

# POLIQUIN®

M A G A Z I N E

The Best  
**Chest Exercises**

Ten Anti-Aging  
Foods

Tips For  
**High-Stress  
Times**

Beliefs That  
**Impede Fat Loss**



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October 2022

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# The Best Chest Exercises

Many daily gym goers say, “Build the chest and forget the rest because when the pecs are popping the ladies are stopping!”

Ok, but seriously, when it comes to picking the best chest exercises, you might think that the bench press is all you need. Yet, doing the same barbell bench press will lead to diminishing returns and could put you at risk of injury. Therefore, it’s worth having a full arsenal of the best chest exercises if you want to build a bigger, stronger chest.

## The Chest Musculature

Building an impressive chest pays off in multiple ways: A strong chest translates into athletic excellence in sports from football to hockey to basketball. Training the best chest exercises is also important for the average Joe (or Jane), allowing you to easily perform pressing movements that pop up in everyday life.

There are also the aesthetic benefits: A study from the UK found that that a muscular wide chest that creates a V-shaped torso is a key component of the ideal male body (1).

Getting a robust chest requires you to challenge all your chest muscles:

**The Pectoralis Major** constitutes most of the chest muscle mass. It is the large fan-shaped muscle that is involved in flexing and extending the arm. The pectoralis is a pennate muscle which means its fibers run parallel to their force-generating axis. Pennate muscles rotate as they shorten. This is true of the pectoralis major that rotates the arm at the shoulder joint.

**The Pectoralis Minor** is a small muscle that lies underneath the pec major. Its job is to pull the shoulder forward and down.

**The Serratus Anterior** is located at the side of the chest wall. It is activated when you press weights overhead.

There are four angles of pressing – decline, flat, incline, and overhead – that dictate the various contribution of fibers recruited in the pecs. The higher the pressing angle, the more clavicular fibers are recruited. The lower the press, as with a decline press or a dip, the more the sternal fibers are recruited.

## The Best Chest Exercises

Here are seven of the best chest exercises to include in your program:



### 1. Semi-Supinated 30° Dumbbell Rotating Press

The dumbbell bench press is great for training through a full range-of-motion while activating the smaller stabilizer muscles in the arms and shoulders.

Set up an incline bench at a 30° angle. Grab two dumbbells in neutral. As you press the weight up, rotate your wrists to a pronated position with palms facing forward.

By adding a rotational component to a dumbbell press the pectoralis is allowed to work over a greater range of motion. A rotating grip also alleviates stress on the elbow joint.



### 3. Pronated Grip 15° Chest Flys

Set up an incline bench at a 15° angle. Grab two dumbbells and press the weight up with hands in a pronated position. Perform the chest fly motion keeping arms relatively straight with just a slight bend in the elbow.

Using a pronated grip when performing fly variations allows for a stronger line of contraction, especially when the arms are lowered back at an angle where elbows are in line with the ears in the bottom position.



### 2. Poliquin Rotating Dumbbell Press

Using the same principles of working the pennate fibers of the pectoralis, the Poliquin Dumbbell Press takes advantage of the rotational training effect on the chest.

On a flat bench, start with the weights in neutral in the bottom position. As you press the weight up, pronate the wrists so that they are facing away from you.



### 4. Chest Dips

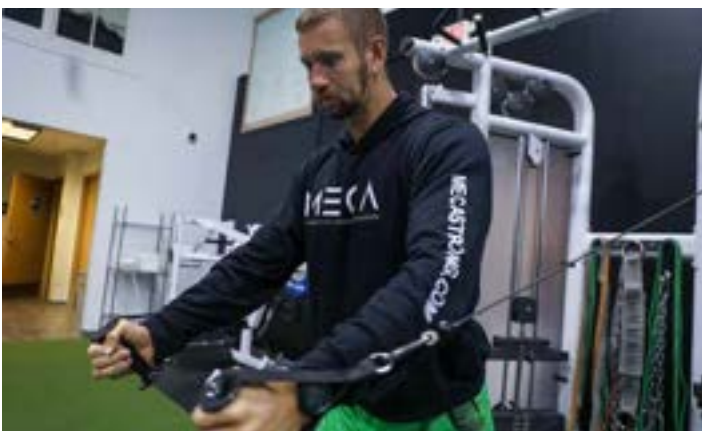
Dips that emphasize the chest by leaning forward slightly are great for putting meat on the pecs. You also nail all your stabilizer muscles and work the upper back and shoulders in the process. Add extra weight with a dip belt if your body weight is not enough of an overload.



### 5. Barbell Wide Grip 30 ° Incline Press

Pressing on an incline works the clavicular head of the pectoralis major, which helps make your pecs “pop.” The wide grip in this variation places the pectorals under a greater stretch. This is effective when hypertrophy is the goal, whereas for sports performance goals, a medium grip with the index fingers in line or just outside acromion width is preferred.

Set up on an incline bench with a 30° angle in a power rack. Take a wide grip on the barbell to perform the motion.



### 6. Decline Cable Fly

Cable exercises differ from free weights by providing constant tension throughout the full movement. Because you can adjust the angle of the cable, it's possible to emphasize different areas of the pectorals. A high pulley setting targets the lower pecs, whereas the low pulley emphasizes the upper pectorals. In bodybuilding circles, this exercise is known for its ability to “fill in” the upper chest.

Set up in a split stance with a low cable pulley in each hand. Perform a chest fly motion, bringing the hands toward each other in front of the chest.



### 7. Dumbbell Serratus Pullover

The pullover develops the pectoralis major and minor because these muscles are involved in overhead shoulder movements. The pullover also works the serratus muscles, which are attached to the ribs.

Set up on a 15° incline bench. Start by pressing a dumbbell straight up. Perform the pullover motion, maintaining arms straight as you lower the weight through a comfortable range of motion until it is behind your head.

### Final Words

The bench press may be the most popular upper body exercise for most gym goers. To get stronger in this valuable exercise it's often not a matter of training harder, but smarter. Add these best chest exercise variations to your routine to keep making gains in upper body strength and mass.

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## GET STARTED WITH GERMAN BODY COMP TRAINING

If you need to lose body fat, get started with a German Body Comp training program. German Body Comp is great for beginners because it uses total body training that builds baseline strength throughout the body. GBC is unique because it restores insulin sensitivity and fixes your metabolism. It's ideal for anyone who has metabolic problems, like diabetes, or who simply doesn't like cardio.

### What Is German Body Comp?

German Body Comp uses weight training exercises with short rest intervals to burn fat while simultaneously building muscle. German Body Comp is great for fat loss because it leads to an increase in growth hormone, the ultimate fat burning hormone.

German Body Comp workouts for fat loss use multi-joint exercises like squats, lunges, presses, rows, etc. Volume is fairly high with moderately heavy weights that you can lift for 8 to 15 reps, depending on exactly what phase of the training program you are in. Rest is short, ranging from 10 to 60 seconds.

### Get Started With German Body Comp

If you're like most people, you're less interested in why German Body Comp works and just want to get started. Lift weights now; ask questions later. Fair enough.

Here are the important guidelines to understand so you can get started with German Body Comp:

### Exercise Order

German Body Comp programs exercises in a circuit. You perform two or three exercises in a row and then repeat for the prescribed number of sets. For example, when you see exercises marked A1 and A2, perform one set of A1, one set of A2, and then return to A1 again.

### Tempo

Tempo is the speed with which you perform the different components of an exercise. Prescribing tempo is important because it dictates how the muscles are stimulated during a lift.

We use four numbers to prescribe tempo:

- 4110
- The first number (4) dictates the seconds it takes for the eccentric motion
- The second number (2) is the pause before the concentric motion
- The third number (1) is the concentric motion
- The fourth number (0) is the pause before the repetition repeats

In the case of a 4210 tempo in the bench press, it

takes 4 seconds to lower the weight, there is a 1-second pause at the bottom position, and then the weight is rapidly pushed up in 1 second, and the rep starts over immediately.

### Weight Selection

Regarding weight selection for German Body Comp, you want to choose weights that are challenging but don't cause you to reach failure. Ideally, choose weights that you could lift for approximately four additional reps than those prescribed.

For example, if you are supposed to perform 10 reps for your first set, you should be able to perform at least 14 reps with the weight for your first set. Such an approach is ideal for fat loss because it stresses the metabolism without causing excess fatigue to your neuromuscular system.

Here is a workout to use to get started with German Body Comp. Complete novices can start by training 2 days a week on non-consecutive days. Work up to training 4 days a week.

## DAY 1

ORDER	EXERCISE	REPS	SETS	TEMPO	REST
A1	Step-Ups	10-12	3	2010	60 sec
A2	Seated Row	10-12	3	3110	60 sec
B1	Lying Leg Curl	10-12	3	4120	60 sec
B2	Dumbbell Bench Press	10-12	3	4011	60 sec
C1	Back Extension	12-15	3	2020	60 sec
C2	Biceps Curl	12-15	3	3010	60 sec
D1	Standing Calf Raise	12-15	3	2110	60 sec
D2	Lying Triceps Extension	12-15	3	3010	60 sec

## DAY 2

ORDER	EXERCISE	REPS	SETS	TEMPO	REST
A1	Leg Press	15-20	3	4021	60 sec
A2	Lat Pulldown	10-12	3	3110	60 sec
B1	Front-Foot Elevated Split Squat	10-12	3	4020	60 sec
B2	Dumbbell Overhead Press	10-12	3	4010	60 sec
C1	Reverse Sit-Up on Incline	12-15	3	3110	60 sec
C2	Hammer Biceps Curl	10-12	3	3010	60 sec
D1	Calf Raise Seated	15-20	3	2110	60 sec
D2	Triceps Press Down, Rope	12-15	3	3010	60 sec

### Final Words

Getting started with German Body Comp training is a surefire way to set yourself on a new path of health.

Combine German Body Comp with a smart nutrition plan that helps you achieve your goals.



# There is a vitamin D-receptor site on every cell in the body



Achieving healthy vitamin D levels is one of the easiest ways to promote long-term health, optimal body composition, and reduce injury and illness.\*



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# THE #1 MOST IMPORTANT ACTION TO IMPROVE YOUR DIET: AVOID ULTRA-PROCESSED FOODS

Avoiding ultra-processed foods is probably the number one most important thing you can do to improve your diet.

Stress has led many people to rely on processed foods for their convenience and rewarding taste profile. In fact, traditional processed food manufacturers like Kraft-Heinz and Mondelez have seen their sales skyrocket since the pandemic started.

This has likely contributed to the “covid 15” fat gain that many people have experienced. Now is a great time to make the switch away from processed foods toward whole foods in their most natural state.

## WHY ARE ULTRA-PROCESSED FOODS SO BAD?

They are low in nutrients and won't provide the body with the building blocks needed for optimal health or performance.

They are linked with poor cognitive performance and mental issues. Processed foods are made of refined grains that elevate blood sugar and predispose you to metabolic problems.

They lead to a variety of poor health outcomes, including diabetes, obesity, and death.

They lack the nutrients necessary for your body to handle the physical ravages of stress, increasing aging and poor health.

Processed foods are designed to be irresistible, stimulating food intake and weight gain.

## Avoid Ultra-Processed Foods To Overcome Obesity

If you're battling obesity, the number one thing you can do to improve your situation is to avoid processed foods. The effect of swapping out processed food is huge: One study found that when volunteers ate a

diet high in processed foods for 2 weeks, they took in more than 500 extra calories daily than when they ate a macronutrient-matched whole food diet. (1)

This was the first randomized-controlled study to compare processed with whole food diets on eating behavior, metabolic markers, and body composition. Scientists took 20 volunteers and randomized them into a group that ate an ultra-processed diet or a group that ate a whole food diet for two weeks.

An example of the processed diet was a breakfast of Eggo pancakes, turkey sausage, tater tots, and orange juice. For the whole food diet, breakfast consisted of a spinach omelet with sweet potato hash and skim milk. Processed snack options included potato chips, goldfish crackers, and peanut butter sandwich crackers. Whole food snacks were oranges, apples, almonds, walnuts, and raisins.



The available foods were matched for fat, protein, and carbs. Subjects were allowed to eat as much or as little as they wanted at each meal.

### **Processed Foods = 500 Extra Calories A Day**

Participants had a much higher calorie intake from ultra-processed foods. Intake was 508 extra calories on the processed food diet. About half of those extra calories came from carbohydrates and half from fat. There was no increase in protein.

Participants consumed the extra calories from the ultra-processed foods at breakfast and lunch. At breakfast, the subjects ate 124 more calories and at lunch they ate 213 extra calories. Carbs were also a much greater percentage of calories at these two meals.

The added calories in the processed diet led participants to a gain a predictable 2 pounds. In contrast, participants lost the same amount

when eating the healthier whole foods diet.

### **Whole Foods Are Just As Enjoyable**

Both groups reported that the diets were flavorful enough to enjoy eating. There was no difference in “pleasantness” of meals. Instead, people often ate easier-to-chew processed foods faster, leading to a delay in satiety signals and greater food consumption.

It’s also possible that processed foods negatively affect the gut, which communicates with the brain to regulate food intake. When you impair this communication axis, the “stop eating” message from the gut is disrupted.

### **Take Aways:**

Avoiding processed foods is a simple way to lower calorie intake for better body composition. Choose whole foods in their most natural state.

Breakfast and lunch are times when

people are especially susceptible to overeating processed foods. This may be partly due to lack of time when people are on the go. Avoid processed foods by preparing foods in advance and prioritizing high-quality protein and fibrous vegetables to keep eating in check.

If you can’t avoid processed foods in your diet, focus on mindful eating. Slow your eating rate down and savor the food to allow for hunger-dampening messages to register in the brain.

It’s possible to train your taste buds to enjoy healthy whole foods. Sometimes eating healthy is about changing your habits to reach for nutritious options instead of the same old junk that has come to dominate the average American’s diet. Swap nuts for chips, berries for candy, and vegetable sticks with hummus for chicken wings.

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**Are you stressed?**

**Exercise every day?**

**Take medications?**



If you answered yes, your vitamin stores are compromised. Every vitamin and mineral is involved in energy production and carbohydrate metabolism.\*

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# TEN WAYS TO ENHANCE INSULIN SENSITIVITY



The number one thing you should do when embarking on a weight loss plan is increase insulin sensitivity.

What is this thing called insulin sensitivity you ask? Insulin is the hormone that is released by your pancreas in response to an increase in blood sugar. Blood sugar is elevated when you eat, primarily meals containing carbs or certain protein sources. Insulin acts as a key to let sugar into your cells to be burned for energy or stored as fat if energy levels are topped off.

When you are sedentary or eat a high-carb diet, cells become insensitive to insulin, which leads to low energy, fatigue, and an increase in fat storage. The result for many people is fat gain, obesity, and eventually, diabetes.

The good news is there are easy things you can do every day to improve your insulin sensitivity and avoid the misery. This article will give you ten to try today.

## #1: Train With Weights

Anaerobic exercise like weight training and intervals is the most powerful tool to improve insulin sensitivity. After a vigorous workout, your muscles are depleted of fuel, which automatically enhances their sensitivity to insulin. Additionally, this type of exercise builds lean muscle, which increases the number of insulin receptor sites you have. For every 10 percent increase in muscle mass, you get an 11 percent reduction in insulin resistance.

## #2: Avoid Refined Carbs

Sugar, refined carbs, and almost all processed foods spike blood sugar because they are quickly digested. The blood sugar spike results in too much insulin being released, which, over time makes your cells less sensitive to insulin. Try choosing vegetables instead of processed foods (including bread, pasta, crackers, etc.) and reduce your intake of grains, even the pseudo healthy “whole” ones because they lead to high insulin as well.

### #3: Flavor Foods With Vinegar Or Lime

Vinegar and other acidic foods such as lemon and lime increase insulin sensitivity, improving the body's ability to store the carbs you eat as muscle glycogen instead of as fat (1).

### #4: Use Spices

Cinnamon, turmeric, and ginger are known as nutrient partitioners, meaning they improve insulin signaling to muscle and other lean tissues so that glucose is less likely to be stored as fat (2).

### #5: Avoid Sitting For Long Periods

Sitting for long periods reduces insulin sensitivity even if you work out frequently and do everything else on this list right. For example, just 3 days of physical inactivity in young, active people caused insulin sensitivity to plummet and the participants gained belly fat. You don't have to run around the block. Just get up and walk around a bit every 30 to 60 minutes.

### #6: Get Enough Sleep

Following just one night of poor sleep, insulin sensitivity is reduced because the stress hormone cortisol is elevated. This causes you to crave higher carb foods, but when you eat them, you often feel worse afterward because glucose tolerance is reduced. Anytime you can't get enough sleep, be especially cautious with food choices and do everything you can to improve insulin sensitivity.

### #7: Cook, Cool & Re-Heat High-Carb Foods

Some whole carbohydrates, such as vegetables, are high in resistant starch, which doesn't respond to the normal enzymes in our guts that digest them (3, 4). The blood sugar response to foods containing resistant starch is lower and you absorb fewer calories. You can increase the resistant starch content of carbohydrate foods by cooking them, letting them cool, and then reheating them. This process changes the chemical structure of the carbs in everything from pasta to bread, reducing the blood glucose response. Try it with potatoes, sweet potatoes, oatmeal, rice, and any other high-carb foods you like.

### #8: Get Enough Magnesium

Magnesium is a natural "insulin sensitizer," exerting positive effects on the insulin receptors in each cell of the body. For example, in a 6-month study that

had overweight individuals take 365 mg of magnesium daily, insulin sensitivity, glucose tolerance, and blood pressure were significantly improved (5). Magnesium-rich foods include leafy greens, especially Swiss chard, seeds (pumpkin and sesame), nuts (almonds, cashews), and broccoli.

### #9: Use A High-Fat, Low-Carb Keto Diet

High-fat, low-carb diets restore insulin sensitivity in people with metabolic problems (6). You don't have to cut carbs forever, but going low in carbs for a few months pays off in other ways too: Carb cravings drop, and people stay steadier and on an even keel with their eating instead of bingeing on carbs due to blood sugar spikes and valleys.

### #10: Avoid Eating Late At Night

The foods people eat late tend to be higher carb foods, elevating insulin, which ends up throwing off our circadian rhythms. High insulin inhibits good sleep because melatonin, the sleep hormone, is only released after insulin falls. Short-term, you get one restless night, but over the long-term, late-night eating can completely mess up hormone balance.

**Final Words:** Managing insulin sensitivity is one of the most important things you can do to feel better and achieve a lean body composition. Use these tips to develop a healthy lifestyle for optimal insulin health.

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**A healthy gut microbiome  
is essential for our health  
and well-being\***



Probiotics support  
healthy digestion and  
the immune system.\*

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# Top Ten Anti-Aging Foods:

## Eat These Foods To Stay Young & Amazing

**FORGET FACELIFTS AND OTHER FORMS OF PLASTIC SURGERY. THE KEY TO ANTI-AGING IS SIMPLE: EAT HEALTHY.**

Food can have a radical anti-aging effect, keeping your body strong, skin vibrant and taut, and mind cranking. That's because what you eat affects the systems in your body that lead to aging and dysfunction. Here are ten foods to feel and look amazing.



### #1: SALMON & OTHER LOW POLLUTION FISH

Fish consistently show up in diets that are associated with a long and healthy life due to their high-quality protein and excellent dose of omega-3 fats, DHA and EPA. These fats promote longevity by eradicating inflammation and improving a whole cascade of hormones from cortisol to insulin.

One increasing problem is pollution and mercury accumulation in fish. Wild salmon, sardines, and Atlantic mackerel are some of the safest fish. Canned salmon is your best bet for canned fish because it tends to be wild caught whereas canned tuna has some of the highest mercury content.



### #2: ALMONDS, WALNUTS & BRAZIL NUTS

Nuts are rich in fiber, antioxidants, protein, and healthy fats—all of which are linked to longevity and healthy aging (1).

Walnuts provide protective polyphenols, which have been found to reduce cortisol following a stress test. Researchers believe the combination of antioxidants and omega-3s in walnuts allow for

improved hormone and neurotransmitter function.

Brazil nuts are high in selenium, which is a compound that enables the enzymes needed for regulation of the endogenous antioxidant, glutathione, which is a key regulator of aging and immune function.

Almonds are rich in vitamins B and E and have been found to improve time trial performance in cyclists, likely due to their anti-inflammatory effects.



### #3: COFFEE

Many people still think of coffee as a guilty pleasure that is better avoided. In fact, coffee is one of the most exciting longevity foods available to you! Studies show regular coffee drinking has incredible protective effects against diabetes, cardiovascular disease, neurodegeneration, and cancer.

Most important, a large-scale 14-year study of more than 400,000 people found that the more coffee people drank, the lower the risk of mortality. Men who drank 2 to 3 cups a day had a 10 percent lower risk of mortality, and those who drank 4 to 5 cups per day had a 12 percent lower risk. Drinking 6 or more cups decreased mortality by another 10 percent compared to non-drinkers. The figures were slightly higher in women, and they remained after adjusting for cofounders like age, body fat, race, education, and lifestyle factors.

Why is coffee so healthy?

It's jam packed with the antioxidants caffeic and chlorogenic acid, which eradicate inflammation. The caffeine appears to have a protective effect on the brain, increasing cognition and reducing your risk of Alzheimer's or Parkinson's disease (2).





#### #4: WHEY PROTEIN

Whey protein, which can be found in dairy products and taken as a supplement, is a superior anti-aging food because it enhances the body's internal antioxidant system by increasing levels of glutathione (3). Whey protein also has anti-microbial activity and contains a full line up of easily absorbed amino acids for muscle and bone building.

Regularly taking whey protein can increase insulin sensitivity and glucose tolerance in diabetics—an effect that resulted in a small but significant body fat loss. Other studies show whey supplementation may reduce blood pressure and improve LDL cholesterol markers for less risk of cardiovascular disease (4).



#### #5: TART CHERRIES

Tart cherry juice significantly enhances sleep quality by raising melatonin, the primary hormone that induces sleep and aids in the regulation of the body's circadian rhythm (5). Since melatonin is both water- and fat-soluble, it moves easily through cell membranes, allowing it to eradicate free radicals that damage tissue and DNA that cause aging.

Research shows tart cherries reduce DOMS muscle soreness and accelerate recovery from exercise. This suggests that these delicious wonders of flavor contain health-promoting properties beyond the fact that they raise melatonin. It's likely that the high levels of phytochemicals enhance elimination of waste products from muscle damaging workouts.



#### #6: BONE BROTH

A reduction in collagen (a specialized protein that is found in skin and connective tissue) is the primary reason skin begins to sag as you age (6). Fortunately, research has found that supplementing with 2.5 grams a day of collagen for 8 weeks can increase skin elasticity in older women for healthier, younger looking skin.

One of the best ways to get more usable collagen in your diet is with bone broth. Broth contains large amounts of protein, and the body can break it down into collagen peptides during digestion, which is the form that has been found to increase a variety of markers of healthy skin in studies.



#### #7: ORGANIC MEAT

Most nutritional protocols for longevity avoid meat. There are various reasons for this: Some cite the acid load associated with a high meat intake, others claim too much protein is bad for you, others blame it on the saturated fat content in meat and the outcome of the Seven Countries Study.

The reality is that if the rest of your diet is stellar (lots of vegetables, a variety of healthy fats, and reasonable complex carbs for your activity levels), high-quality protein is a primary component of any longevity diet.

First, protein provides the amino acid building blocks for the body to preserve muscle mass and maintain healthy connective tissue and bone. Muscle mass is a key indicator of longevity and people with greater lean mass who get life-threatening diseases have a better prognosis.

Second, the more high-quality protein you eat, the less dangerous abdominal fat you have—a type of fat that secretes inflammatory factors that damage DNA and harm health (7).

Finally, protein is necessary for detoxification, a process that is hampered by aging and inflammation, making high-quality protein essential as you get older.



#### #8: BLUEBERRIES

All the dark-colored berries and fruits (pomegranate, strawberries, blackberries, plums, etc.) have an anti-aging effect and frequent consumption can improve a variety of systems in the body (8). Blueberries just happened to be one of the most studied fruits, which is why they make this list.

Animal studies show blueberry polyphenols can extend lifespan by improving the body's natural antioxidant defense system. Human studies show these protective effects translate into healthier blood pressure, greater insulin sensitivity, better heart function, and a younger, smarter brain.



#### #9: GARLIC

Garlic is one of the most powerful anti-aging foods, having protective properties that target almost every system in the body

that gets degraded over a lifespan (9). There's strong evidence that eating garlic daily can lower cholesterol, improve blood pressure, and has a cancer fighting effect.

Best of all, garlic has been found to increase calorie use in the body. It also has an insulin sensitizing effect and can improve blood sugar tolerance for better fat burning. Animal studies show garlic is particularly effective in reducing fat gain from a high-fat diet that is intended to cause obesity.



#### #10: CHOCOLATE

Being a savvy consumer, you probably wonder if chocolate truly has any health-promoting powers. Good news is that super dark chocolate that provides a high dose of flavanols has legitimate anti-aging benefits (10):

- It improves vascular health by increasing blood flow and reducing inflammation.
- It aids gut health and improves digestion.
- It improves metabolic hormone balance of insulin and cortisol.

**Final Words:** Can you check off all the foods on this list? If so, you're well on your way to a long, energetic (and youthful looking) life.

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**The Omega-3 fats, EPA and DHA,**  
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MANAGING BLOOD SUGAR AND INSULIN\*  
PROPER CELL FUNCTION AND SIGNALING\*  
SUPPORTING MUSCLE SYNTHESIS\*



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# HOW MAGNESIUM PROTECTS YOUR METABOLISM

When it comes to popularity, magnesium is probably the most fashionable nutrient out there. It's like the coolest of the cool kids, but unlike most high-status individuals, magnesium is friends with everyone.

One reason magnesium is so important is that it is necessary for other trendy nutrients to work right. Vitamin D requires magnesium to transform it into the active form that strengthens bones and protects against inflammation. Calcium works with magnesium to regulate blood pressure and ensure cells are sensitive to insulin.

Then there's the hundreds of enzymes that require magnesium. As cool as magnesium is, enzymes are like the nerdy best friend: They're massively important for health but they function in stealth mode, working with magnesium to manipulate how your body works from behind the scenes.

## So what happens to those enzymes when magnesium goes missing?

They get depleted, which means the body isn't working as it should. Your metabolism takes a hit, which is one reason magnesium deficiency is associated with the obesity and diabetes crises. Restoring magnesium status should be your first line of defense in preventing these diseases. What follows are all the reason you should make magnesium your best friend forever!

## Am I At Risk of Magnesium Deficiency?

Magnesium is essential for life. It is probably the most underappreciated nutrient when you consider the high rates of deficiency across the population.

Risk of magnesium deficiency has increased dramatically over the last 80 years due to changes in soil quality, pesticide use, and removal of magnesium during food processing (1). The U.S. RDA for magnesium is 420 mg for men and 320 mg for women but surveys show that intake is about half that.

This has led to deficiency rates of over 50 percent in American and western populations. Some surveys show that as much as three-quarters of the population is magnesium deficient. Factors that increase risk of magnesium deficiency include diabetes, GI problems such as celiac disease, eating disorders, thyroid disease, heart disease, hypertension, caffeine and alcohol use, high-intensity exercise, medications, and laxative use.

## What Are The Risks of Magnesium Deficiency?

Magnesium plays a major role in the metabolism of glucose and it affects the nervous system. Too little is a big problem. Here are examples of how lack of magnesium can negatively affect your life:

**More Obesity:** When magnesium is absent, glucose metabolism is diverted into a pathway that leads to increased synthesis of triglycerides and VLDL, both of which are harmful for the blood vessels.

And being the cool BFF that it is, magnesium enables vitamin D and vitamin B1 to “rev” your metabolism. For example, magnesium is necessary for the activation of vitamin B1 into thiamine diphosphate, which is a coenzyme for burning both glucose and fat.

Finally, magnesium plays a role in sensitizing cells to insulin. This is important for everyone but especially for obese individuals who tend to have higher intake of refined grains and simple sugar that flood the blood stream with glucose (2). The enzymes required for the body to burn glucose are magnesium-dependent and a deficiency causes a “sluggish” metabolism.

**Increased Diabetes:** Magnesium is inversely associated with the risk of diabetes and diabetics are practically guaranteed to be deficient because high glucose levels lead to the loss of magnesium via the urine (1).

This is bad news because magnesium helps lower insulin release in response to a high-carb meal. Additionally, because glycolytic enzymes depend on magnesium, low magnesium can lead to decreased ATP in cells, meaning cells are being “starved.” Together, these effects cause inflammation and damage to the pancreatic beta cells, leading to diabetes.

**Greater Chance of Metabolic Syndrome:** Metabolic syndrome is what happens when obesity becomes dangerous for health. It is characterized as a combination of excess body fat, especially around the abdominal cavity, hypertension, insulin resistance, high cholesterol, and low-grade inflammation—all factors that magnesium may fix.

### How does magnesium exert its power?

Magnesium works with calcium to regulate the metabolic response of overweight individuals. An unbalanced ratio between these two nutrients maximizes the effect of their single deficiencies (1). Magnesium also affects the body’s stress response and your ability to clear cortisol, which is consistently linked to higher levels of belly fat and the risk factors for metabolic syndrome.

### What Are The Benefits of Magnesium Supplementation?

The good news is you experience major benefits by getting your magnesium levels up to par. Here is a brief

snapshot of the benefits of magnesium supplementation:

In diabetics, supplementing with 250 mg of elemental magnesium for 3 months improves glycemic control, insulin sensitivity, and markers of inflammation (3).

In healthy runners with a low magnesium intake, 500 mg of magnesium daily for 8 weeks reduces muscle soreness and mitigates post-exercise elevations in blood glucose that occur in response to high-carb fueling (4).

In people with hypertension, 600 mg of magnesium improves blood pressure, endothelial function, and markers of atherosclerosis (5).

### Take Aways:

Correcting a magnesium deficiency is essential for metabolic health and a good quality of life.

Correcting a deficiency should start with a diet high in whole foods that supply magnesium (leafy greens, legumes, nuts, seeds).

People with diets higher in processed carbs require more magnesium than those on whole food diets due to higher glucose levels and the fact that refined foods are abysmally low in magnesium.

Supplementation should be individualized. Magnesium-deficient individuals may need to increase intake to 10 to 12 mg/kg of body weight for therapeutic interventions (1).

Magnesium goes well with vitamin D (it activates it), calcium (it balances it), and probiotics (they improve absorption in the GI tract).

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**Magnesium** is involved in over 300 enzymatic processes in the body and supports:

BLOOD SUGAR REGULATION\*  
STRESS AND SLEEP\*  
MUSCLE CONTRACTIONS\*  
OVERCOMING ANXIETY\*



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## Use Carnitine To Ramp Up Your Training & Recover Faster

**How often do you complain of fatigue or low energy?**

**Maybe slow recovery and muscle soreness make it hard to train with the intensity you would like?**

**How often do you cancel your workout due to low training motivation?**

**These are all issues that could be solved with carnitine!**

**How Does Carnitine Support Exercise Performance?**

At the most basic level, carnitine is a metabolic nutrient, helping the body burn fat, both at rest and during exercise (1). In addition to raising energy levels, especially during times of physical stress, carnitine protects muscle during intense exercise (2).

This means lower post-workout muscle soreness as well as faster recovery due to higher rates of protein synthesis and replenishment of glycogen—the energy store in muscle. There's even some evidence that carnitine improves how your

body uses testosterone because it increases the sensitivity of androgen cell receptors that render testosterone active to muscle (3, 4).

**Carnitine Improves Exercise Performance & Reduces RPE**

Ten years ago, a breakthrough study found that giving 2 grams of carnitine with 80 grams of carbs twice a day to experienced triathletes allowed them to compete longer at a higher intensity with a lower RPE (5). The athletes improved their work output by 35 percent and had an 11 percent increase in performance on a time trial.

**How did they do it?**

Scientists found that the participants had a 55 percent reduction in the use of muscle glycogen during exercise. The triathletes were relying more on fat to keep them going. Sparing glycogen is a superior technique for improving endurance performance because it means you can use both the fat and glycogen in your body to fuel exercise, allowing you to train harder for longer. When glycogen runs out, it is a performance-limiting factor.

Carnitine also decreases muscle damage, pain, and markers of metabolic stress from high-intensity exercise. You'll be able to lift more weight, complete more reps, or run faster and longer, but with greater ease. For example, the triathletes who took carnitine had a 44 percent decrease in lactate—the by-product that makes you “feel the burn” and limits performance. With less lactate buildup, work capacity increases and training does not feel as physically difficult. Yay!

**Carnitine Helps Start The Recovery Process**

Along with helping you dig deep during training, carnitine is just as important in the post-exercise recovery period. Carnitine is a potent antioxidant, helping to stabilize cell membranes that can be damaged during exercise or energy metabolism. It protects against oxidative stress that damages muscle tissue and leads to DOMS muscle soreness. One study found that supplementation with carnitine reduced muscle pain, tenderness, and release of creatine kinase—a marker of muscle injury (6).

Carnitine also improves androgen receptor number and sensitivity. This means that testosterone is better able to bind with cell receptors to stimulate protein synthesis and repair damaged muscle (3, 4). One study found that older men who took a blended form of carnitine had improvements in symptoms of low testosterone. Incredibly, taking carnitine was just as effective as taking supplemental testosterone in this study (7).

### Carnitine Supports The Brain

Carnitine tartrate is the form that is typically used for athletic performance, but another form, known as acetyl-L-carnitine, has brain benefits. Adding the acetyl group allows for carnitine to cross the blood brain barrier and improve biosynthesis of motivating neurotransmitters, such as dopamine, epinephrine, and acetylcholine. For depressed people or those who need to lose weight, it works wonders on motivation and self-initiative, both with training and work-related tasks (8).

### How To Take Carnitine

Carnitine is stored in muscle with total carnitine content in the human body being 300 mg/kg. That means a 70 kg individual could store about 21 grams in muscle. The body can produce a small amount (about 25 percent of requirements) and the rest has to be gotten from diet.

Meat and animal products are the only source of carnitine, with beef providing about 90 mg per 4 ounces. Vegetarians and people with chronic disease are at highest risk of carnitine deficiency, but meat eaters can also benefit from supplementation.

To get performance results, a few things are important:

First, it takes a long supplementation period to raise muscle carnitine levels. In the study of triathletes, there were no changes in performance after 3 from baseline, but after 6 months those improvements were pronounced and statistically significant (5).

Second, carnitine doesn't "load" in muscle unless accompanied by high insulin concentrations. This explains why many previous studies have NOT shown increases in muscle carnitine after taking it in multi-gram doses. Taking carnitine with carbohydrates is one way to ensure "loading" but you can also consume carnitine with a protein source that raises insulin, such as whey protein.

Other insulin-like nutrients that help load carnitine include fenugreek or alpha lipoic acid. Alternatively, you can take your carnitine as part of any mixed meal that contains some carbohydrates and protein—it's not required that you take it as part of a pre- or post-workout supplement, though some people find doing so improves their motivation to train.

For improvements in exercise performance, studies show benefits from 2 to 4 grams a day, often taken in divided doses, such as 2 grams at breakfast, and 2 grams post-workout.

Carnitine tartrate is the most common form for improving exercise performance, but there is evidence that a blended form that contains

acetyl-L-carnitine can be just as effective while supporting mood, cognition, and cardiovascular function. Adding a third form, propionyl L-carnitine will improve blood flow, support cardiovascular health, and benefit gut health.

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Carnitine transports fat into cells to be used for fuel. Research demonstrates benefits for exercise performance, memory and learning, cardiovascular health, and metabolic function.\*



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## TEN LIMITING BELIEFS THAT IMPEDE FAT LOSS

It's no surprise that losing fat and keeping it off is a challenge. What you might not know is that there are many everyday beliefs that make fat loss harder. Here are ten common misconceptions to help you prevent a growing waistline.

### **BELIEF #1: ONE POUND EQUALS 3,500 CALORIES**

The old rule of thumb was that if you can burn off 3,500 calories, you'll lose a pound of fat. The problem is that for most people, more than 30 percent of the weight lost is lean tissue. Therefore, for every 3,500 calories you cut, you'll probably only lose about 2/3 of a pound of fat. Unfortunately, the loss of lean mass means your metabolism will drop, making weight maintenance harder.

**Solution:** Training with weights and eating a high-protein diet are two ways to shift the weight loss equation in your favor so that you lose a greater percentage of fat.

### **BELIEF #2: I CAN LOSE IT LATER**

Every year, most people gain a few pounds over the holidays, but that's okay because they'll just tighten up their diet come

the new year and the fat will drop off, right? Unlikely! Most people never lose all the fat they gained over the holidays, and their weight ratchets up year after year, slowly degrading their health.

**Solution:** Establish healthy eating and exercise habits going into the holidays and maintain them all year round.

### **BELIEF #3: ONCE IT'S OFF IT WILL STAY OFF**

You're on a deadline. All you have to do is stick to your diet for a month. Then you'll lose the fat and can go back to eating normally. We've all tried this and it never works.

As soon as you go back to your old eating and sitting around habits, the fat will come back with a vengeance. Most people who use this approach actually end up fatter and with worse health compared to people who never lose fat at all.

**Solution:** You've got to embrace the fact that weight management is a lifelong reality. Identify a way of eating so that you enjoy food instead of obsessing over "off-limit" foods that set you up for failure.



#### **BELIEF #4: I CAN WORK OFF THE EXTRA CALORIES**

Studies show that exercising for fat loss, especially aerobic exercise, is often ineffective. The reason is still unclear, but we do know that people often compensate for calories burned during exercise by eating more. They go burn off 500 calories from a five mile run, and boom, they inhale a bag of chips, have a few glasses of wine, or chow down on some “healthy” carb-filled meal.

**Solution:** Certain forms of exercise such as sprints and strength training can support a fat loss program but you’ve got to put just as much effort and attention into fixing your diet.

#### **BELIEF #5: THERE’S ONE MAGIC BULLET DIET**

Diet research is hopelessly confusing and contradictory but there’s one thing we know for sure: There is no miracle diet. Sure, low-carb diets are slightly more effective for fat loss than low-fat, low-calorie diets, but the reality is that people rarely stick to them for the long run, which eliminates the advantage.

**Solution:** The magic bullet diet is the one YOU can stick to.

#### **BELIEF #6: IT’S ALL OR NOTHING**

The classic example of it’s all or nothing is when you eat one piece of pizza and then decide that since you blew your diet, you might as well polish off the pizza and have a pint of ice cream as well, because after all, you have to start over tomorrow.

This is like saying, “oh gee, I have one flat tire, let me just slash the other three.” Not only does it sabotage your ability to take action, you end up eating thousands of extra calories in the process!

**Solution:** Instead of rationalizing your way into a binge, identify your faulty thinking, notice it, and choose to stop.

#### **BELIEF #7: IT’S SO AND SOS FAULT**

Whether due to stress, false promises, or lack of a good plan, we like to blame others for our diet and exercise mistakes. We miss a workout or eat something we regret and it’s easier to blame our kids, a coach or friend, or a partner.

This puts the responsibility on others to change your behavior, when what you need is their support in helping you troubleshoot the situation so you can change your behavior.

**Solution:** Taking responsibility for your nutrition and physical activity makes you accountable to the only person who can lead you to success: Yourself!

#### **BELIEF #8: I CAN WILL THIS FAT OFF**

Willpower is a finite resource. Once it’s gone, there’s nothing between you, that pizza you’re dreaming about, and the couch. Not only do we run out of willpower as a diet progresses, but stress demolishes willpower.

**Solution:** Instead of white knuckling your way to lose a few pounds, develop healthy, sustainable habits that allow you to lose fat without the misery and struggle that most people suffer.

#### **BELIEF #9: ALL EXTRA CALORIES ARE CREATED EQUALLY**

Most people have accepted the fact that a calorie isn’t a calorie when it comes to comparing refined carbs like cookies and whole carbs like vegetables. But many people still think that all excess calories end up being stored as fat. According to one study, when people over-ate protein, getting about 800 extra calories of protein a day, those calories got deposited as lean tissue and they gained zero body fat.

**Solution:** Be smart about designing your diet with different macronutrients and whole foods to promote satiety and weight management.

#### **BELIEF #10: I JUST NEED TO EAT CLEAN TO LOSE FAT**

Although avoiding processed foods in favor of whole foods makes it easier to achieve an energy deficit, it’s not a surefire way to lose fat. You can still overeat healthy foods, whether it’s steak, strawberries, rice, sweet potatoes, or almonds.

**Solution:** Instead of worrying if a food is “clean,” figure out a way of eating that allows you to avoid excessive hunger and cravings. Unprocessed foods can help you make this happen, but don’t get sidetracked moralizing about food when your real goal is to create an energy deficit!

**Want more energy?**

**A better brain?**

**Lower stress?**



The B complex of vitamins help with all of these functions. The body works better when it gets bioactive forms of B vitamins, such as the Quatrefolic form of folate in B Excellence.\*



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# DAILY TIPS FOR COPING WITH HIGH STRESS TIMES

stress

It's safe to say that everyone can use tips to cope with stress. No matter how serene you were prior to the year 2020, the pandemic has made chronic stress an all the time thing for everyone.

There are many ways to cope with stress but the key to improving your quality of life is to have a daily plan for tamping down stress. You need to approach stress like an athlete—designing your life to minimize hassles while supporting recovery from the stressors that can't be avoided.

## **Benefits of A Stress Management Plan**

Coping with stress in a productive way isn't easy. It often feels easier to give in to self-medication with food, alcohol, medication, or whatever else takes the edge off, only to have this approach backfire so that stress spirals out of control.

On the other hand, having a plan to cope with stress will allow you to excel in your personal and professional life. Research shows one reason elite athletes outperform less experienced athletes is they have a better handle on stress (1). The most successful athletes are able to directly reduce their body's stress response when they are anxious.

## **#1: Don't Skip Meals**

Skipping meals is inherently stressful. As blood sugar drops, the stress hormone cortisol increases. At the same time, stress blunts hunger, making food the last thing to cross your mind. It's only later that hunger hits with a vengeance.

Eating regularly scheduled meals is the gold standard for coping with stress. Healthy food keeps you mentally steady by resetting your hormonal cascade. It also regulates your body's biological circadian rhythm. After you eat, cortisol goes down and you get an increase in hormones that blunt hunger and boost mood.

## **Take Away**

Eating scheduled meals won't take away your drive to get stuff done, but it will help you feel steady, in control, and less frantic.

## **#2: Eat Healthy High-Protein Meals During The Day**

Have you ever binged on carbs, experienced a sugar crash, and turned to caffeine and more carbs, only to feel terrible, hungry, and anxious?

What you choose to eat is just as important as remembering to eat.



Cortisol activates parts of the brain that make you crave sugar. When under stress, you won't crave steak and salad, but will be overwhelmed with desire for bagels, pizza, and cake!

### **Take Away**

By planning protein-centric meals, you'll head off cravings and balance your hormones. Protein has the added benefit of energizing the brain, whereas high-carb foods have a sedating effect, making you feel sluggish.

### **#3: Eat Whole-Food Carbs At Night**

Raise your hand if you've heard the rule that carbs shouldn't be eaten at night because they'll turn to fat. Not true.

Although you don't want to binge processed carbs, healthy carbs are a godsend for helping you ease stress at night. Here are a few ways whole food carbs can help you fight stress:

- Berries, leafy greens, and other colorful plants provide nutrition that helps repair your body from stress.
- Higher carb plants such as sweet potatoes, beans, and grains trigger a prolonged insulin release that lowers cortisol for better sleep.
- Healthy high-carb foods help the body make serotonin—the brain chemical that improves sleep and mood, but is depleted during high-stress times.

### **Take Away**

Eating healthy carbs at night is relaxing and helps prepare your body for restful sleep.

### **#4: Use Caffeine Wisely**

Coffee is a blessing. It boosts brain function and exercise performance, especially when you are tired (2). However, caffeine can be a curse if you overdo it.

When you are relying on caffeine all day long, it can leave your brain overactive. Drinking caffeine later in the day triggers the adrenal glands to pump out cortisol, leaving your mind racing and unable to wind down to go to sleep.

### Take Away

People respond to caffeine differently. Some can drink it in the morning and still get a good night's rest. Others will do better avoiding it entirely. Find your sweet spot!

### #5: Work Out, But Adjust Your Training If Necessary

Exercise is a great stress reliever. It lets you release your aggressions and think through problems.

What a lot of people don't know is that the body has a built-in stress management system, which can be enhanced by strength training. This system centers around a molecule called glutathione, which gets rid of factors produced by stress that damage cells. Strength training raises glutathione, improving your natural defenses against the onslaught of stress on your body.

### Take Away

If you're going through immense life stress, or are exhausted from burning the candle at both ends, you may want to give yourself a break and modify your training. Try intervals, hiking, or do single-set training to failure to give your brain some relief.

### #6: Remember To Supplement

Stress is nutrient-heavy process, depleting your body of key vitamins and minerals. Forgetting to supplement with magnesium (3), vitamin D (4),

and the B vitamins (5) will increase your susceptibility to stress and make it harder for you to recover.

There are also nutrients such as adaptogens that help the body recover from stress overload. Holy basil is an herb that fights fatigue and lowers cortisol (6).

Creatine improves energy to the brain and is especially effective when sleep deprived (7). Finally, Whey protein raises glutathione and improves insulin sensitivity—something that is degraded when cortisol is high or you're sleep deprived (8).

### Take Away

Tamp down stress by doing the simple things like remembering to take supplements that help your body handle high cortisol levels.

### #7: Do Deep Breathing, Yoga, Or Other Mind-Body Activities

Mind-body activities bring you into the moment and help you connect with what really matters. Mindfulness causes favorable chemical changes to the brain and balances the release of cortisol so that you can respond better to stress.

### Take Away

Mindful moments throughout the day go a long way to tamping down stress. Spending a few minutes on deep breathing or doing a short, guided meditation can calm your nervous system.

### Final Words

Coping with stress is worth the effort. You will have better energy all day long and feel more capable to handle the challenges of the day.

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# Support your body's response to stress\*



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## Our Philosophy

We don't have opinions about what works. We have facts. Decades of robust data and experience has given us a unique understanding of what works for whom. This is what we know:

**Strength is everything™.** Health begins with strength. Performance begins with strength. Endurance begins with strength. Virtually every movement and improvement an athlete seeks begins with strength. Strength is the pillar around which all other performance goals pivot. And whatever your performance ambitions, no one understands the value of strength better than us.

**Everyone is an athlete.** We have helped some shave milliseconds off world records, and others drop a few pounds—but the human body is a machine that responds predictably and positively when you do the right things.

**Train the trainers.** There is too much misinformation about fitness out there. We are building a network of knowledgeable, trustworthy, highly effective certified trainers that you can count on.

**Anyone can do it. Not everyone does.** Attaining your goal can often be simple. But it is never easy. We will show you the path, not the destination—that's on you.



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