



# PRINCIPLES OF NUTRITION

# HOW DO WE BURN CALORIES EACH DAY?

Our bodies must adhere to the First Law of Thermodynamics, which states, "Energy can neither be created nor be destroyed; it can only be transferred from one form to another." If we apply this to nutrition, we will gain weight if we are in a calorie surplus and lose weight if we are in a calorie deficit.

If we want to gain weight, we want to gain as much muscle as possible without gaining fat. And if we lose weight, we want to lose as much fat as possible while sparing muscle.

The following pages explain how our bodies use calories so we can achieve our body composition goals.

## **BASAL METABOLIC RATE**

Basal metabolic rate (BMR) is where we expend the most energy, a.k.a. calories. About 50-70% of our daily calories come from our BMR so we can breathe, carry out necessary body functions, and maintain our current weight without sacrificing precious muscle mass. Your BMR calories would be equivalent to a day when you were awake but didn't move.

# HOW DO WE BURN CALORIES EACH DAY?

Remember that your basal metabolic rate is the **necessary** amount of calories for your body to function properly. I never recommend that anyone eat just the amount of calories equal to their basal metabolic rate. You should always eat several hundred calories above your basal metabolic rate so your body can function properly.

## THERMIC EFFECT OF FOOD

Your body also uses a relatively small amount of calories to process, digest, and transport the food in your body, called the thermic effect of food (TEF) or dietary thermogenesis.

Every food has a different thermic effect because each food has a unique combination of fats, carbohydrates, and protein. But we know that protein has the highest thermic effect of all the macronutrients, with carbohydrates coming in second and fat having the lowest thermic effect.

Protein's high thermic effect is why high protein diets result in more significant fat loss and better improvements in body composition, even if calories are equal.

# MACRONUTRIENTS

Macronutrients, or "macros" for short, are the building blocks of food: protein, carbohydrates, and fats. They are the only things that provide our bodies with calories (a.k.a. energy), and each macronutrient will affect how you feel, the taste of food, and so much more.

Technically, alcohol is another macronutrient that provides seven calories per gram. Be mindful of how many calories are in alcohol if you want to drink with friends or have an evening glass of wine.

Here's a simple breakdown of each macronutrient:

## PROTEIN

Protein is the building block of muscle, keeps you satiated, and helps maintain good body composition. Each gram of protein you eat provides four calories of energy. If you want to gain some sweet muscle, you'll likely need to increase your protein intake.



# MACRONUTRIENTS

As I stated earlier, protein has the highest TEF meaning it takes more energy for your body to digest than carbohydrates or fats. The TEF of protein is 20-30% of the energy content, which means that if you ate a meal with 30 grams of protein, your body would use approximately 24-36 calories to digest that food.

So if you consumed a higher protein diet, your body would burn more calories digesting the food, which helps maintain healthy body composition. High protein intake is the common denominator in sustainable, successful diets.

And despite internet lore, you won't pee out any extra protein you eat, and a high-protein diet is safe for healthy individuals without kidney disease.

I like to use a sliding scale based on your body fat percentage to determine how much protein you need. The leaner you are, you'll need more protein to conserve muscle mass. Conversely, if you have a higher body fat percentage, you'll need less protein per pound of lean body mass. The following charts explain how much protein you need based on your body fat percentage.

# CALCULATING PROTEIN

## CALCULATING PROTEIN NEEDS FOR WOMEN

| BODY FAT % | PROTEIN MULTIPLIER     |
|------------|------------------------|
| 32-38+%    | 0.7 g/lb of bodyweight |
| 26-32%     | 0.8 g/lb of bodyweight |
| 20-26%     | 0.9 g/lb of bodyweight |
| 14-20%     | 1.0 g/lb of bodyweight |
| 8-14%      | 1.1 g/lb of bodyweight |

# CALCULATING PROTEIN

## CALCULATING PROTEIN NEEDS FOR MEN

| BODY FAT % | PROTEIN NEEDS          |
|------------|------------------------|
| 29-35+%    | 0.7 g/lb of bodyweight |
| 23-29%     | 0.8 g/lb of bodyweight |
| 17-23%     | 0.9 g/lb of bodyweight |
| 11-17%     | 1.0 g/lb of bodyweight |
| 5-11%      | 1.1 g/lb of bodyweight |

# PROTEIN SOURCES

## PROTEIN SOURCES

- Lean steak, lean ground beef
- Bison
- Lamb
- Lean pork chops
- High-quality deli meats
- Chicken breast, thighs, tenders
- Ground turkey or breast
- Salmon
- Cod
- Halibut
- Tilapia
- Shrimp
- Tuna
- Eggs, liquid egg whites
- Milk
- Greek yogurt
- Cottage cheese
- Low-fat cheeses
- Tofu
- Tempeh
- Edamame, soybeans
- Whey protein powder
- Plant-based protein powder
- Spirulina powder

## CARBOHYDRATE & FAT SOURCES WITH SOME PROTEIN

- Green peas
- Corn
- Pumpkin seeds
- Hemp seeds
- Flax seeds
- Chia seeds
- Quinoa
- Peanuts
- Almonds
- Cashews
- Nut Butters
- Beans, lentils, chickpeas
- Hummus



# MACRONUTRIENTS

## CARBOHYDRATES

Carbohydrates are the fuel for your workouts, help you recover, keep digestion moving, and are freaking delicious. Each gram of carbohydrates also provides four calories of energy.

Carbohydrates are NOT the enemy, especially if you like to do high-intensity workouts like HIIT classes, strength training, or Crossfit.

The TEF of carbohydrates is 5-10% of the energy content of the food. If you ate 30 grams of carbohydrates in a meal, your body would burn approximately 6-12 calories to digest.

Unless you're an elite-level athlete, you don't need to consume an exact number of daily carbohydrates. Still, you need to consume a **minimum** amount of carbohydrates to maintain energy levels. In my experience, eating less than 20-30% of your calories from carbohydrates will cause lethargy and make your workouts feel like death.



# CARBOHYDRATE SOURCES

## CARBOHYDRATE SOURCES

- Rice
- Quinoa
- Beans, lentils, chickpeas
- Potatoes, any variety
- Squash, any variety
- Oats: steel cut, old-fashioned, or quick
- Tortillas
- Buckwheat
- Fruits and fruit juice
- Apple sauce
- Raisins and dried fruits
- Beets
- Bread
- Pasta: wheat, veggie, or quinoa
- Raisins, prunes, dates
- Cereal, granola
- Hummus
- Corn
- Crackers, chips, popcorn
- Rice cakes
- Barbecue sauce
- Ketchup
- Honey, agave
- Jam, jelly, and marmalades
- Maple syrup



# MACRONUTRIENTS

## FAT

Each gram of fat you eat provides nine calories of energy. Fat is essential for a happy thyroid and hormone profile, a regular menstrual cycle, good digestion, and making food very tasty.

There are several types of fats: saturated, unsaturated, and trans. Saturated fats are solid at room temperature, and unsaturated fats are liquid at room temperature. The health consequences of saturated fat are unclear, but avoid trans fats due to their detrimental health effects on cholesterol levels.

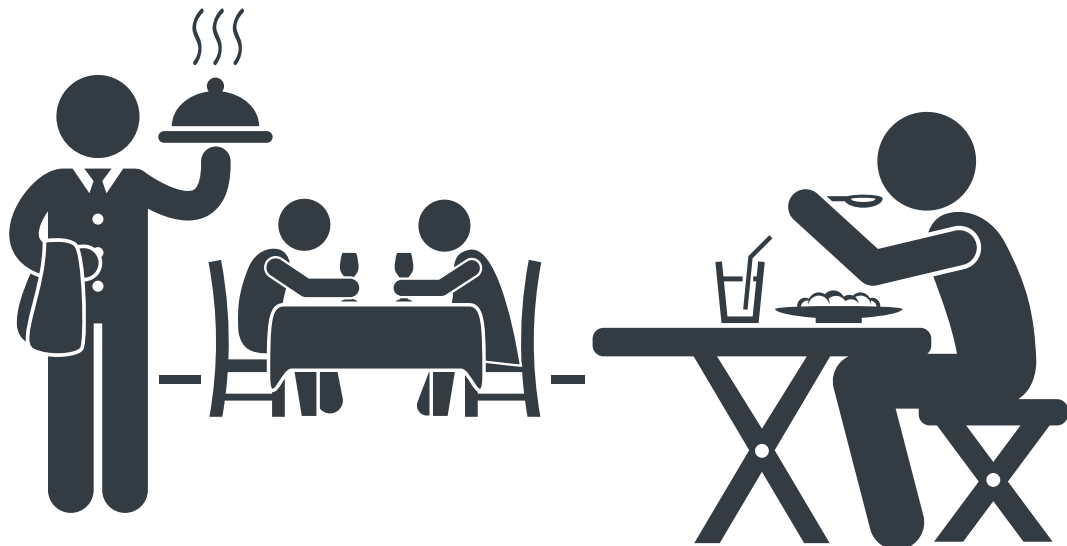
Fat has the smallest effect on TEF of the three main macronutrients, contributing to 0-3% of the energy content of the food. So, a high-fat, low-protein diet makes maintaining a healthy weight difficult.

Fat should make up 20-35% of your daily calories. The higher your body fat percentage, the more fat you should consume each day. You should consume closer to 35% of your calories from fat if your body fat percentage is over 25% for men or 30% for women. Conversely, the leaner you are, the closer to 20% of your daily calories should be consumed from fat.

# FAT SOURCES

## FAT SOURCES

- Avocados
- Seeds: chia, hemp, flax, pumpkin, sunflower, sesame
- Almonds, cashews, walnuts, peanuts, macadamia nuts
- Nut butter: peanut, almond, cashew, sunflower
- Egg yolks
- Oils: olive, canola, coconut, avocado, sesame, peanut
- Fatty fish like salmon, sardines, and tuna
- Butter
- Whole milk cheeses
- Whole milk, cream, half and half
- Full fat yogurt
- Fried foods
- Dark chocolate
- Olives
- Shredded coconut



# ADDING ACTIVITY LEVEL

## ADDING CALORIES FOR N.E.A.T. & EXERCISE

The calories burned for daily activity can account for 20-35% of your total calorie expenditure. Daily activity can be divided into two categories: N.E.A.T. and structured exercise.

N.E.A.T. stands for Non-Exercise Activity Thermogenesis, which is the energy we need for walking around, performing chores, fidgeting, and any unstructured movement that isn't a structured workout.

N.E.A.T. can significantly vary from person to person. N.E.A.T. is also constantly changing. If you are in a calorie deficit for an extended period, your body will down-regulate your N.E.A.T. levels to accommodate your calorie deficit. Down-regulated N.E.A.T. levels could mean fidgeting less or taking fewer daily steps.

Structured exercise also impacts our daily caloric expenditure. However, cardio machines and our fitness trackers tend to overestimate the number of calories we burn during an exercise session. Err on the side of caution if you are getting calorie estimates from a cardio machine, heart rate monitor, or fitness tracker.

# MICRONUTRIENTS

## MICRONUTRIENTS

Micronutrients are vitamins, minerals, fiber, sodium, and everything else we need in smaller amounts to keep our bodies running smoothly, literally and figuratively.

### *Fiber*

Fibers are molecules you cannot digest, so they pass through your digestive tract. Fiber draws water into your digestive tract, so staying hydrated is essential if you eat a high-fiber diet.

Women should eat at least 25 grams of fiber per day, and men should consume around 35 grams of fiber per day. A word to the wise: if you're not used to eating high-fiber foods, you may want to gradually increase your fiber intake to prevent digestive distress, bloating, and gas.

Some high-fiber foods include legumes, bran, oats, quinoa, popcorn, chia seeds, nuts, vegetables, and fruits, especially if the fruit has digestible seeds like strawberries and raspberries.

# MICRONUTRIENTS

## *Sodium*

Sodium is an electrolyte that helps maintain fluid and mineral balance, conducts nerve impulses, and executes muscle contractions and relaxations. The Dietary Guidelines for Americans recommend less than 2,300 mg of sodium per day, approximately **one teaspoon**.

Sodium comes from the salt in foods, whether naturally occurring, used to enhance flavor, or preserve the food. While the body needs sodium for these vital functions, consuming too much can raise blood pressure and increase the risk of heart disease and stroke.

Most people consume higher than the recommended amount of sodium per day. I had one client dedicated to lowering her sodium intake, so she put one teaspoon of salt in a baggie and carried it around so she wouldn't oversalt her food. After doing that for a few weeks, her palate changed, and she did not enjoy the same salty foods she used to.

Another note on sodium; if you eat excessive sodium for a day or two due to a holiday, vacation, or parties, the scale will go up a few pounds because of extra water retention. Please don't freak out. The scale will decrease after a few days of lower sodium intake and drinking enough water.

# MICRONUTRIENTS

## *Vitamins and Minerals*

Vitamins and minerals keep the body running properly, prevent diseases, and promote healthy growth.

Antioxidants are molecules that combat free radicals in the body. Free radicals are unstable atoms in the body that seek to stabilize their atoms by taking electrons from other molecules in the body, causing damage to cells, proteins, and DNA.

Antioxidants neutralize free radicals to prevent unwanted damage to other molecules. Several vitamins and minerals also act as antioxidants.

Free radicals should not be feared because they serve essential bodily functions when we're fighting infections. The goal is to maintain a healthy balance between free radicals and antioxidants.

The following charts give you a brief overview of all the vitamins and minerals, their role in your body, and what foods contain each. These charts are by no means an exhaustive list of every vitamin and mineral's role in the body but give you a general idea of how vitamins and minerals affect your health.

# MICRONUTRIENTS

## *Trace Minerals*

Trace minerals are minerals we need in smaller amounts so our bodies can function correctly. Some trace minerals include iron, chromium, copper, zinc, iodine, manganese, and selenium.

Trace minerals come from the plants we eat via absorption from the soil or when we eat animals who have eaten those plants. Food grown in different parts of the world will have varying mineral profiles based on the soil and harvesting practices. For example, the soil in sub-Saharan Africa is deficient in zinc.

## *Electrolytes*

Electrolytes are substances that have an electrical charge when dissolved in water. An electrolyte can have a positive charge or a negative charge to help carry out functions of the body, contract muscles, maintain fluid balance inside and outside the cells, regulate nerve function, hydrate the body, balance blood pH levels, maintain normal blood pressure, and help repair damaged tissue.

The seven main electrolyte minerals are sodium, chloride, magnesium, potassium, phosphorus, bicarbonate, and calcium.



# MICRONUTRIENTS

Electrolyte balance is affected by sweating, vomiting, diarrhea, poor diet, hydration status, and certain medical conditions. Supplementing with electrolytes is necessary for prolonged intense exercise (more than 60 minutes) or if you're a "salty sweater." You can tell if you're a salty sweater if you have a white residue on your workout clothes.

The following charts give a basic overview of the significant vitamins and minerals.



# VITAMINS

## THE ROLES OF VITAMINS IN THE BODY

| VITAMIN               | ROLE                                                                                           | SOURCES                                                                                                        |
|-----------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Vitamin A             | Antioxidant important for eye health, growth, cell division, and reproduction.                 | Carrots, tuna, butternut squash, sweet potatoes, spinach, cantaloupe, lettuce, bell peppers, pink grapefruit   |
| B1 (Thiamine)         | Helps turn food into energy and keeps the nervous system functioning properly.                 | Flax seeds, firm tofu, brown rice, pork, salmon, sunflower seeds, beans, green peas                            |
| B2 (Riboflavin)       | Helps use the energy from carbohydrates, fats, and proteins. Also an antioxidant.              | Beef, dairy milk, salmon, mushrooms, pork chops, spinach, almonds, avocados, eggs, fortified foods             |
| B3 (Niacin)           | Helps process fats and improves cholesterol profile, and helps create hormones.                | Tuna, chicken breasts, pork chops, beef, mushrooms, brown rice, peanuts, avocados, sweet potatoes, green peas  |
| B5 (Pantothenic Acid) | Helps turn food into energy and is imperative for red blood cells and hormones like melatonin. | Mushrooms, salmon, chicken breasts, avocados, beef, sunflower seeds, whole dairy milk, lentils, sweet potatoes |
| B6 (Pyridoxine)       | Processes amino acids, helps release stored glucose, and a healthy nervous system.             | Bananas, pistachios, chickpeas, salmon, tuna, chicken breast, potatoes, pork, winter squash                    |
| B7 (Biotin)           | Helps turn amino acids into glucose and is important for pancreas function and liver health.   | Egg yolks, legumes, sunflower seeds, almonds, broccoli, sweet potatoes, mushrooms, bananas, yeast, avocados    |
| B9 (Folate)           | Needed to make DNA and new cells                                                               | Edamame, lentils, asparagus, spinach, broccoli, avocados, mangos, lettuce, sweet corn, oranges, peanuts        |

## THE ROLES OF VITAMINS IN THE BODY (cont.)

| VITAMIN         | ROLE                                                                                         | SOURCES                                                                                                               |
|-----------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| B12 (Cobalamin) | Protects nerve fibers, necessary for creating energy, and needed to activate folate.         | Clams, tuna, king crab, beef, fortified foods, dairy milk, swiss cheese, eggs                                         |
| Vitamin C       | Antioxidant that also assists in building collagen and absorbing iron.                       | Guavas, kiwifruit, bell peppers, strawberries, oranges, papaya, broccoli, tomatoes, snow peas, kale                   |
| Vitamin D       | Helps build and maintain bone health by regulating the absorption of calcium and phosphorus. | Salmon, crimini mushrooms, fortified milks, pork chops, eggs, fortified yogurt and cereals                            |
| Vitamin E       | Antioxidant that protects cell membranes from oxidative stress.                              | Sunflower seeds, almonds, avocados, spinach, butternut squash, kiwifruit, broccoli, trout, olive oil, shrimp          |
| Vitamin K       | Needed for blood clotting, building bones, and wound healing.                                | Kale, spinach, sweet potatoes, avocados, broccoli, Brussels sprouts, cabbage, asparagus, kiwifruit, okra, green beans |

# MINERALS

## THE ROLES OF MINERALS IN THE BODY

| VITAMIN   | ROLE                                                                                                        | SOURCES                                                                                                       |
|-----------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Calcium   | Electrolyte responsible for maintaining teeth and bones, contracting muscles, and blood clotting.           | Tofu, milk, yogurt, parmesan, spinach, black eyed peas, okra, fish with edible bones, calcium-fortified foods |
| Chromium  | A trace mineral that helps improve insulin sensitivity and blood sugar levels.                              | Broccoli, grape juice, turkey breast, wine, English muffins, potatoes, green beans                            |
| Copper    | A trace mineral needed for red blood cell production, immune system health, and collagen production.        | Oysters, mushrooms, sweet potatoes, sesame seeds, cashews, chickpeas, salmon, dark chocolate, avocados        |
| Fluoride  | Prevents cavities and strengthens teeth.                                                                    | Tap water, grape juice, blue crab, shrimp, wine, coffee, raisins                                              |
| Iodine    | Imperative for thyroid hormone production and preventing many health conditions.                            | Iodized salt, seaweed, seafood, eggs, and dairy products                                                      |
| Iron      | Essential mineral needed for hemoglobin and transporting oxygen in red blood cells.                         | Fortified cereals, beef, shellfish, dried fruit, white beans, spinach, cocoa powder, quinoa, pumpkin seeds    |
| Magnesium | Electrolyte needed for muscle, nerve, heart, and insulin function.                                          | Spinach, pumpkin seeds, lima beans, tuna, brown rice, almonds, dark chocolate, avocados, yogurt, bananas      |
| Manganese | Trace mineral needed for bones, calcium absorption, skin, blood sugar regulation, and antioxidant function. | Mussels, wheat germ, tofu, sweet potatoes, pine nuts, brown rice, lima beans, chickpeas, spinach, pineapple   |

# MINERALS

## THE ROLES OF MINERALS IN THE BODY (cont.)

| VITAMIN    | ROLE                                                                                                              | SOURCES                                                                                                           |
|------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Molybdenum | Needed to process proteins and toxic materials.                                                                   | Black-eyed peas, lima beans, rice, nuts, potatoes, whole grains, leafy vegetables                                 |
| Phosphorus | Needed for cell function, energy production, strong bones, and regulating calcium.                                | Tuna, pork chops, tofu, milk, chicken breast, scallops, lentils, pumpkin seeds, beef, quinoa                      |
| Selenium   | Trace mineral needed for antioxidants, thyroid gland function, DNA synthesis, and immune system health.           | Brazil nuts, tuna, shellfish, pork chops, beef, chicken breast, tofu, whole wheat pasta, shrimp shitake mushrooms |
| Sodium     | Electrolyte needed for fluid balance, blood pressure regulation, and transmission of nerve impulses.              | Table salt, processed meats, pickled foods, sunflower seeds, clams, canned foods, soy sauce                       |
| Zinc       | Needed for enzyme production, wound healing, immune system function, fertility, and the sense of smell and taste. | Oysters, beef, chicken, tofu, pork chops, lentils, oatmeal, pumpkin seeds, squash seeds, yogurt                   |



# WHY YOU NEED TO STRENGTH TRAIN

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## WHY YOU NEED TO STRENGTH TRAIN

If you have aspirations to:

- Improve your physical appearance
- Decrease joint pain
- Improve your mobility
- Feel stable and balanced
- Live longer
- Ward off diseases
- Improve your metabolism
- Lower your body fat percentage
- Take care of your heart
- Manage blood sugar levels
- Have an easier time maintaining your weight
- Improve your confidence
- Be happier
- Get stronger

then strength training is the key.

Simply put, strength training overloads your muscles in some way, so they adapt to the stimulus by growing bigger, improving their endurance, and/or getting stronger. There are many ways to do this; it doesn't have to include heavy barbells if that's not your thing.

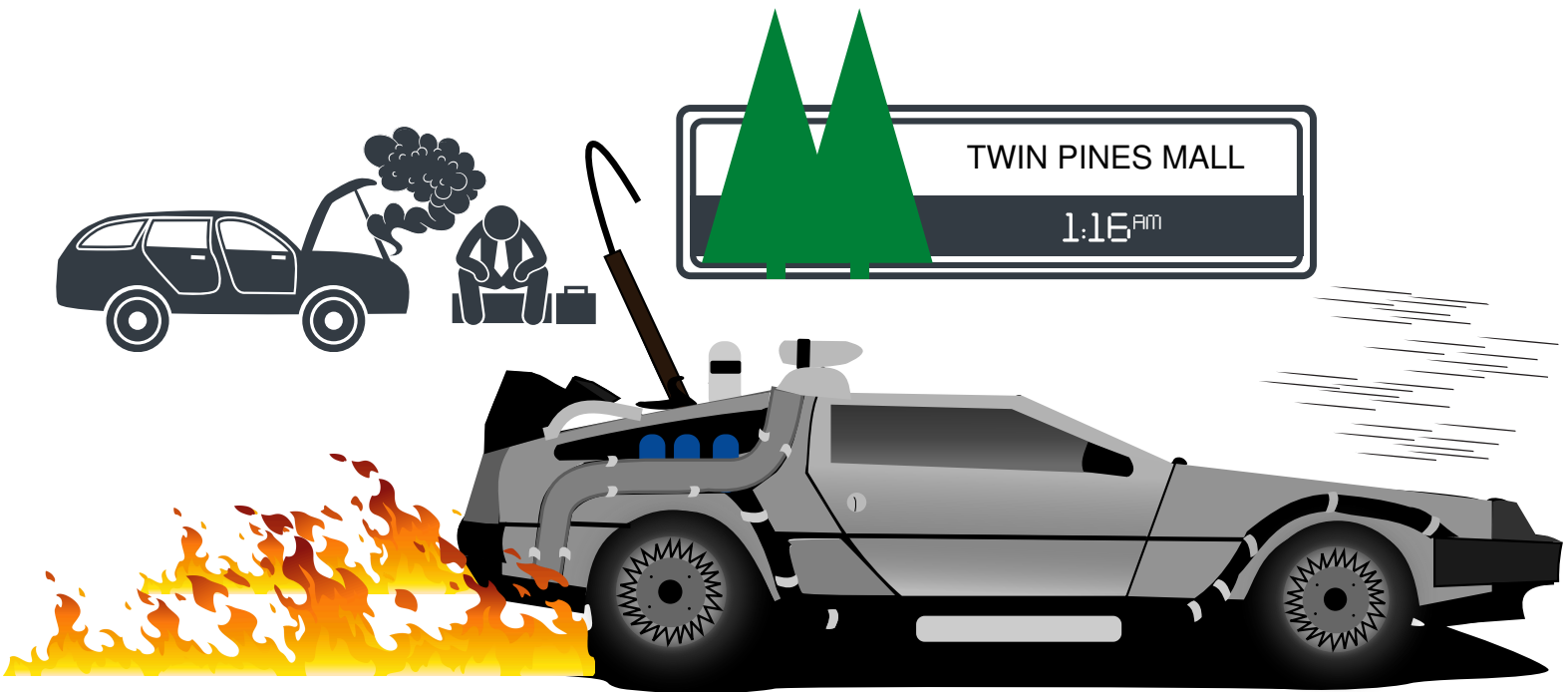
# STRENGTH TRAINING + NUTRITION

## COMBINING STRENGTH TRAINING AND NUTRITION

Strength training is like the engine running the car; nutrition is the fuel you put in the tank. A bigger, stronger engine with more horsepower has the potential to go very fast and accelerate quickly, but if you put watered-down fuel in the tank, the car will not go as fast as it's capable of going.

Conversely, if you put high-quality, premium gasoline in a car with a small, underdeveloped engine, you will not be capable of going very fast, even if you have the best fuel.

But if you can give high-quality, premium fuel to a strong engine, you will have a high-speed car zipping down the road at 88 mph.





# STRENGTH TRAINING + NUTRITION

Combining strength training and nutritious fuel is the way to unlock what your body is truly capable of and make it a well-oiled machine. Strength training stimulates muscle protein synthesis, which tells your body to build new muscle or preserve its already-established muscle. Then, if you give your body the proper fuel it needs, mainly in the form of adequate protein and enough calories, you will build new muscle or maintain what you have during recovery.

If you are trying to lose fat, strength training can help preserve the muscle you have, so the weight you lose will be in the form of fat. It's crucial to strength train during a fat loss phase; you don't want all your hard-earned muscle to disappear!

Strength training will preserve your resting metabolic rate and help negate metabolic slowdown if you want to lose fat. Your body needs fewer calories to maintain its current weight when you weigh less. So if you are not strength training to help preserve your metabolism, losing weight will get harder and harder because your caloric needs will get lower and lower. And as we discussed in the previous chapter, you need to eat fewer calories than you're using to lose weight. At some point, many people hit a wall once they have been in a fat-loss phase for an extended period.

# SLEEP

Sleep is also essential during a fat-loss phase because the amount of sleep you get will determine whether you lose fat or muscle. A study from 2010 demonstrated the potential effect sleep has on fat loss.

Ten overweight adults were on the same calorie-restricted diet, but one group was allowed to sleep 8.5 hours per night, and the other group was allowed to sleep 5.5 hours per night. Both groups lost a similar amount of weight, but **the sleep-deprived group lost 55% less fat and 60% more fat-free mass** than the well-rested group. That's crazy!

Additionally, if you consistently get less than 7 hours of sleep per night, you have a 1.7x increased risk of musculoskeletal injury.

There's a sleep challenge in the Lifestyle Habits section, but here are some tips for improving your sleep:

- Get in bed before 10:00 PM to fit in with natural circadian rhythms and daylight exposure.
- Reduce your exposure to blue light from electronic screens by wearing blue light-blocking glasses or turning on eye-saver mode.
- Use your bed only for sex and sleep. Don't watch TV or use your phone in bed.

# SLEEP

- Get 7-9 hours of sleep each night. Set a bedtime alarm to know when you need to get into bed and get adequate sleep.
- Foam roll before bed to help up-regulate the parasympathetic nervous system, the nervous system responsible for rest.
- Use red light therapy during the day. Some studies have shown improved sleep quality and duration with red light therapy.
- Open your blinds or curtains in the morning to help reinforce your circadian rhythms and daylight exposure.
- Make your bedroom as dark as possible. Use blackout drapes and cover any small lights from electronics with tape. Using an eye cover can be helpful too.
- Set a caffeine curfew of 2:00 PM. Caffeine can affect the quality of your sleep even if you don't have problems falling asleep with caffeine in your system.
- Use an essential oil diffuser before bed (lavender and eucalyptus are great for sleep).
- Set your thermostat to a lower temperature in your bedroom at night. Cooler temperatures have helped people with clinical insomnia fall asleep.



# HOW TO STRENGTH TRAIN

## HOW TO STRENGTH TRAIN

There are many ways to strength train, even ways that don't include weights. There are a few things that a good strength training program needs.

### *Mechanical Tension*

Mechanical tension is the force that tries to stretch the muscle, whether that force is gravity or an external load. The muscle must undergo some type of contraction to increase the mechanical tension, whether through a concentric, isometric, or eccentric contraction.

A concentric muscle contraction means the muscle is shortening while it is contracting. Think of taking a dumbbell from your side and curling it up to your shoulder by bending your elbow. This movement would be a concentric contraction in the bicep muscle.

An isometric muscle contraction means there is no movement during a contraction. Think of pushing against a wall or trying to lift a weight that won't move.

# HOW TO STRENGTH TRAIN

Eccentric contractions are the most demanding of the three types of muscle contractions. An eccentric muscle contraction means the muscle is lengthening while it is contracting. Going back to our bicep curl example, the eccentric contraction in the bicep would happen when you slowly lower the weight back to your side.

A good strength training program will utilize all types of muscle contractions through a large range of motion.

## *Progressive overload*

Progressive overload means that you gradually make things more difficult. If you keep doing the same thing, your body won't need to change to adapt to it. There are several ways you can apply progressive overload:

- Increase the resistance or load
- Add more reps, sets, or time
- Change the tempo by going slower or pausing to increase the time under tension
- Change the tempo by going faster and getting more work done
- Add more volume to the workout
- Decrease the rest time
- Improve form
- Add more workout days or train more frequently

# HOW TO STRENGTH TRAIN

## *Movement Patterns*

A complete strength training program will include all the different movement patterns, including:

- **Push**: moving something away from your body, whether in the horizontal or vertical plane.
- **Pull**: moving something closer to your body in the horizontal or vertical plane.
- **Hinge**: minimal knee flexion with maximum hip flexion. Think of pushing your butt to the wall while standing or lifting your hips off the ground while lying on the floor.
- **Squat**: maximal knee and hip flexion. Think of bringing your butt to the floor while in a standing position.
- **Carry**: the ability to maintain your posture while holding something and moving.

Within each of these patterns, you can include these subdivisions:

- **Unilateral**: using one arm or one leg at a time.
- **Lateral**: moving sideways, away from the body.
- **Stabilization**: holding your body still while there is an external force.
- **Rotation**: moving something across your body while doing one of the abovementioned movements.

# HOW TO STRENGTH TRAIN

Here are some examples of each movement pattern:

- **Push**: push ups, overhead presses, handstands, bench presses, tricep presses/extensions, dips.
- **Pull**: rows, pull ups, pull downs, bicep curls.
- **Hinge**: deadlifts, bridges, hip thrusts, swings.
- **Squat**: squats, lunges, leg presses.
- **Carry**: low carry, rack carry, serratus carry, overhead carry.

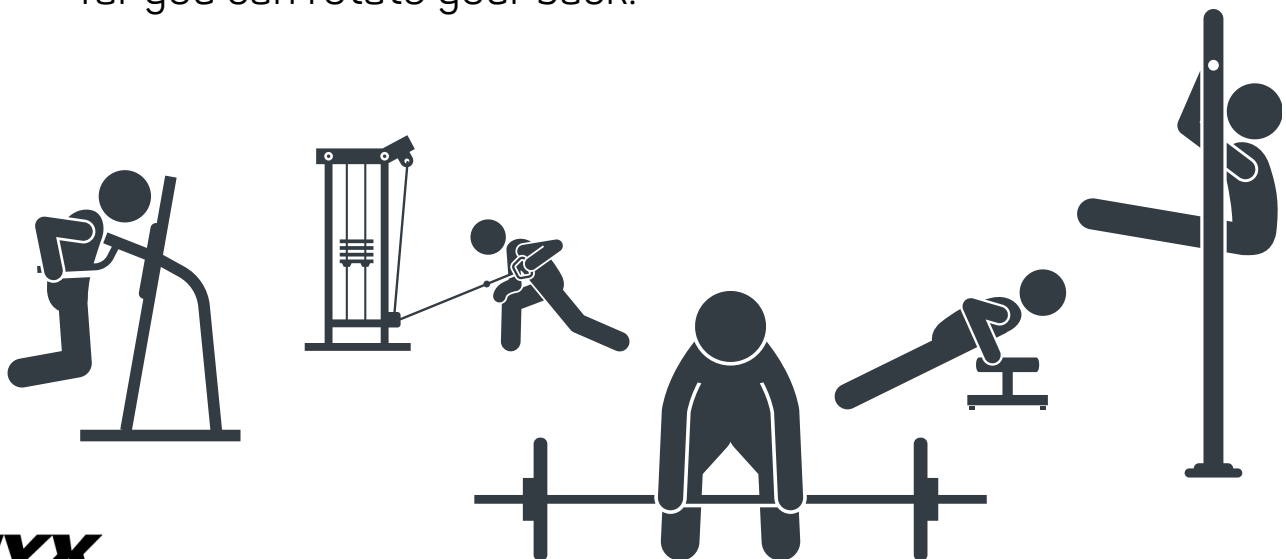
You can perform any of these movement patterns in any way you would like, whether you want to use your bodyweight, kettlebells, dumbbells, a barbell, machines, resistance bands, medicine balls, or with water weights in a pool. As long as you achieve mechanical tension, progressive overload, and eat appropriately, you will get stronger and build muscle.

Here are some final tips for strength training:

- If you can do more than 30 reps, the resistance is too light. You should have an ugly face during the last few reps because the exercise is getting difficult.
- Include a variety of rep ranges. Generally speaking, lower reps are better for developing strength, while higher reps are better for muscle hypertrophy (increase in muscle size). Half your exercises should be less than eight reps, and the other half for more than eight reps. Just be sure the last few reps are challenging, regardless of how many total reps you are doing.

# HOW TO STRENGTH TRAIN

- Master bodyweight exercises. Include some bodyweight exercises or calisthenics in your program. You can get very strong if you only focus on doing push ups, pull ups, handstands, hanging leg raises, and single-leg squats.
- Fatigue your muscles, not your conditioning. If you feel winded before your muscles start to fatigue, you may need to increase the weight, decrease the reps, or increase the rest time between sets.
- Train full range of motion, especially the end ranges. You will only get strong in the range of motion you train, so if you cut the movement short because the resistance is too hard, you will not get the most bang for your buck. Strengthening the end ranges is also critical for injury prevention. You don't typically need a lot (or any) added resistance for strengthening your end ranges; it's more about moving into those end ranges easily and with control. Some examples of end ranges of motion would be how deep you can go into a squat, how high you can get your arms overhead, and how far you can rotate your back.





# HOW TO STRENGTH TRAIN

If you are interested in a strength training program, you can check out my current programs on my website, [www.OnyxAthleticPerformance.com](http://www.OnyxAthleticPerformance.com).

All of my programs aim to make you feel like an athlete again by making you stronger than you have ever been without skipping mimosas at weekend brunch. Here's a sample training day from one of my programs:

## **Warm Up**

Hip airplane stretch, 20 per side

Lateral and monster band walks, 20 each way

Prone I, T, Y, P; 5 each

## **Superset A**

Trap bar deadlift, 4 x 6 @ 75-80% 1RM, RPE 8

Eccentric pull up (neutral grip), 4 x RPE 8

## **Superset B**

TRX inverted row + hold on last rep, 3 x RPE 7

Rower glute bridge, 3 x 12-15, RPE 8

## **Superset C**

Dumbbell Bent Over Back Fly, 3 x 20, RPE 9

Mini Band Clamshell with Hip Thrust 3 x 15 per side, RPE 9

## **Conditioning: Sled Row**

10 minutes total, 45 sec on, 30 sec rest; 75% of bodyweight