to counteract this is by going to sleep at the same time every night and waking up at around the same time every day after getting at least 7 hours of sleep.

7. Consume More Soluble Fiber.

Of the two types of fiber, insoluble and soluble, soluble fiber is most notable when it comes to reducing insulin resistance. This is because soluble fibers slow down the movement of food through the small intestines, which helps reduce the amount of sugar that enters your blood, decrease appetite, and lower cholesterol levels.

Not sure how to get more soluble fiber? Here are some of the healthiest sources (as long as your digestive system can tolerate them):

- Cruciferous vegetables
- Leafy greens
- Pumpkin seeds
- Sunflower seeds
- Legumes
- Oats

8. Add More Fruits, Vegetables, Herbs, and Spices to Your Diet.

Many studies have found that a diet rich in plant compounds from fruits and vegetables is linked to reduced insulin resistance. The healthiest plants tend to be low-carb fruits and vegetables like wild berries, leafy greens, and cruciferous vegetables.

Herbs and spices have also shown promising results for boosting insulin sensitivity. Some of the most effective are:

- **Turmeric**: This powerful herb contains a compound called curcumin, which has potent antioxidant and anti-inflammatory properties. It can indirectly increase insulin sensitivity by reducing free fatty acids and sugar in the blood.
- **Ginger**: This popular spice is linked to increased insulin sensitivity as well. Studies have found that its active component, gingerol, makes muscle cells more receptive to sugar.
- **Garlic**: Garlic has antioxidant properties that may directly increase insulin sensitivity, according to animal studies.
- **Cinnamon**: This popular spice is well-known for its ability to reduce blood sugar and increase insulin sensitivity. One meta-analysis found that consuming 1/2–3 teaspoons (1–6 grams) of cinnamon daily can significantly reduce short- and long-term blood sugar levels.

9. Drink Green Tea

Green tea an excellent choice for people who are struggling to manage their blood sugar levels. Several studies have found that drinking green tea can increase insulin sensitivity and reduce blood sugar levels.

The beneficial effects of green tea could be due to its powerful antioxidant epigallocatechin gallate (EGCG), which many studies have found to increase insulin sensitivity on its own.

Supplementing with decaffeinated green tea extract may be the best option since caffeine has been found to increase insulin resistance.

10. Experiment with Supplements that Help Reduce Insulin Resistance.

There are many supplements that can help with insulin resistance, but let's stick with the ones that are backed by research:

- **Resveratrol**: This is a polyphenolic compound that can be found in red wine and is known for its antioxidant benefits. High-quality evidence indicates that resveratrol can boost glucose uptake significantly without increasing insulin needs.
- **Alpha Lipoic Acid**: Alpha Lipoic Acid (ALA) is an organosulfur compound that is essential for aerobic energy metabolism. Many studies have reported that supplementation with this compound can help reduce insulin resistance in subjects with type 2 diabetes.
- **Berberine**. This is a plant alkaloid that has been shown to lower blood glucose in many cases. Some researchers have even found berberine to be as effective as the popular diabetes drug, metformin.
- **Chromium**: Some evidence indicates that this essential trace element has the ability to indirectly increase insulin sensitivity.
- **Magnesium**: This essential mineral is so crucial for proper insulin signaling that magnesium deficiency can worsen insulin sensitivity.
- **Gymnema Sylvestre**: It lowers blood sugar and is also

called gurmar, which means “destroyer of sugar” in Hindi.

How to Know If These Changes are Reversing Your Insulin Resistance

The quickest and safest way to find out if you are insulin resistant is to get a test done by your doctor. The most reliable test is called HOMA-IR, which makes an accurate guess regarding your body’s insulin resistance by tracking your blood sugar and insulin levels over time.

You can also measure your blood sugar fluctuations directly with an oral glucose tolerance test. This test consists of multiple blood tests and the ingestion of a glucose solution as a way to see how your body handles an increase in blood sugar levels.

Despite how helpful both of these tests are, they are inconvenient and unnecessary for most people. A more accessible way to track your level of insulin resistance is by seeing how your blood work and other key health indicators change as you make the appropriate dietary and lifestyle adjustments.

For example, if your blood sugar levels, blood lipids, and blood pressure reach healthier levels, then you are most likely improving your insulin sensitivity, reducing your insulin resistance, and optimizing your health. Furthermore, if you are losing inches off your waist, then you are almost certainly making your cells more sensitive and less resistant to insulin.

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Eliminate Acne For Good (No,

It’s Not Another Skin Product)

Acne vulgaris is now the most common skin disease of western civilization. Over 85% of adolescents and around 50% of people who are over the age of 25 struggle with acne – and its prevalence keeps rising. Clearly, the “doctor recommended” antibiotics and skin creams aren’t helping much.

Fortunately, recent research suggests that we can eliminate whiteheads, blackheads, and red bumps with what we eat. But, is this really possible? Can we treat acne from the inside out with diet?

Why yes, yes we can. To understand how this is possible, we need to look beyond the surface of the skin.

The Acne Epidemic – A Side Effect of Western Culture

Genetics strongly influence your risk of developing acne, but acne-causing genes cannot explain the rapid increases in the incidence of acne. Population-based studies, on the other hand, suggest that diet may have the most profound impact on the severity and prevalence of acne – more so than skin hygiene, smoking, and stress (which all have been found to have little to no association with acne).

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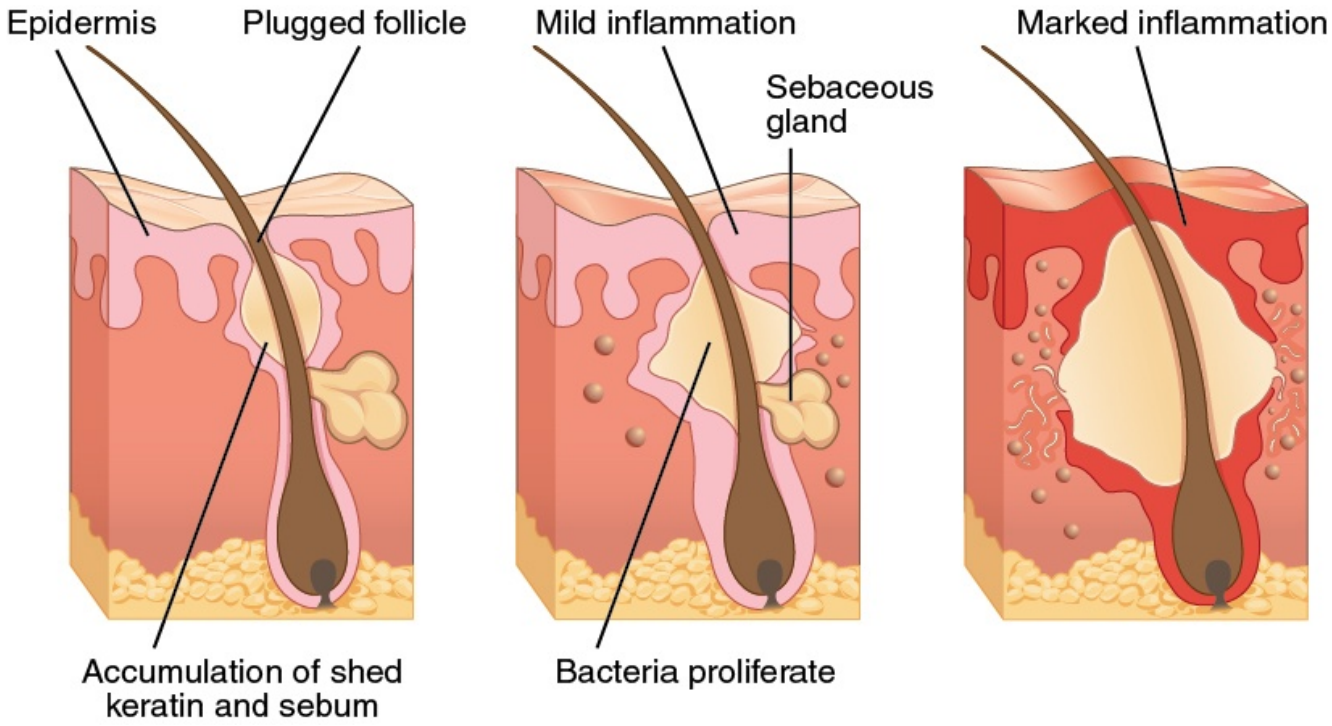
More specifically, the western diet seems to be the main instigator of the current acne epidemic. Conversely, when we look at the data from other non-westernized cultures – such as the Inuit, Okinawan Islanders, Ache hunter-gatherers, and Kitavan Islanders – acne is a rarity.

But before we jump to any conclusions, we must keep in mind

that this is epidemiological data. From this evidence, we cannot assume that the western diet causes acne. This data doesn't even provide us with strong enough evidence to claim that any diet can increase or decrease the risk of acne (there are too many confounding variables). Only when we look at the physiological mechanisms behind the creation of pimples, blackheads, and red bumps will we be able to figure out if diet can play a role in the development of acne.

The Formation of Acne – An Inside Look at Our Poor Pores



Whiteheads, blackheads, and red bumps are formed when there is:

1. Increased reproduction of skin cells within the ducts that carry oily lubrication to the skin and hair.
2. Abnormal shedding of the skin cells around the hair follicle.
3. Increased production of sebum – the oily, waxy substance

that waterproofs and lubricates the skin and hair.
4. Colonization of the uppermost layer of the skin (stratum corneum) by a bacterium called Propionibacterium acnes, resulting in inflammation (red bumps).

As a result of these four factors, dead skin cells will stick together with the help of the excess oily sebum. This will block the pore of the hair follicle, forming a microcomedone (a clogged skin pore).

Related: ***Holistic Guide to Healing the Endocrine System and Balancing Our Hormones***

If the microcomedone is closer to the skin, then the skin pigment called melanin will be oxidized by the air, creating what we know as a "blackhead". On the other hand, a whitehead is formed when the microcomedone occurs deep within the hair follicle. Both whiteheads and blackheads (in their early and late stages) provide an ideal environment for Propionibacterium acnes to proliferate. As the bacteria continue to colonize the area, they trigger an inflammatory response that leads to redness, tenderness, and swelling.

What creates this chaos in the skin? The current research indicates that the main culprits are insulin and other hormones that are influenced by insulin, such as testosterone, dihydrotestosterone (DHT), and dehydroepiandrosterone (DHEA), growth hormone (GH) and insulin-like growth factor 1 (IGF-1). For example, DHT and DHEA seem to increase oily sebum production, while GH and IGF-1 appear to trigger the overproduction of the specific skin cells. When these hormones are chronically high, they will disrupt the homeostasis of the skin and stimulate acne production.

The Bigger Picture of Hormones,

Acne, And Health

A helpful example of how hormones affect skin health can be found when we look at specific medical conditions that result from hormonal imbalances. Polycystic ovary syndrome (PCOS), for example, is typically caused by unhealthy increases in androgens (like DHT) in women. As a result, many women with PCOS also have acne.

Conversely, people who lack androgens or are insensitive to the effects of androgens rarely have acne. This is the main reason why people with androgen insensitivity syndrome never develop acne.

A more prevalent example of how closely linked acne and hormones are can be found in teenagers. When teenagers (and some preteens) hit puberty, they experience rapid increases in many of the hormones we mentioned above. This results in rapid growth and sexual maturation with the unfortunate side effect of acne (for most adolescents).

But don't mistake genetics and puberty as the only contributing factors to acne formation. If we look back at the data from population-based studies comparing the incidence of acne in westernized and non-westernized societies and combine that with our knowledge of the physiological mechanisms of acne, an interesting pattern emerges.

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Since insulin and other hormones that are influenced by insulin instigate the chaos in the skin that leads to acne and high-carb, sugary foods stimulate insulin, doesn't this mean that people who eat a diet filled with these processed foods will most likely develop acne?

When we look at the population-based studies, this seems to be true – especially since westernized societies eat more

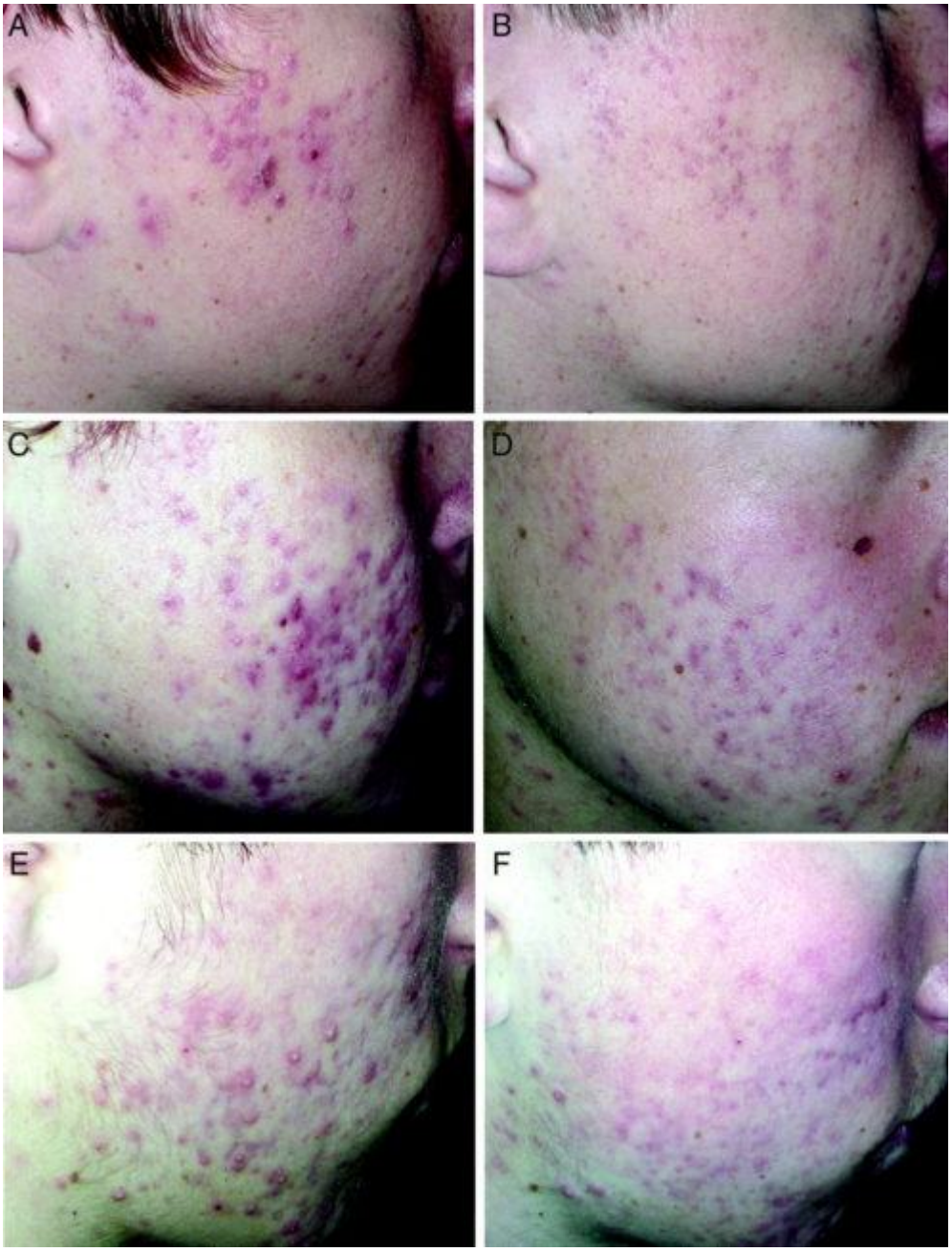
processed sugary foods than any other culture. Yet, this is purely a contention held by many researchers. To find out if this is what really occurs in humans, we need some high-quality scientific evidence from clinical trials.

High Glycemic Load Diet vs. Low Glycemic Load Diet – Can Diet Treat Acne?

To our knowledge, there is one study that explored the therapeutic effects of diet on acne. In this study, a total of 43 male patients with acne who were between the ages of 15 and 25 completed either a 12-week high glycemic load diet or a 12-week low glycemic load diet.

At 12 weeks, the average number of lesions in the low glycemic load diet group fell by 51% – nearly twice the reduction that was found in the high glycemic load diet.

Below are some photos of the results from the subjects in the low glycemic load diet group:



These are pretty astounding results, especially when you consider what the researchers define as a low glycemic load diet:

> *The LGL [low glycemic load] group was instructed to substitute high-GI foods with foods higher in protein (e.g., lean meat, poultry, or fish) or with foods with a lower GI (e.g., whole-grain bread, pasta, and fruit). Some staple foods were supplied, and the participants were urged to consume these or similar foods daily. The recommended LGL diet consisted of 25% of energy from protein, 45% from low-GI carbohydrates, and 30% energy from fats.”*

This diet has a lower glycemic load than the standard American diet, but I wouldn't consider this a "low glycemic load diet". Some of the foods included in this diet like grains, pasta, and some fruits can provoke an unhealthy glycemic response, especially when they are eaten in high quantities.

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Just imagine what would've happened if they eliminated low fiber, high sugar foods completely. Even better results, perhaps?

Unfortunately, there are no other research studies that can provide us with a conclusive answer.

However, we can make a couple reasonable assumptions from this data:

- Diet definitely plays a role in the incidence and severity of acne in western populations.
- If you eat more whole foods and less processed foods, then the severity of acne will most likely be reduced.
- Insulin levels and acne severity are related.

With that being said, many questions still remain unanswered. Here are some that come to mind for me:

- Are insulin levels and acne severity so strongly linked that a decrease in insulin levels will improve skin health?
- Will a low sugar, whole food diet have the same effect on women with acne?

What This Means For You And Your Acne

The researchers of the previous study suggest that losing weight and eating more low-GI foods like meat and low-carb vegetables will create favorable changes in the body that

improve skin health. The researchers also explored the implications their findings have for women by relating acne to PCOS.

They went on to explain how both PCOS and acne can be caused by chronically high insulin levels. In fact, women with PCOS typically have acne and some degree of insulin resistance. The research on PCOS suggests that low carb diets (a variation of a low glycemic load diet) are the best diet to help reverse PCOS and its symptoms (like acne), so it is fair to assume that eating in this way will also improve acne in women without PCOS.

What does this mean for you and your loved ones who have acne? That you can all benefit from cutting out processed, sugar-laden foods your diet. However, this way of eating may not eliminate your acne completely. Some studies suggest that dairy can play a role in worsening acne as well.

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Dairy – Just As Bad As Sugar for the Skin?

Insulin and basal IGF-I plasma levels are major players when it comes to acne, and high sugar foods aren't the only thing that increases IGF-1 and insulin to unreasonable levels. Dairy products can provoke unhealthy insulin and IGF-1 levels as well.

Although there are no clinical trials on the impact of milk consumption on acne, three large population-based studies reported a positive association between milk intake and acne. This association is probably due to the fact that the natural hormones in milk (designed to help the calves grow into massive animals) may survive milk processing and stimulate the many processes that lead to acne production. Furthermore, the

whey protein that is found in most dairy products also creates a potent insulin response that may further exacerbate any acne issues.

If you suspect that your dairy consumption could be harming your skin health, then consider replacing it with dairy-alternatives. Here is a list of some suggestions to make it easier for you:

- **Use coconut milk instead of milk.** In recipes, you can substitute coconut milk in for regular milk in a 1 to 1 ratio.
- **Replace heavy cream with coconut cream.** Make sure the coconut cream doesn't have any added sugars.
- **Replace dairy-based cheese with vegan cheese.** My personal favorite dairy-free cheese-making companies are Treeline and Miyoko's Kitchen. Their cheeses are some of the best I've ever tasted. In fact, many people think that they are better than traditional dairy-based cheese. If Treeline or Miyoko's Kitchen doesn't have the cheese you are looking for, then try Follow Your Heart's vegan cheese. Follow Your Heart makes almost every type of dairy-free cheese you could ever want.
- **Instead of Cream Cheese, have Nut-Based Soft Cheese.** Treeline makes a cashew-based soft cheese that is delicious and savory, and it has almost the same texture as cream cheese.
- **Replace Yogurt and Sour Cream with Nut-Based Yogurt.** At your local health food market, you will probably be able to find plain almond, cashew, or coconut milk yogurt. Just make sure it has no added sugars or dubious ingredients.
- **Instead of Butter use Coconut Oil or Vegan Butter.** Coconut oil has a slightly lower melting point than butter and the same smoke point as butter, which makes it a good butter replacement. If you are not a fan of the flavor of coconut oil, look for dairy-free butter in

your local health food store. Make sure the vegan butter doesn't contain any hydrogenated oils, vegetable oils, or soy oils. You can also make your own vegan butter by following recipes online – Just search for "Vegan Butter".

Seven More Ways to Improve Skin Health And Reduce Acne

Altogether, limiting your sugar and dairy intake should have a massive impact on your skin health. If this approach isn't working as well as you'd like after a couple of weeks, then try some of these suggestions:

- **Supplement with Omega 3s.** Long-chain omega-3 fatty acids found in fish are anti-inflammatory and may improve skin health. The best sources include wild-caught salmon, mackerel, sardines, herring, and anchovies. Or if you don't want to eat fish, supplement with some vegan omega 3s that are derived from algal oil.
- **Eat non-starchy vegetables with every meal.** Leafy greens and cruciferous vegetables help promote hormonal regulation and improve skin health.
- **Take caffeine-free green tea extract**. Green tea is the best source of the antioxidant EGCG (Epigallocatechin gallate). A 2016 study found that green tea extract significantly reduced acne lesions in adult women with moderate to severe acne. We suggest taking the caffeine-free extract to mitigate the adrenal stress that is typically caused by caffeine.
- **Limit dark chocolate consumption.** A 2016 study found that 99% dark chocolate might significantly worsen breakouts in acne-prone men. For this reason, you may want to limit dark chocolate intake.
- **Eat only whole foods.** Stick to whole foods whenever possible. Avoid anything with added sugars, even if they

are natural sweeteners like honey and coconut sugar.
- **Exercise daily.** Consider adding a 15-30 min walk to your daily schedule. This will increase your insulin sensitivity, decrease your insulin levels, and reduce the severity of your acne as a result.
- **Experiment with intermittent fasting.** By restricting your calorie intake to an 8-hour eating window every day, you can decrease your insulin and IGF-1 levels more than you would by eating normally throughout the day.

Related: ***Inexpensive, Easy Detox – The One Gallon Challenge***

Putting it All Together – The Best Diet For Eliminating Acne

The current evidence suggests that processed foods – specifically foods that are high in sugar and low in fiber – are the likely cause of the current acne epidemic in westernized societies. The reason why I say "likely cause" is because the existing data is scarce.

However, with our current knowledge of the physiology of acne, the prevalence of acne in westernized vs. non-westernized societies, and the results from the clinical trial on how diet affects the severity of acne, we have enough evidence to suggest that cutting out processed foods from the diet and replacing them with whole foods is one of the best (and healthiest) treatments for acne.

To put it more simply, your skin will be much healthier if you use your money to buy more organic vegetables instead of expensive creams and ineffective antibiotics.

Once you've adopted a low sugar, whole food diet into your life, you can improve skin health even further by:

- supplementing with omega 3s
- eating low-carb vegetables with every meal

- taking EGCG
- limiting dark chocolate consumption
- exercising daily
- experimenting with intermittent fasting

When you combine these suggestions together with a low sugar, whole food diet, your skin will start clearing up and your health will improve tremendously. Keep in mind, however, that it may take a couple of weeks to months before you see noticeable results – just like it did for the participants in the study we looked at earlier.

Recommended Reading:

- *Detox Cheap and Easy Without Fasting – Recipes Included*
- *Start Eating Like That and Start Eating Like This – Your Guide to Homeostasis Through Diet*
- *How to Make the Healthiest Smoothies – 4 Recipes*

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CBD Oil – A Comprehensive Guide To Cannabidiol

Cannabis, marijuana, weed, pot – no matter what you call it – it contains CBD. Although it won't get you high, this plant compound can take your health to the next level.

What is CBD and CBD Oil?

Cannabidiol, commonly referred to as CBD, is one of over 60 compounds called cannabinoids that are most commonly found in the cannabis plant. Most cannabis plants contain less than 4% CBD, so the only way to get a good amount of this cannabinoid is from pure CBD oil. Most CBD oil is extracted from industrial hemp, which usually has a higher CBD content than marijuana. After extraction, the CBD is added to a carrier oil and sold at many different potencies to be used in a variety of different ways.

However, before we go deeper into the uses of CBD oil, we need

a better understanding of what sets it apart from other cannabinoids. For example, you might already be familiar with another popular cannabinoid found in cannabis called THC. THC is infamous for being the reason why we get high when we smoke or consume "edibles," but it also has a non-psychoactive form called THCA that is present when cannabis is in its raw form. CBD, on the other hand, plays many different roles in the body and never gets you high regardless of how much you smoke it.

The Difference Between THCA, THC, and CBD

Industrial hemp (a popular variety of the cannabis plant) tests out at less than 0.3% THC. THC rich cannabis in its raw form is non-psychoactive. "Raw" THC is actually THCA. What we call "Marijuana" is cannabis that tests out with THCA between 5 and 35%.

THCA is beginning to demonstrate immense therapeutic qualities. Some people add THCA-rich cannabis leaves and flowers to their salads and smoothies, others consume with a tincture.

Related: ***How to Make the Healthiest Smoothies – 4 Recipes***

THCA becomes the psychoactive THC through a chemical process called decarboxylation, which occurs with heat and time. The delivery methods for THC are smoking, vaporizing, and consuming "edibles." Drying and curing cannabis will cause some decarboxylation to occur. Cured cannabis flowers will often test for small amounts of THC along with THCA. THC is fat soluble (and not water soluble). THC infused cooking, from pesto to chocolate, is made by heating ground up THCA rich cannabis with oil at 220 degrees Fahrenheit (104 Celsius) for 30 to 45 minutes. THC rich treats are commonly referred to as "edibles," and they typically have massive amounts of sugar btw!

THCA’s Therapeutic Properties

THCA is the most abundant cannabinoid in a plant, depending on the time at when it is tested. THCA has been seen to have many benefits in a limited number of studies. Studies have found THCA to be anti-inflammatory, neuro-protective, anti-emetic, and anti-proliferative. There is plenty more this compound can do, and there are other cannabinoids, like the many varieties of terpenes and THCV, all proving to have some similar and some very different effects, and many of which are proving to be medical viable in very different ways.

The science on all of these other cannabinoids is in its infancy. The cannabinoids that we know most about, however, are CBD and THC.

The Relationship Between CBD and THC

In particular, the effect that CBD can have when ingested with THC has garnered significant interest. What research has found so far is fascinating.

For example, when active THC is ingested alone, it increases pulse rate, disturbs time tasks, and induces strong psychological reactions in some people, but when CBD is ingested with the THC, it blocks most of these adverse effects.

CBD also has been found to decrease the anxiety component of a THC “high” in such a way that the study subjects reported more pleasurable effects when CBD was included with the THC. This evidence suggests that it is better for our health to have a higher percentage of CBD in or with our cannabis if we decide to ingest the plant in any form.

The Dark Side of Cannabis

It is an even better idea, however, to rarely consume THC unless you have a medical condition that has been proven to be helped by a combination of THC and CBD. When we look through the research, you will see why I am making such a cautionary statement about THC.

In a scientific paper on the current state of cannabinoid research, the authors found that the current trend for preferring higher THC content in cannabis carries significant health risks, particularly to those who are susceptible to its harmful effects. For example, Morgan and colleagues carried out a study on 120 current cannabis users, which included 66 daily and 54 recreational users, whose hair analyses revealed their THC and CBD amounts. The study found that higher THC levels in the hair of the daily users were associated with increased depression and anxiety, as well as weaker performance on memory tasks. On the other hand, higher CBD levels in the hair were associated with lower psychosis-like symptoms and better memory.

Epidemiological studies also point toward an association between the use of cannabis and the increased risk of developing a psychotic illness, in a dose-dependent manner. In other words, what this study found is that you are more likely to develop a mental disorder as your THC consumption increases. On top of that, they also found that increased cannabis use is often accompanied by symptoms of depression and anxiety.

However, this is only epidemiological evidence, so it should only be used to inform further experimentation on THC’s effects. The truth is that only a small minority develop a full-blown psychotic illness in the form of schizophrenia or bipolar disorder. The majority of cannabis users, ranging from 15% to 50%, will only experience transient psychotic symptoms

of brief duration, for a couple of hours to up to a week, and will usually recover without requiring any intervention.

These “transient psychotic symptoms” may be experienced in the form of an auditory hallucination like hearing voices or by having increased anxiety or paranoia for hours to days after the THC high wears off.

Whether you experience unpleasant side effects from THC use or not, it is best for anyone who has a family history of psychosis or anyone who has had symptoms of psychosis in the past to avoid THC altogether. On the other hand, CBD rarely causes side effects, and when it does, they are relatively minor.

The Side Effects of CBD oil

CBD oil is well tolerated by most people, but there are some potential side effects – especially at higher doses. According to a review in *Cannabis and Cannabinoid Research*, the most common side effects include:

- tiredness
- diarrhea
- changes in appetite
- weight gain or weight loss

Another review of the potential side effects in humans found that CBD rarely causes issues with dosages of up to 1500 mg/day (orally). The good news is that most people won’t even need to take half that dose to reap the benefits of CBD.

The Benefits of CBD Oil

Although the research regarding CBD’s effects on the body is in its early stages, it has already been found to affect the body in various ways.

Preliminary evidence suggests that CBD oil:

- modulates the immune system
- reduces inflammation
- decreases seizures
- relieves muscle tension and stress
- improves mental health
- protects brain cells from damage and inflammation
- prevents nausea and vomiting
- regulates bowel motility
- lowers heart rate
- decreases blood pressure
- has anti-cancer properties against gliomas and lung cancer

To follow up on these promising effects, researchers conducted more studies. As a result, we now have relatively convincing data that backs up these following benefits of CBD oil:

Anxiety Reduction

Both animal and human studies indicate that CBD has anti-anxiety properties. In fact, in a recent double-blind study carried out on patients with generalized social anxiety disorder, it was found that CBD significantly reduced their anxiety.

Related: ***Holistic Guide to Healing the Endocrine System and Balancing Our Hormones***

Anti-psychotic effects

As we discovered earlier, CBD can actually decrease the psychotic effects that THC can have on the body. Without the presence of THC, CBD can further help reduce symptoms of psychosis.

Decreased Inflammation

CBD has potent anti-inflammatory properties throughout the body and brain. In fact, it is such a powerful inflammation reducing agent that one study suggests that CBD may decrease inflammation too much in some people. This could put the body at a higher risk of illness and infection. However, when CBD is used at lower doses or in people who have chronic inflammation, it can be highly effective at improving immune system function.

Cancer Growth Inhibitor

CBD has been found to slow the growth of lung cancer, as well as trigger apoptosis (cell death) in brain and spinal cord tumors. This makes CBD oil a promising supplementary treatment for certain types of cancer. Hopefully, it will garner enough evidence to become the first line of treatment for cancer.

Helps Reduce Seizures

Both THC and CBD have been found to reduce the severity and frequency of seizures, but CBD is clearly a better option. This because it has shown better results than THC, and it doesn’t seem to negatively influence the brain in any way.

Arthritis Pain Reduction

A study in the *European Journal of Pain* used an animal model to see if CBD could help people with arthritis manage their pain. Researchers applied a topical gel containing CBD to rats with arthritis for four days.

Their research found a significant drop in inflammation and signs of pain, without additional side effects. This indicates that people using CBD oil for arthritis may find relief from their pain, but more human studies need to be done to confirm these findings.

Improved Quality of Life for People with Multiple Sclerosis

Multiple sclerosis is an autoimmune disease that affects the entire body through the nerves and brain.

Muscle spasms are one of the most common symptoms of Multiple Sclerosis. Studies have found that short-term use of CBD oil can reduce the spasms.

The results are modest, but many people reported a reduction in symptoms. More human studies are needed to verify these results.

Pain Relief

CBD can also be used for general chronic pain. After compiling the results of dozens of trials and studies, researchers concluded that there is substantial evidence that cannabis is an effective treatment for chronic pain in adults.

Related: ***What Causes Chronic Inflammation, and How To Stop It For Good***

Improved Sleep Quality

Research has found CBD to be more effective than a common insomnia drug at improving the length of sleep. This finding suggests that CBD can be helpful for people with sleep disorders like insomnia.

How CBD Works – The Endocannabinoid System

At this point, you may be thinking that CBD sounds too good to be true. How could a random little plant compound have all of these seemingly unrelated effects on the body? Well – you can thank your endocannabinoid system for that.

Each one of us has an endocannabinoid system that receives and translates signals it receives from cannabinoids in the body. Unfortunately for many cannabis consumers out there, we do not have this system because we've evolved to smoke weed every day. The purpose of the endocannabinoid system is to regulate various systems throughout your body with the cannabinoids that your body manufactures.

Even though our knowledge about the role of the endocannabinoid system is still evolving, the available evidence indicates that this system has multiple regulatory roles in neuronal, vascular, metabolic, immune and reproductive systems. Because of its involvement these systems, endocannabinoids affect functions such as cognition, memory, motor movements, pain perception, inflammation, body weight regulation, cardiovascular health, stress response, appetite, and sleep.

How CBD and THC Interact with Our Endocannabinoid System

Cannabinoids from plants like THC and CBD have such a massive impact on our bodies because they mimic the cannabinoids that we make inside our bodies. For example, when we get "high" from THC it is because that cannabinoid is interacting directly with cannabinoid receptors in our cells that end up triggering the experience of feeling "high."

As you might have alright assumed, CBD interacts a bit differently with our endocannabinoid system than THC. Instead of acting directly on the receptors, CBD activates or inhibits other compounds in the endocannabinoid system.

For example, CBD stops the body from absorbing anandamide, an endocannabinoid in our body that is associated with regulating pain. Increased levels of anandamide in the bloodstream may reduce the amount of pain a person feels.

The distribution of the endocannabinoid system in the brain is also something to take note of. If you look closely at the brain cells in areas of the brain that go awry in various mental disorders, you will find endocannabinoid receptors. This points us in the direction of a mechanism that explains why THC is linked with psychosis and why CBD mitigates these effects. Perhaps CBD prevents THC or our own cannabinoids from triggering mental health issues.

This is a fascinating hypothesis, but it is beyond the scope of this article. Instead, let’s take our discussion to a practical place to find out what dose we need to experience the benefits of CBD.

How Much CBD Oil Should You Take?

Below are some general CBD dosage guidelines:

- General Health: start small at 2.5-15mg CBD by mouth daily and increase until you feel positive effects
- To treat anxiety disorders: oral doses ranging from 300 to 600 mg (supported by multiple studies)
- To treat chronic pain: 2.5-20 mg CBD by mouth daily (anecdotal suggestion)
- To treat epilepsy: 200-300 mg CBD by mouth daily with antiepileptic medication (backed by research)
- To treat sleep disorders like insomnia: 160 mg CBD by mouth daily (supported by multiple studies)

The right dose of CBD varies from person to person. Generally speaking, larger individuals may prefer a higher dose of CBD than smaller people.

If you are not sure how much to take, then start with a smaller dose and scale it up a few milligrams at a time to meet your personal needs. Also, those that have a medical condition should always consult with their healthcare professional before consuming CBD.

Other Considerations When Taking CBD Oil

Using CBD oil can make the medications that you may be taking more or less effective. For example, CBD may improve the effectiveness of antiepileptic drugs such as valproate and clobazam, while being negatively impacted by other antiepileptic drugs like carbamazepine and phenytoin. For this reason and because of how little we know about how CBD interacts with different medications, it is crucial that you discuss CBD oil supplementation with your healthcare professional and make adjustments to your dosages in small increments.

Another thing to consider is the long-term effects that CBD has on hormones and other aspects of health. To this day, there are no studies that examine how CBD oil supplementation impacts the body over extended periods of time. However, current studies suggest that CBD oil is safe at the dosages recommended above in the short and long term.

It should also be noted that all of the studies we explored in this article were performed using either adults or animals. The safety of CBD oil in children and pregnant women is not well understood. We do know, however, that the endocannabinoid system is an active player in the placenta, impacting fetal development. Future research may find that CBD oil can help improve the health of the mother and the fetus during pregnancy, but at this point, there is no evidence to back up that assumption.

Key Takeaways & Recommended CBD Oil Sources

Although the research on CBD oil is scarce, there is plenty of evidence to suggest that it can help a wide range of people

with a variety conditions.

Research indicates that CBD can help people with:

- anxiety disorders
- insomnia
- psychosis
- chronic pain
- arthritis
- epilepsy
- chronic inflammation
- cancer
- multiple sclerosis

Even if you don't have one of these conditions, CBD can be helpful for improving general health by reducing stress, pain, and inflammation. Just make sure you get your CBD oil from a trustworthy source because CBD oil – like every other supplement – is not well-regulated.

Related Products:

- CBD Oil – Green Lifestyle Market

Recommended Reading:

- *How to Cure Lyme Disease and Virtually Any Other Bacterial Infection, Naturally*
- *Candida, Gut Flora, Allergies, and Disease*
- *Gluten, Candida, Leaky Gut Syndrome, and Autoimmune Diseases*
- *Hypothyroidism – Natural Remedies, Causes, and How To Heal the Thyroid*

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- *What is THCA (Tetrahydrocannabinolic Acid)?* – Leaf Science

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Should You Be on the Ketogenic Diet? The Pros and Cons of Limiting Carbs

There is a ton of hype surrounding the ketogenic diet. Some researchers swear that it is the best diet for most people to be on, while others can provide us with plenty of evidence that it is just another fad diet.

To some degree, both sides of the spectrum are right. There isn't one perfect diet for everyone or every condition, regardless of how many people "believe" in it. The ketogenic diet is no exception to this rule.

However, there is also plenty of solid research backing up its benefits. In fact, it has been found to be better than many diets at helping people with:

- Epilepsy
- Type 2 Diabetes
- Type 1 Diabetes
- High Blood Pressure
- Alzheimer’s disease
- Parkinson’s disease
- Chronic Inflammation
- Obesity
- Heart Disease
- Polycystic Ovary Syndrome
- Fatty Liver Disease
- Cancer
- Migraines

Even if you are not at risk from any of these conditions, restricting your carbohydrate consumption may be helpful for you too. Some of the benefits that most people experience are:

- Better brain function
- A decrease in inflammation
- An increase in energy
- Improved body composition

As you can see, the ketogenic diet has a wide array of benefits, but is it any better than other diets?

The Calorie Conundrum

Many researchers argue that ketosis (burning ketones for fuel) and carbohydrate restriction only play a minor role in the benefits of the ketogenic diet. Their argument is that people tend to eat fewer calories on the ketogenic diet, and this is the main reason for its benefits. The two most important selling points of the ketogenic diet, ketosis and carbohydrate

restriction, may just be a red herring.

It is true that people on the ketogenic diet tend to eat less because of how satiating eating a high-fat moderate-protein diet like the ketogenic is for us. It is also true that less calorie consumption leads to improved health and weight loss. These two statements are backed up by plenty of research, but there is something that many researchers don't consider.

The ketogenic diet elicits many mechanisms in the body and cells that are nonexistent in other diets. These unique mechanisms explain the benefits of the ketogenic diet that eating fewer calories cannot.

Related: ***Detox Cheap and Easy Without Fasting – Recipes Included***

What Restricting Carbohydrates Does to The Body

Frist, let's see what happens inside of the cells in our body during the ketogenic diet:

- Ketones are produced, which burn more efficiently than sugar.
- Burning ketones creates much less reactive oxygen species than sugar, which decreases inflammation.
- Carbohydrate restriction triggers autophagy (cellular cleaning) and anti-inflammatory processes.
- Mitochondrial function and production are enhanced, making our cell's more efficient at using ketones and fat for fuel.

And here's what happens in the body on a larger scale:

- Insulin levels decrease because dietary carbohydrate isn't stimulating its release.
- Stored fat is burned because the body needs to use

alternative fuel sources.
- Inflammation is reduced because inflammatory fat levels decrease and less reactive oxygen species are formed.

The combination of the cellular and bodily effects of the ketogenic diet provides us with a basis for why they may be more useful than other diets in the treatment of many of the conditions we mentioned earlier.

Who Would Benefit Most From The Ketogenic Diet?

There is convincing evidence supporting that the ketogenic diet can reduce the severity of epilepsy, type 2 diabetes, type 1 diabetes (especially if dairy is eliminated), Alzheimer's disease, Parkinson's disease, obesity, heart disease, polycystic ovary syndrome, fatty liver disease, migraines, and certain types of cancer. However, it is important to keep in mind that plant-based whole food diets are also useful in helping people with most of these issues as well.

The primary issues that the ketogenic diet may help with more than a plant-based diet are probably neurological conditions like Parkinson's, Alzheimer's, and epilepsy. This is due to how efficient ketones are as a source of fuel for the brain. Some studies also indicate that ketogenic diet may be best for people with type 1 and type 2 diabetes and for people with certain types of cancer that cannot survive without sugar.

Who Shouldn't Be On a Ketogenic Diet?

Although the ketogenic diet can help with a plethora of conditions, it can also deteriorate the health of others. For example, people with thyroid or adrenal issues and many women

will struggle with carbohydrate restriction. This is because carbohydrates help regulate thyroid function, adrenal function, and fertility.

If you are already having issues with one or all of these things, then the limiting carbohydrates may make your health worse. This why it is important to have your lipid, blood sugar, and hormone levels checked before and during a profound dietary change like the ketogenic diet. Everything you do is an experiment on yourself. Just because someone else swears by a certain diet doesn't mean it will work for you too.

The Takeaway – Should YOU be on the Ketogenic Diet?

Who would benefit the most from going keto? People who have:

- Epilepsy
- Parkinson's disease
- Alzheimer's disease
- Type 1 diabetes
- Type 2 diabetes
- Certain types of cancer that cannot survive without sugar

Who shouldn't restrict carbohydrate intake?

- People with adrenal issues
- People with thyroid issues
- Some women

So, what do you make of this information?

In general, eating more whole foods and less processed foods is what will give you the most bang for your buck. The simplest way to do this is by giving yourself an unbreakable rule like "eat less than 35 grams of carbs per day" (ketogenic diet) or "eliminate added sugar and limit animal product

consumption” (plant-based diet). Both of these rules will help you consume more whole foods and less processed foods, which results in fewer calories consumed, less inflammation, less disease, and better health.

Choose whatever rule you think you can stick too and adjust your diet from there based on how your body reacts. It’s that simple. Well, at least it is that simple if you only care about your own health.

Recommended: ***The Way We Used To Eat – The Real Paleo Diet***

The Long-Term Effects of The Ketogenic Diet vs. a Plant-Based Diet

If you have some form of diabetes, a neurological issue, a carb-reliant form of cancer or want to lose weight rapidly, the ketogenic diet may be the best diet for you – at least for the short term (less than six months). Although many research studies have found that the ketogenic diet has no adverse long-term effects and is perfectly safe (for most of the people that were studied), we must consider the impact that this diet has on the environment as well.

Animal products like meat, eggs, and dairy make up the bulk of calories on the ketogenic diets. These animal products are commonly sourced from controlled animal feeding operations that pollute the environment, destroy our soil, torture the animals, and produce nutritionally inferior food. With each purchase of mass-produced, unnaturally-raised animal products, we cast a vote for animal abuse, depleted soil that can’t grow crops, and climate change.

This is why it is best to stick to the rule of “eat whole plant foods and eliminate processed foods” rather than “limit carbohydrates.” If, however, you want to experiment with

ketones or the ketogenic diet to see how it affects your health, keep reading below.

The Healthiest Way to Approach the Ketogenic Diet for You and The Environment

There are a couple of ways to get the benefits of the ketogenic diet while improving the environment.

Here's a brief list of some options:

- **Source your animal products from environmentally conscious farms and businesses.** If you are going to eat animal products, source them from U.S. Wellness Meats, White Oak Pastures, Polyface Farms, Vital Choice, and Udder Milk to get the healthiest animal products for you, the environment, and the animals.
- **Source all of your produce from local, biodynamic farms.** This cuts down on transportation costs and supports local farmers that work with the environment rather than against it.
- **Supplement your diet with ketone boosting supplements.** Ketone salts and MCT oil will put your body into ketosis quickly and provide you will most of the benefits of the ketogenic diet. (I personally prefer MCT oil because it is easy to add to salads, sauces, and smoothies, and doesn't give me any weird side effects like ketone salts do.)
- **Include intermittent fasting in your daily schedule.** By skipping one or two meals a day or fasting for the whole day, you can activate many of the health-promoting mechanisms that are commonly experienced by ketogenic dieters.
- **Do a strict environmentally-friendly ketogenic diet for 6 to 12 weeks.** Think of the ketogenic diet as a short-

term strategy to help improve specific health conditions. After about 6 to 12 weeks, your body will be keto-adapted and you'll be ready to slowly increase your carbohydrate consumption by eating more whole plant foods.

- **Try a vegan or vegetarian ketogenic diet for 6 to 12 weeks.** Eat plenty of low carb vegetables, coconut oil, olive oil, avocado, and nuts. Pasture-raised eggs are also an environmentally friendly option (if you are an ovo-vegetarian).

By following one or all of these strategies, you will experience the benefits of ketosis for yourself. The easiest way to do so is by combining intermittent fasting with MCT oil supplementation.

On the other hand, If you want to experience all of the effects of being keto-adapted, then it's best to do a strict ketogenic diet for 6 to 12 weeks. This is enough time to see if the ketogenic diet works for you.

Whether or not you decide to try these suggestions, it is important to keep one thing in mind – there is no magical diet that works for everyone. Nutrition is so complicated that gurus, researchers, and health professionals will argue about it for centuries to come.

There is, however, one healthy eating rule that most people can agree on:

> *Eat food. Not too much. Mostly plants." – Michael Pollan*

Recommended Reading:

- *Start Eating Like That and Start Eating Like This – Your Guide to Homeostasis Through Diet*
- *How to Make the Healthiest Smoothies – 4 Recipes*
- *How to Detoxify and Heal the Lymphatic System*

- *Holistic Guide to Healing the Endocrine System and Balancing Our Hormones*

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13 Scientifically-Proven Ways to Optimize Your Triglyceride and Cholesterol Levels Naturally

When was the last time you went out to dinner with family or friends? At that table, you can say with almost complete certainty that at least one of them had high LDL cholesterol, high triglycerides, or both.

Sorry to ruin your dinner, but we cannot ignore the fact that:

- Nearly 1 in every 3 Americans have high LDL cholesterol.
- Almost 1 in every 3 Americans have above normal triglyceride levels.

Why does this matter? Because both high LDL and triglyceride levels are risk factors for the leading cause of death in the world – heart disease.

There is, however, plenty of good news that is hiding behind these disheartening statistics. To find the silver lining, we need a deeper understanding of triglycerides, cholesterol, and heart disease.

Related: ***Triglycerides – Optimize The Most Important Biomarker That Most Doctors Ignore***

What's The Deal With Cholesterol, Triglycerides, and Heart Disease?

At first glance, they seem like entirely different entities.

Cholesterol is a waxy, fat-like substance that occurs naturally in all parts of the body. It floats around the blood bringing essential nutrients like fat-soluble vitamins and fatty acids to cells and get cleaned up by LDL receptors in the liver when the job is done.

Triglycerides, on the other hand, are the most energy dense molecule that provides our cells with energy and is stored in fat cells when we have enough energy.

Heart disease is the culmination of cell damage, inflammation, and plaque buildup that occurs in the blood vessels. This disease process can lead to a heart attack, chest pain (angina), or stroke.

How could cholesterol, triglycerides, and heart disease possibly be related? They don't seem to have anything in common (yet). Let's look a bit closer at what happens when things go wrong to find out how they are linked.

Related: ***Lower Cholesterol and Prevent Heart Disease Without Drugs***

The Intimate Link Between Triglycerides, Cholesterol, and Heart Disease

Heart disease is a complex issue with many causes, but we do know one of the mechanisms that causes the damage,

inflammation, and plaque build up that is characteristic of heart disease. This mechanism begins with a form of LDL cholesterol, which is called small, dense LDL, that can easily be damaged and cause harm to the cells that make up the blood vessels.

In response to the harm that the damaged LDL particles cause, the immune system activates and inflammation levels increase. The inflammation increases the chance that more small, dense LDL particles become damaged and destroy even more cells that line the blood vessels.

To prevent the damage from getting out of hand, the immune system neutralizes the damaged LDL particles and turns them into plaque. This mechanism of heart disease explains why high LDL and chronic inflammation increase the likelihood of heart disease, but what about triglycerides?

Let’s look at what happened before the small, dense LDL particles started circulating in the blood. As the LDL was being formed, one important factor determined which form of LDL it became – triglycerides. In fact, studies have confirmed that high triglycerides lead to the creation of more atherogenic LDL particles.

To sum up all of this complex biochemistry in one sentence: high triglyceride levels lead to the creation of more potentially atherogenic LDL cholesterol, which increases the risk of heart disease significantly.

Luckily, you can lower your triglycerides and optimize your cholesterol levels in one foul swoop by following these 13 simple suggestions.

13 Ways to Lower Your Triglycerides

Naturally

1. Remove All Refined Sugars From Your Diet

Studies have found that each additional daily serving of sugar-sweetened beverages is associated with a 2.25 mg/dL increase in triglyceride levels, as well as increases in insulin resistance, LDL cholesterol, and systolic blood pressure and a decrease in HDL cholesterol.

Luckily, the exact opposite is true as well. When you remove all sugar-sweetened beverages from your diet, you will improve your cholesterol and triglyceride levels significantly. If you take it one step further and remove all added sugar from your diet, you will be on the fast track to good health.

Related: ***Healthy Alternative Sugars and More***

2. Focus On Weight Loss

For those who are overweight or obese, a weight loss of 5% to 10% usually results in a 20% decrease in triglycerides, a 15% reduction in LDL-C, and an 8% to 10% increase in HDL-C. That is a win-win-win-win situation for your health.

One of the quickest ways to lose weight is by eliminating all processed foods from your diet and replacing it with whole foods. Have delicious detox cranberry lemonade instead of fruit juice or soda. Instead of fast food for lunch, make this surprisingly delicious salad

3. Stop Drinking Alcohol

Based on the data from many studies on alcohol consumption and triglycerides, it is estimated that the ingestion of 1 oz of alcohol per day corresponds to a 5% to 10% higher triglyceride concentration than found in nondrinkers. If you have high

triglycerides, it is best to abstain from alcohol completely.

4. Eliminate All Trans Fats

Trans fatty acids are found in all partially and fully hydrogenated oils. They consistently cause significant increases in triglycerides and atherogenic LDL cholesterol levels, which increases cardiovascular disease risk dramatically. Stick to natural fats from nuts, olives, avocado, coconut, fish, meat, and dairy.

5.Establish a Sleep Schedule

One way to improve cholesterol, triglycerides, and energy levels at the same time is by prioritizing sleep. Make sure you are sleeping at around the same time every night and getting enough sleep (7-9 hours).

If you have trouble falling asleep or staying asleep, turn off all lights and electronics at-least 30 minutes before bedtime and meditate. By doing this, you will increase melatonin and decrease stress levels, making it easier to fall asleep and stay asleep throughout the night. Follow the same meditation and sleep schedule every week to wake up feeling more refreshed and healthier each morning.

6. Eat More Fiber

In seven studies that compared high fiber diets and low fiber diets, triglyceride levels decreased by 8% in the high-fiber groups. The same pattern emerges even when the high fiber diet contains many more carbohydrates than a moderate-carbohydrate low-fiber diet.

What does this mean for you? Eat more high-fiber plant foods like vegetables and your body will thank you.

Related: ***Start Eating Like That and Start Eating Like This –***

Your Guide to Homeostasis Through Diet

7. Exercise

Many studies have found that the most active people have the lowest fasting triglyceride levels. For example, men who jogged for 10 miles a week had a 20% lower fasting triglyceride level than sedentary men, while men with even higher activity levels (>20 miles of jogging weekly) had the lowest mean fasting triglyceride level (~86 mg/dL).

The good news is that if you are not a fan of jogging, you can get results from walking as well. Studies on overweight people with higher triglyceride levels experienced triglyceride reductions (of about 26%) after walking at a brisk pace for 12 miles each week. To get these results, all you have to do is walk for about 30 minutes at a brisk pace every day.

Not a fan of walking either? Bring an audiobook or podcast with you to make it more enjoyable.

8. Include Nuts In Your Diet

Nuts provide a concentrated dose of fiber and healthy fats, which work together to lower blood triglycerides and improve cholesterol.

An analysis of 61 studies on the effects that nuts have on our health showed that each serving of tree nuts decreased triglycerides by 2.2 mg/dL. Other epidemiological studies found that you will get the greatest health benefits if you consume between 3–7 servings of nuts per week.

9. Increase Your Omega 3 Intake

Studies have found that consuming around 4 g of marine-derived omega-3 polyunsaturated fatty acids per day can decrease triglyceride concentrations by 25% to 30%. Because of these findings, the American Heart Association recommends getting 2

to 4 g of eicosapentaenoic acid (EPA) plus docosahexaenoic acid (DHA) per day for people with high triglycerides. This recommendation can be met by taking a fish oil supplement or eating 2 to 4 3-ounce servings of wild caught (not farm-raised) sardines or salmon.

Another important thing to mention is that there is a particular reason why "marine-derived" omega 3s are mentioned, rather than other types of "plant-derived" omega 3s. This is because non–marine-based omega-3 polyunsaturated fatty acids from foods like walnuts, canola oil, and flaxseeds have not demonstrated a consistent reduction in triglycerides like marine-derived DHA and EPA.

Related: ***How to Reverse Fatty Liver Disease (With Diet Plan)***

10. Supplement With Niacin

This natural B vitamin has been shown to reduce triglycerides by 20-50% and increase "healthy" HDL cholesterol levels. However, it is important to take niacin as a part of a natural b-complex supplement for best results.

Related: ***Mental Health, Physical Health & B Vitamins – Nature's Valium***

11. Eat More Medium Chain Triglycerides (MCTs)

Yes, you read that correctly. To improve cholesterol and triglyceride levels, you should consume more triglycerides. But make sure they are the medium-chain kind of triglyceride.

MCTs are different from the long chain triglycerides that we commonly find in dairy and meat because MCTs skip the normal process of fat digestion and go straight to the liver. In the liver, the MCTs are often converted into ketones for fuel.

For this reason, many studies have found MCTs to increase

weight loss when compared to other healthy fats like olive oil. MCTs also have been found to decrease triglycerides more than olive oil as well.

Coconut oil is the best natural source of MCTs (and despite the bad press, it provides us with many health benefits). However, if you need an unmistakable energy boost that will improve your health more rapidly, then supplement with pure MCT oil. Use it as the oil for your salad dressings or blend it into your smoothies.

12. Use More Garlic

Garlic has potent anti-inflammatory properties that can help improve cholesterol and triglyceride levels. Garlic extract's triglyceride and cholesterol-lowering effects continue to be confirmed in several animal studies.

13. Supplement With Curcumin

Curcumin is an anti-inflammatory compound that is found in turmeric. It has been found to have many powerful effects on the body from improving brain health to relieving chronic pain.

One of turmeric's benefits is blood triglyceride reduction. In fact, A 2012 study found that a low dose of curcumin can cause a significant drop in blood triglycerides.

Putting It All Together

Improving triglyceride and cholesterol levels is simple. By doing so, you can prevent and reverse heart disease.

For the best results:

- Eliminate all processed foods to improve health and increase fat loss.
- Implement a sleep schedule and improve sleep quality.

- Exercise for at least 30 minutes a day.
- Supplement with marine-derived omega 3s, curcumin, niacin, and/or garlic extract.
- Eat more MCTs from coconut oil or an MCT oil supplement.
- Avoid alcohol, trans fats, and added sugar.

Recommended Reading:

- *Start Eating Like That and Start Eating Like This – Your Guide to Homeostasis Through Diet*
- *Lower Cholesterol and Prevent Heart Disease Without Drugs*
- *How to Detoxify and Heal the Lymphatic System*
- *Holistic Guide to Healing the Endocrine System and Balancing Our Hormones*
- *Candida, Gut Flora, Allergies, and Disease*

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Triglycerides – Optimize The Most Important Biomarker That Most Doctors Ignore

Hey, just wanted to let you know that your triglycerides are probably a bit high. Three out of every ten people in the United States have above normal triglyceride levels.

This sounds like the beginning of a drug commercial, but don't worry – this problem has a simple and natural solution.

However, before we find the solution, we must properly identify the problem.

The Problem With High Triglyceride Levels

In the shadow of our cholesterol numbers are our – often overlooked – triglyceride levels. Your doctor may tell you that "your triglycerides are a little high," but what does this really mean? Does it really matter?

Must Read: ***How to Detoxify and Heal the Lymphatic System***

First, let's clear up what having "high triglycerides" actually means. According to the American Heart Association, here is how our triglyceride levels are categorized:

Optimal	Less than 100 milligrams per deciliter (mg/dL)
Normal	Less than 150 mg/dL
Borderline-high	150 to 199 mg/dL
High	200 to 499 mg/dL
Very high	500 mg/dL or higher

You won't experience any symptoms if you have borderline-high or high triglycerides, which is why many doctors will just shrug it off. However, it is important to know that triglyceride levels that are even just "a little high" are associated with:

Heart Disease

Studies suggest that high triglyceride levels impair cholesterol levels, increasing the amount of atherogenic (plaque forming) cholesterol particles in the blood.

Obesity

Obesity and high triglyceride levels are intimately linked. One study found that approximately 80% of people who are obese or overweight had triglyceride levels ≥150 mg/dL.

Metabolic Syndrome

The prevalence of triglyceride levels ≥150 mg/dL is nearly twice as high in people who have metabolic syndrome. Metabolic syndrome is a condition that is commonly diagnosed when the person has high blood pressure, high blood sugar, excess body fat around the waist, and abnormal cholesterol levels.

Excess Visceral Fat (fat around the organs)

Excess body fat is associated with elevated triglyceride levels, but visceral fat is a greater contributor than subcutaneous fat (fat that is found under the skin rather than near vital organs).

Type 2 Diabetes

Around 35% of people with type 2 diabetes have high fasting triglyceride levels. This suggests that blood sugar and triglyceride levels are intimately linked (more on that later).

Hypothyroidism

When the levels of thyroid hormone are low, cholesterol and triglycerides stay in the blood for a longer period of time, which increases the likelihood of heart disease and fatty plaque build-up in the arteries.

Kidney Disease

Triglyceride levels of >200 mg/dL are present in about half of those with chronic kidney disease, which is commonly caused by diabetes and high blood pressure.

All of this seems worrisome at first – especially if you have high triglycerides – but there is some good news. Actually,

it’s great news.

Knowing what conditions high triglyceride levels are associated with provides us with important clues. Clues that give us a clearer picture of what causes high triglyceride levels and how to optimize them. First, let’s figure out what they are.

Related: ***Lower Cholesterol and Prevent Heart Disease Without Drugs***

What Are Triglycerides?

Triglycerides are the most potent fuel source that is stored in your body. They are so energy-dense that stored that these molecules can keep the body running for about a month.

Where exactly are triglycerides stored in your body? Well, you already know. You just call it “fat” instead of “stored triglycerides.”

Yes, that’s right – triglycerides are those things that are being stored in your fat cells. While we are fasting, restricting carbohydrates, or limiting calories, these triglycerides are liberated from our fat cells to provide us with energy. This process is what helps us lose fat and reduce our triglyceride levels. However, one big problem arises if we live in westernized societies – there is an overabundance of processed food at all times.

Why Do You Have High Triglycerides?

If you are reading this right now, you probably live in an area where many different varieties of food are always available. In this abundant food environment, it is easy for our emotional and instinctual desires to override all logical sense, so most of us end up eating more calories and sugar than we actually need.

In response to the massive influx in calories, the cells become stuffed with so much energy that they reject the signal to take in more energy that they receive from insulin (an energy storage hormone that is stimulated the most by carbohydrate consumption). This is otherwise known as insulin resistance, and it causes a cascade of hormonal changes that increase blood sugar and triglyceride levels. On top of that, sugar consumption (especially the consumption of fructose) stimulates the creation of fat in the liver.

What all of this means is that eating excess calories increases your triglyceride levels and eating too much sugar increases your triglyceride levels even more, especially if that sugar is mostly composed of fructose.

Hold on. What about the fat?

After all, we are talking about triglycerides – a type of fat. How could I talk about calories and sugar and neglect to mention fat as a contributor to high triglyceride levels as well? Well, there is a good reason for that.

Related: ***Start Eating Like That and Start Eating Like This – Your Guide to Homeostasis Through Diet***

Carbs Raise Triglycerides The Most

It would only make sense for dietary fat to increase triglycerides more than carbs, but the science shows us that just the opposite is true.

In one study, people with high triglycerides and normal triglycerides were put on a 15% fat, whole-food diet after eating a high-fat diet (35%). After only one meal of the low-fat diet, their triglyceride levels were elevated for higher and longer than during the high-fat diet.

By the end of the diet the low-fat group's fasting triglyceride concentrations increased by 60% and the

production of atherogenic LDL cholesterol increased as well. This occurred in people with normal and high triglycerides in response to a whole-food based low-fat diet. (Imagine what would happen if the diet contained more simple sugars!)

So, What Is The Best Triglyceride Lowering Diet?

Let’s start by comparing two ends of the dietary spectrum – Low-carb versus low-fat.

A recent meta-analysis of randomized controlled trials found significantly greater reductions in triglyceride levels on the low-carb diet. This meta-analysis of the literature confirms what we discovered above.

Eat more carbohydrates and less fat, and you’ll increase your triglyceride levels. Eat fewer carbs and more fat, and the opposite will occur. In fact, researchers found that for every 5% decrease in total fat, triglyceride level was predicted to increase by 6% and HDL cholesterol (the “good” cholesterol) to decrease by 2.2%. More specifically, for every 1% isoenergetic replacement with saturated fat, monounsaturated fat, and polyunsaturated fat, there was a reduction in triglycerides by 1.9 mg/dL, 1.7 mg/dL, and 2.3 mg/dL, respectively.

These findings suggest that replacing all carbohydrates with fat will get your triglycerides to optimal levels the quickest. However, when we look closer at the research, a different pattern emerges.

Which is Better? The Low-Carb Diet vs. The Mediterranean Diet

In a randomized controlled trial, the effects of a Mediterranean-style weight-loss diet were compared with a low-

carbohydrate diet. After six months, triglyceride levels were reduced the most in the low-carb diet group. However, after 12 months, the Mediterranean-style diet showed similar reductions in triglycerides as the low carbohydrate diet.

These results show us that there may be a limit to how much restricting your carbohydrates can reduce triglycerides. So, instead of counting your carbs, it may be best to follow the eating principle that both the low-carbohydrate and Mediterranean diets follow: eliminate the crap and eat more whole foods.

Related: ***The Way We Used To Eat – The Real Paleo Diet***

The Most Important Crap to Eliminate to Optimize Your Triglycerides

Avoid these triglyceride train wrecks, to ensure optimal triglyceride levels:

1. Alcohol

Based on the data from many studies on alcohol consumption and triglycerides, it is estimated that the ingestion of 1 oz of alcohol per day corresponds to a 5% to 10% higher triglyceride concentration than found in nondrinkers. If you have high triglycerides or if you want to have flawless triglyceride levels, it is best to abstain from alcohol completely.

2. Trans Fats

Trans fatty acids are found in all partially and fully hydrogenated oils. They consistently cause significant increases in triglycerides and atherogenic LDL cholesterol levels, which increases cardiovascular disease risk dramatically. Stick to natural fats from nuts, olives,

avocado, fish, meat, and dairy.

3. Added Sugar

Studies have found that each additional daily serving of sugar-sweetened beverages is associated with a 2.25 mg/dL increase in triglyceride levels, as well as increases in insulin resistance, LDL cholesterol, and systolic blood pressure and a decrease in HDL cholesterol. It is best to avoid sugar completely and most of your carbohydrates from vegetables, legumes, and nuts for best results.

Related: ***Healthy Alternative Sugars and More***

The Takeaway – The Best Triglyceride Lowering Diet

By cutting out all processed foods and eating a whole food diet, you will naturally cut down on the carbs, calories, and sugars. This way of eating will lower your triglycerides and improve your health dramatically.

To get you started, follow these guidelines:

- Every meal should consist primarily of local, beyond organic, or bio-dynamic vegetables.
- "Garnish" each meal with high-quality fish, meat, eggs, or dairy.
- Order from U.S. Wellness Meats,White Oak Pastures, Polyface Farms , Vital Choice, and Udder Milk to get the healthiest animal products for you, the environment, and the animals.
- Have a handful of nuts, seeds, and/or berries with each meal.
- Don't eat any sugar-sweetened beverages, added sugars, processed meat, refined grains, refined oils, hydregonated fats, and other highly processed foods.

- Limit your alcohol intake.
- Follow the suggestions for lowering triglycerides and cholesterol in this article.

However, even if you implement the triglyceride lowering diet flawlessly, you can only verify if it worked by getting a blood test.

How To Know If Your Triglyceride Levels Are Optimal

All you have to do is set up an appointment with your doctor to get a standard blood lipid panel test done. Ask your doctor to print the results for you, and track your progress at after appointment.

Where do you fall in these categories?

Optimal	Less than 100 milligrams per deciliter (mg/dL)
Normal	Less than 150 mg/dL
Borderline-high	150 to 199 mg/dL
High	200 to 499 mg/dL
Very high	500 mg/dL or higher

Aim for optimal triglyceride levels, but don't forget about cholesterol and blood sugar levels as well.

To see if you have healthier cholesterol levels, check your total-to-HDL cholesterol ratio. A ratio between 3 and 4 indicates that you have healthy cholesterol levels. Your fasting blood sugar levels should be below 100 mg/dl for optimal health.

It is also important to take note of your posture before you get your blood drawn. For example, different positions, like sitting, standing, and laying down, can cause triglycerides to vary significantly. Because of this, the American Heart Association recommends that you sit for at least 5 minutes in

the same position each time you get your blood drawn to minimize variability in triglyceride measurements.

After you implement our suggestions, please comment with your results to inspire others to take their health into their own hands.

Recommended Reading:

- *13 Scientifically-Proven Ways to Optimize Your Triglyceride and Cholesterol Levels Naturally*
- *Triglycerides in Junk Food are the Chemical Equivalent of 'Hard Drugs' for the Brain*
- *Lower Cholesterol and Prevent Heart Disease Without Drugs*
- *80% Raw Food Diet*
- *Agave Nectar – Is it Healthy?*

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How To Reverse The Number One

Cause of Infertility – PCOS

Polycystic ovary syndrome (PCOS) is responsible for as much as 70 percent of infertility issues in women. In fact, this disorder affects one out of every ten women of childbearing age, and yet, few women are aware of PCOS and its symptoms.

Common Symptoms of Polycystic Ovary Syndrome

Before we explore why PCOS happens and how we can reverse it, we must first get familiar with it. Here are the most common symptoms of PCOS:

- irregular periods
- amenorrhea (the absence of menstruation)
- trouble conceiving a child
- infertility
- fatigue
- mood swings
- low sex drive
- weight gain
- trouble losing weight
- acne
- hirsutism (excessive hair growth on the face, abdomen, chest, and back)
- thinning hair

From fatigue to infertility to unsightly hair growth, these symptoms are a random assortment of things that no man or woman would ever want to experience. Could these all be a part of one disorder?

Unfortunately, the answer is yes. However, there is a silver lining – all of the PCOS symptoms point to the same underlying cause.

Related Reading: ***Holistic Guide to Healing the Endocrine System and Balancing Our Hormones***

What Causes Polycystic Ovary Syndrome?

To understand how PCOS happens, we must understand the nature of this disease.

When we dig through the research the first evidence we come across is that women with PCOS have an increased risk for:

- hypertension
- dyslipidemia
- insulin resistance
- obesity
- glucose intolerance
- diabetes

These conditions are all a manifestation of poor lifestyle choices (overeating and inactivity), but we cannot draw the same conclusion about PCOS by looking only at its associated risks. Let's look a bit deeper into the cells of a woman with PCOS (I know it sounds a bit creepy, but bear with me here.)

Must Read: ***The Top 10 Supplements You Can Use To Reverse Polycystic Ovary Syndrome***

The common consensus among PCOS researchers is that most women with PCOS have higher levels of insulin and insulin resistance than normal women. This is an important clue that points us to the cause of PCOS.

How Insulin and Insulin Resistance Cause PCOS

You probably already know by now that insulin resistance has something to do with diabetes and obesity, but did you know

that it can also cause infertility and other PCOS symptoms? Let's find out how.

When cells are consistently resistant to insulin, insulin levels continue to rise. High insulin levels trigger the ovaries to produce more androgens, including testosterone. Insulin also decreases the production of sex-hormone binding globulin – a glycoprotein that prevents testosterone from freely entering cells.

Related: ***Diabetes, Endocrine Functions of the Pancreas, and Natural Healing***

With more androgen production and less sex-hormone binding globulin, free testosterone freely floats through the blood and interacts with cells. This is not a good thing for a woman's health, leading to mood swings, fatigue, low sex drive, acne, and other PCOS symptoms.

As androgen levels continue to increase, they stimulate 5-alpha reductase activity – an enzyme that converts testosterone to a more potent metabolite called DHT. (You may be familiar with DHT as one of the instigators of male pattern baldness and thinning hair.)

Although genetics play a role in PCOS as well, the disorder will not progress without the presence of high insulin levels and insulin resistance. To create a chronic state of insulin resistance and elevated insulin levels, it takes a combination of poor lifestyle habits that contribute to many common diseases.

The Seven Lifestyle Factors That Cause PCOS

If you want to prevent PCOS or reverse it (or improve your health rapidly), avoid these things:

- high sugar foods

- excess calorie consumption
- chronic stress
- inactivity
- too much exercise
- exposure to endocrine-disrupting chemicals (e.g., Bisphenol A, Methylparaben, Nicotine, Sodium Fluoride, PBDEs/PCBs, etc.)
- having a high percentage of body fat (being overweight or obese)
- having a low percentage of body fat due to unhealthy calorie restriction

Each one contributes to PCOS in some way. High sugar foods, excess calorie consumption, and inactivity increase insulin levels and insulin resistance, making PCOS worse. Chronic stress, over-exercising, and having a low body fat percentage will increase cortisol levels, creating more insulin resistance.

Endocrine-disrupting chemicals can also exacerbate PCOS symptoms. These chemicals can cause hormonal imbalances and cell damage, so it is important to avoid consuming them or putting them on your skin.

However, avoiding these PCOS contributors may not completely reverse the disorder. To get the best results, you need to follow a diet that addresses the underlying cause of PCOS – insulin resistance.

Is There a PCOS Diet?

The scientific literature on diets for PCOS is sparse. However, the researchers of a treatment review suggest that PCOS women will do best by eating complex carbohydrates and avoiding sugar. This suggestion was confirmed in one study on the effects of low-glycemic index diet in women with PCOS.

To find more convincing evidence for a PCOS diet, we must look

at the diets that are most helpful for addressing the disorders underlying causes. After sifting through the research, the low-carbohydrate diet is the clear winner. It is more effective at reducing insulin levels and insulin resistance than every other diet it was put up against.

There is one important caveat. Carbohydrate restriction may cause stress and make PCOS worse for some women. This is why it is important for women with PCOS to follow the guidelines below.

Related: ***80% Raw Food Diet***

The New And Improved PCOS Diet

A low-carbohydrate diet can help many women reverse their PCOS. For some women, however, carbohydrate restriction may cause excess stress and keep them from getting results. This is why it is important to follow these guidelines to create the right PCOS diet for you:

1. Restrict Carbohydrate and Sugar Intake

Experts suggest that women should eat between 75 and 150 grams of carbohydrates to maintain fertility and improve insulin levels. It is important to avoid consuming refined sugar as well. The best way to do this is by sourcing your carbohydrates from whole plant foods like leafy greens, cruciferous vegetables, root vegetables, and legumes.

Related: Are Low-Carbohydrate Diets Healthy for Women? How Do Carbs Affect Fertility and Pregnancy?

2. Eat High-Fiber Vegetables With Every Meal

High-fiber vegetables, like broccoli, kale, and spinach, can help combat insulin resistance and reduce inflammation. Have

them with every meal for best results.

3. Eat Enough Calories to Achieve Your Ideal Weight

If you are overweight or unhealthily skinny, tracking your calories can help you reach a healthy weight. (I prefer to use MyFitnessPal to calculate calorie goals and increase my awareness of what I'm eating.) After about a month or so of tracking your calories, you'll develop a greater intuitive sense of how to maintain a healthy weight.

By following these guidelines, you will be able to lower your insulin levels, balance your hormones, and reverse many of the PCOS symptoms. However, the wrong lifestyle can still get in the way of the right diet. This is why it is important to follow the lifestyle tips below to improve your health even further.

The Lifestyle That Helps Reverse PCOS

Combining a vegetable-rich sugar-free diet with exercise, sleep, and meditation is one of the most efficient ways to reverse PCOS.

1. Exercise

What kind of exercise should you do? It's up to you. Many different types of exercise have been found to help women with PCOS including resistance training, aerobic exercise, and yoga.

Make sure you are getting at least 30 minutes of low to moderate intensity exercise, like yoga, cycling, or a brisk walk, every day. (Add in resistance training, three days a week, for even better results.)

It is also important to prioritize stress reduction as well. The more stressed you are, the more insulin resistant your cells will be. This will cause an increase in insulin levels and PCOS symptoms. The simplest way to reduce stress levels? Sleep and meditation.

2. Sleep

The most efficient way to reduce stress levels is with sleep. However, getting quality sleep may be more difficult for women with PCOS. In a review published in Human Reproduction, researchers found that “sleep disturbances were twice as common in women with PCOS,” and women with PCOS especially had difficulty falling asleep.

However, there is some good news for these women. Sleep disturbances will most likely be cleared up by the diet and lifestyle suggestions in this article so that they can finally get a restful sleep. For those that still struggle with sleep issues after following our suggestions, meditation will help tremendously.

3. Meditation

Studies have shown that meditation lowers cortisol levels and improves blood sugar levels, which creates a reduction in insulin resistance and insulin secretion. Meditating 30 minutes before you plan on going to sleep is a great way to improve sleep quality and reduce stress at the same time.

Putting it all Together – The Ideal Diet and Lifestyle for Women with PCOS

Here’s a simple breakdown of the diet and lifestyle that will help reverse PCOS:

- Limit sugar and carbohydrate intake
- Eat high-fiber, low-carbohydrate vegetables with each meal
- Eat enough calories to achieve your ideal weight (use MyFitnessPal to assist you with that)
- Exercise for at least 30 minutes every day
- Meditate every night before sleep
- Make sure you are getting 7-9 hours of sleep every night

and last but not least:

- If you need more help, consider using the natural supplements that you will find in this article to reverse PCOS.

Editor's Note:

Eliminate wheat, eliminate candida, and consider progesterone (I particularly like this Progesterone Plus with black cohosh and chasteberry) – but if the wheat and candida are eliminated you shouldn't need progesterone (or any of the other aforementioned supplements).

Best Supplements To Kill Candida and Everything Else You Ever Wanted To Know About Fungal Infections

Recommended Reading:

- *The Top 10 Supplements You Can Use To Reverse Polycystic Ovary Syndrome*
- *Are Low-Carbohydrate Diets Healthy for Women? How Do Carbs Affect Fertility and Pregnancy?*
- *Holistic Guide to Healing the Endocrine System and Balancing Our Hormones*
- *Detox Cheap and Easy Without Fasting – Recipes Included*

Sources:

- *Insulin Resistance and the Polycystic Ovary Syndrome:*

Mechanism and Implications for Pathogenesis – Oxford Academic

- *Polycystic ovary syndrome: etiology, pathogenesis and diagnosis* – Nature
- *Can My Diet Relieve Symptoms of Polycystic Ovary Syndrome (PCOS)?* – Healthline
- *Polycystic Ovary Syndrome (PCOS)* – Deep Dyve
- *The effects of a low-carbohydrate, ketogenic diet on the polycystic ovary syndrome: A pilot study* – BioMed Central
- *Dietary Composition in the Treatment of Polycystic Ovary Syndrome: A Systematic Review to Inform Evidence-Based Guidelines* – Science Direct
- *No. 1 Cause of Infertility? Polycystic Ovarian Syndrome* – Dr. Axe
- *Cortisol-Induced Insulin Resistance in Man: Impaired Suppression of Glucose Production and Stimulation of Glucose Utilization due to a Postreceptor Defect of Insulin Action* – Oxford Academic
- *Abdominal fat and what to do about it* – Harvard Health Publications
- *State of the science of endocrine disrupting chemicals – 2012* – World Health Organization
- *Effect of a low glycemic index compared with a conventional healthy diet on polycystic ovary syndrome* – American Journal of Clinical Nutrition
- *MINDFULNESS-BASED STRESS REDUCTION IS ASSOCIATED WITH IMPROVED GLYCEMIC CONTROL IN TYPE 2 DIABETES MELLITUS: A PILOT STUDY* – ProQuest
- *Effect of buddhist meditation on serum cortisol and total protein levels, blood pressure, pulse rate, lung volume and reaction time* – Science Direct
- *The effect of flaxseed supplementation on body weight and body composition: a systematic review and meta-analysis of 45 randomized placebo-controlled trials* – Wiley Online Library
- *The Effect of Flaxseed Supplementation on Hormonal*

Levels Associated with Polycystic Ovarian Syndrome: A Case Study – NCBI

- *Sleep Duration, Exercise, Shift Work and Polycystic Ovarian Syndrome-Related Outcomes in a Healthy Population: A Cross-Sectional Study.* – NCBI
- *Sleep disturbances in a community-based sample of women with polycystic ovary syndrome.* – NCBI
- *Effect of a yoga program on glucose metabolism and blood lipid levels in adolescent girls with polycystic ovary syndrome.* – NCBI
- *Effects of a holistic yoga program on endocrine parameters in adolescents with polycystic ovarian syndrome: a randomized controlled trial.* – NCBI
- *Effects of supervised aerobic training on the levels of anti-Mullerian hormone and adiposity measures in women with normo-ovulatory and polycystic ovary syndrome.* – NCBI
- *Resistance Exercise Impacts Lean Muscle Mass in Women with Polycystic Ovary Syndrome.* – NCBI
- *Systematic review and meta-analysis of dietary carbohydrate restriction in patients with type 2 diabetes* – BMJ