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HUMAN OPTIMISATION

# THE ULTIMATE GUIDE TO HUMAN OPTIMISATION

From lean muscle mass to anti-aging

Human optimisation is one of the hottest trends in health and fitness at the moment, with no signs of this trend slowing as it leverages the science-back methods to have you looking and performing at your optimal level. This means healthier skin, deeper sleep, a toned functional physique, abundant energy, and enhanced cognitive performance.

Over the recent decades, various areas of health and fitness have promoted 'siloed' strategies that give short-term benefits at best but fail to approach human performance from a holistic perspective, using science to back up the game plan. Human optimisation owes this approach to living a healthier, longer life, which is why the leading trainers to the stars are rejoicing.

This guide covers six key topics that are core to human optimisation, and each section highlights tips to help you accelerate results and keep you there. We have researched all the gurus and thought-leading across a range of areas, including biohackers, medical advisers and practitioners, nutritionists, physiologists, fitness coaches, competitive athletes, to present to you a comprehensive and powerful guide.

From the outset, the framework provided here is 1) achievable, and 2) it seriously works.

At the end of each topic, we provide you with a thought leading tip that gives you accelerate your results

# WHY NUTRITION IS SO IMPORTANT?

Nutrients are the good things we get through food which we need to nourish and nurture ourselves, and to be happy and healthy people. In scientific terms, nutrition is the supply of food we need as an organism to feed our cells and keep them alive.

We can get nutrients from products such as vitamin supplements. However, when we talk about nutrition, we mostly mean the nutrients we get from food.

Getting your macro and micro-nutrients right for you is super important for body composition and energy levels and to fuel your brain, optimise digestion, and maximise your nutritional absorption.

The secret to why nutrition is essential for people is in the word itself – nutrition comes from nutrients. Nutrients are the good things we get through food which we need to nourish and nurture ourselves and to be happy and healthy people.

In scientific terms, nutrition is the supply of food we need as an organism to feed our cells and keep them alive. We can get nutrients from products such as vitamin supplements. However, when we talk about nutrition, we mostly mean the nutrients we get from food.

Most people know good nutrition and physical activity can help maintain a healthy weight. But the benefits of good nutrition go beyond weight. Good nutrition can help:

- Reduce the risk of some diseases, including heart disease, diabetes, stroke, some cancers, and osteoporosis
- Reduce high blood pressure
- Lower high cholesterol
- Improve your well-being
- Improve your ability to fight off illness
- Improve your ability to recover from illness or injury
- Increase your energy level

## What is nutrition, and why is nutrition important for humans (or any living things really)?

Nutrition means getting the food and nourishment you need for health and growth. Without nutrition, we grow weak, sick, and at worst, can even die. We miss developmental milestones and can't put our bodies through the daily mental and physical tasks we need them to. We aren't able to grow and may also not reproduce.

Nutrients are the fuel we need to enable the body to break down food and then put this to use in the body to repair and build cells and tissue, which is basically our metabolism.

The healthy human body needs seven kinds of nutrients to thrive; proteins, carbohydrates, fats, vitamins, minerals, fibre, and water. Macronutrients are the ones we need lots of, while with micronutrients (the vitamins and minerals), we can get by with less. Many fuel energy, while others have other important roles like digestion and hydration.

## Micronutrients: little but very important

Vitamins are the most commonly known micronutrients, which are essential organic compounds that the body needs to function but which it can't create on its own. There are thirteen vitamins people need, including A, D, E, K, eight different B vitamins, and C. Other micronutrients are the minerals, which we don't need in as large a quantity as the other nutrients listed, but there is a wide range of minerals we should be getting, which can make it difficult to get them all.

The minerals we need include magnesium, iron, zinc, potassium, calcium, chloride, sodium, manganese, copper, and several more. There are 16 minerals we need to thrive.

## What is a nutritional imbalance?

A nutritional imbalance happens when you are not getting the right amounts of the nutrients you need. You can have too much of something, but it is generally more serious about having too little of a nutrient.

To help maintain your body and keep it strong, you need to have a balanced diet and a nutritional one.

Different nutrients have very different jobs in the body and show up as different kinds of deficiency when lacking.

If you are missing all of the nutrients, such as being deprived of food and water, then you can become malnourished. You can become deficient in certain nutrients for several reasons:

- Not consuming enough of them
- Your body has difficulty processing one or more
- Disease
- Medications can deplete them
- Stress
- Your digestive system isn't working properly
- You have an allergy or sensitivity to certain nutrients

Nutritional imbalances or deficiencies are usually easily tested for and usually can also be easily remedied.

## Easy ways to improve your nutrition

The best way to get the nutrition you need is through your diet. The body usually processes food better than supplements, so this is the most effective and efficient way to get what you need.

But if diet can't do it because you can't get the food you need or your body won't tolerate it, then supplements are available to, well, *supplement* your diet and nutrition needs.

## Pay attention to your body and any changes

Your body's needs will change over time. Babies and children need different nutrients and quantities to adults, men need different amounts to women, and then pregnant or menopausal women need different again.

If you have a sensitivity to any food, which can also develop later in life, your needs will change again. You may have processed certain foods wonderfully when you were younger but develop problems with them with age, including carbohydrates and other sugars.

Pay attention to what your body needs and how you feel. If you lack energy or having trouble with your digestion, this can be an early sign that something might be out of balance.

## Get a check-up

If anything seems out of balance, talk to your doctor about tests for nutritional imbalances; most of these can be done with simple blood tests.

Even if nothing feels wrong, you should still have a regular check-up with your doctor to keep an eye on your changing and ageing body.

## Eat a regular, balanced and nutritious diet

People need to consume around 2000 calories a day, usually across 3 to 6 meals. Eating a healthy diet means not going over that amount too often, trying not to skip meals because we overcompensate for it later, and getting our daily calorie allowance from the right foods.

Around half of what we eat should be fruit and vegetables in a wide range of colours – the broader the rainbow, the better. Then around a quarter of our intake should come from proteins like meat, chicken, fish, legumes, dairy, and nuts, and around a quarter from carbohydrates like whole grains and starchy vegetables.

We should eat little fat or sugar added to food and instead get both our fats and energy intake from the sources we listed above. Healthy fats come from proteins and things like avocados and olive oil, while healthy sugars come from fruit and dairy.

## Look into supplements to help

For many people, adding a daily supplement to help their nutrient intake along is an excellent idea. If you aren't able to get nutrients from their most natural source, supplements are a great and easy option.

Particularly for people with high vitamin needs, like pregnant women or those recovering from serious illness, it would be virtually impossible to get what you need from food alone.

## 6 Essential Nutrients and Why Your Body Needs Them

- Protein
- Carbs
- Fats
- Vitamins
- Minerals
- Water
- Takeaway

## Essential nutrients

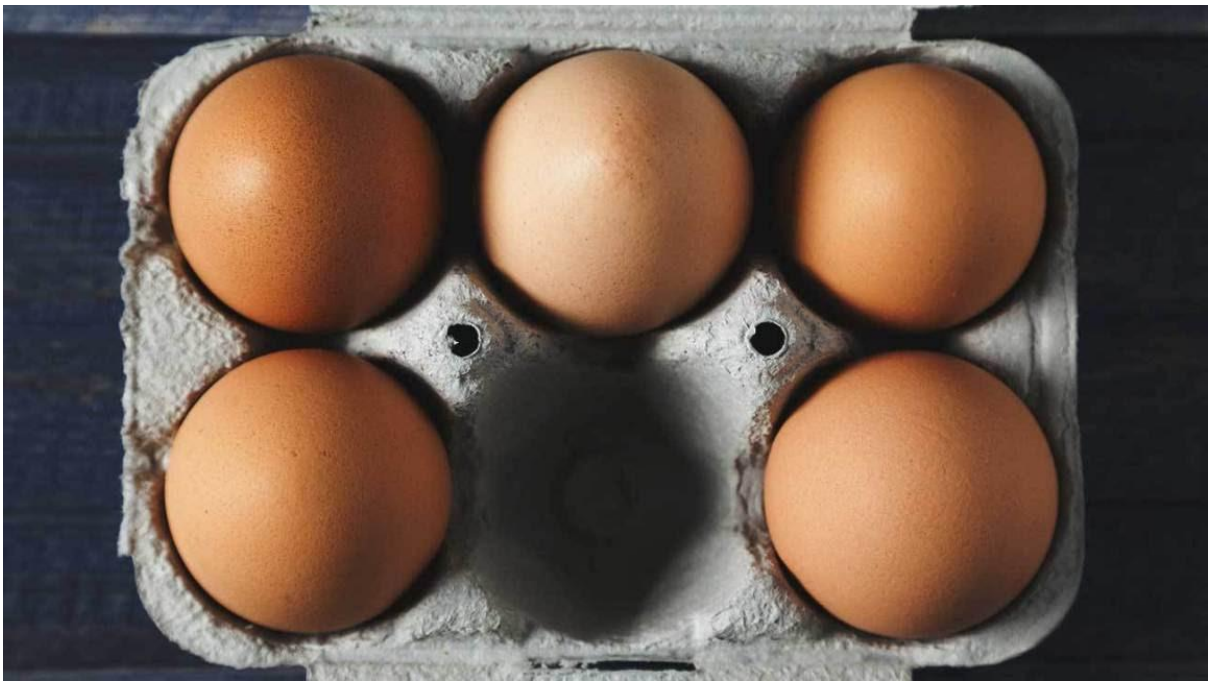
Essential nutrients are compounds that the body can't make or can't make in sufficient quantity. According to the World Health Organization's Trusted Source, these nutrients must come from food, and they're vital for disease prevention, growth, and good health.

While there are many essential nutrients, they can be broken into two categories: macronutrients and micronutrients.

Macronutrients are eaten in large amounts and include the primary building blocks of your diet — protein, carbohydrates, and fat — which provide your body with energy.

Vitamins and minerals are micronutrients, and small doses go a long way. There are six main groups of essential micronutrients and macronutrients.

## 1. Protein



Protein is having its moment, and not just in the workout community. But the hype is for a good reason. Protein is essential for good health. Protein provides the building blocks of the body, and not just for muscle.

Every cell, from bone to skin to hair, contains protein. A startling 16 percent of the average person's body weight is from protein. Protein is used primarily for growth, health, and body maintenance.

All of your hormones, antibodies, and other important substances comprise protein. Protein is not used to fuel the body. Proteins are made up of different amino acids. While the body can create amino acids on its own, there are many essential amino acids that can only come from food. You need a variety of amino acids for your body to function properly. Fortunately, you need not eat the amino acids at once. Your body can create complete proteins from the foods you eat throughout the day.

## Healthy sources

While meat, fish, and eggs are good sources of essential amino acids, you can also get protein from plant sources like beans, soy, nuts, and some grains. Exactly how much protein you need daily depends on a variety of factors, including how active you are and your age.

Despite the growing popularity of high-protein diets, there haven't been enough studies to prove that they're healthier or can influence weight loss, according to the Mayo Clinic.

## 2. Carbohydrates

Don't let the low-carb craze fool you. Carbohydrates are necessary for a healthy body. Carbs fuel your body, especially your central nervous system and brain, and protect against disease, according to the Mayo Clinic.

Carbohydrates should make up 45 to 65 percent of your total daily calories, according to the Dietary Guidelines for Americans' Trusted Source.

## Healthy sources

Before you reach for the white bread or pasta, remember that the carbs you eat matter. Some carbs are healthier than others. Choose whole grains, beans, and fiber-rich vegetables and fruits instead of refined grains and products with added sugar.

## 3. Fats

Fats often get a bad rap, but recent research has shown that healthy fats are an important part of a healthy diet. According to Harvard Medical School, fat supports many of your body's functions such as vitamin and mineral absorption, blood clotting, building cells, and muscle movement. Yes, fat is high in calories, but those calories are an important energy source for your body.

The Dietary Guidelines for Americans' Trusted Source recommends that 20 to 35 percent of your daily calories come from fat, but the World Health Organization's Trusted Source suggests keeping it under 30 percent of your calories.

Including healthy fats in your diet can help you to balance your blood sugar, decrease your risk of heart disease and type 2 diabetes, and improve your brain function. They're also powerful anti-inflammatories, and they may lower your risk of arthritis, cancer, and Alzheimer's disease.

## Healthy sources

The most famous unsaturated fats are omega-3 and omega-6 fatty acids. Unsaturated fats are important for your body as they provide essential fatty acids your body can't make. You can find these healthy fats in nuts, seeds, fish, and vegetable oils (like olive, avocado, and flaxseed). Coconut oil provides plant-based fats in medium-chain triglycerides, which impart health benefits like faster utilization by organs as fuel and appetite control.

Avoid trans fats and limit your intake of saturated animal-based fats like butter, cheese, red meat, and ice cream.

## 4. Vitamins

Vitamins are vital for warding off disease and staying healthy. The body needs these micronutrients to support its functions. There are 13 essential vitamins that the body needs to function properly, including vitamins A, C, B6, and D.

Each vitamin plays an important role in the body, and not getting enough of them can cause health problems and disease. Many Americans do not get enough of many essential vitamins. Vitamins are essential for healthy vision, skin, and bones.

Vitamins may lower the risk of lung and prostate cancer, and they're powerful antioxidants. Vitamins like vitamin C boost the immune system and help the body heal.

## Healthy sources

If you eat a varied, well-balanced diet full of vegetables and fruits, and have a normal and healthy functioning digestive tract, you likely need not take vitamin supplements.

## 5. Minerals

Much like vitamins, minerals help support the body. They're essential for many body functions, including building strong bones and teeth, regulating your metabolism, and staying properly hydrated. Some of the most common minerals are calcium, iron, and zinc.

Besides strengthening bones, calcium helps with nerve signal transmission, maintaining healthy blood pressure, and muscle contraction and relaxation. Iron supports your red blood cells and hormone creation, while zinc boosts your immune system and wound healing.

## 6. Water

You can go for weeks without food, but you can't last more than a few days without water. Water is crucial for every system in your body. It's also the main thing you are made of. About 62 percent of your body weight is water.

Water improves your brain function and mood. It acts a shock absorber and a lubricant in the body. It also helps flush out toxins, carry nutrients to cells, hydrate the body, and prevent constipation. Even mild dehydration can make you feel tired and impair your concentration and physical performance Trusted Source.

## Healthy sources

You don't have to chug water to stay hydrated. Fruits and vegetables can also be a great source. Munch on some spinach or watermelon to stay hydrated.

The best way to know if you're properly hydrated is the color and volume of your urine. If your urine isn't frequent and pale yellow or nearly clear, you need more water.

# STAR TIPS

Getting your nutritional intake right is obviously super important. However, this won't mean a thing if your body cannot absorb and use all these fantastic nutritional goodies in an optional way—one of the obvious areas overlooked in GUT HEALTH, otherwise known as the body's second brain.

Ben Greenfield, in his best-selling book BOUNDLESS, dedicates an entire chapter to the Clean Gut. He highlights these facts as to why our gut health is super important:

1. Three quarters of your immune system resides in your digestive tract
2. Your gut is a giant ecosystem, with kilograms of bacteria that produce vitamins and other healing compounds that help you digest food, regulate hormones and excrete toxins
3. Your brain and gut are connected. This is called the 'brain-gut connection' (makes sense!), and this is why diet can affect mood and behaviour, and why a poor digestive system can make you feel stupid and sluggish
4. Your liver is part of this digestive system. This is where your gut dumps all the toxins. But if your liver isn't in top order, toxins accumulate, meaning the liver's functions are compromised, including manufacturing proteins and blood clotting agents

Here's what you need to do to keep your gut healthy:

1. Consume a wide range of fermented foods such as picked vegetables, kimchi, miso, and yogurts
2. Consume a full-spectrum probiotic
3. Consume plenty of vegetables and moderate amounts of fibers from other sources

This is a super supplement that has worked serious miracles in transforming gut health:

1. BPC-157, ('Body Protecting Compound') is a widely used peptide that not only accelerates optimal gut health but also promotes accelerated injury repairing across the entire body from ligament to bone. As such, it is often used to assist with repairing niggling injuries through to comprehensive injuries related to bone, tendon, and muscle damage

# EXERCISE

There are millions of different exercise programs you are sold and promoted all over the internet, and while most of these programs are fine, it is super important to understand the key biological drivers that will deliver results - meaning a toned, strong, limber, and functional body that supports and extended lifespan.

This section will provide you with an excellent guide to reach and perform at your optimal level, and at the end of this section, we'll provide you with some tips from the world leader in this space, Ross Edgley.

Ross Edgley is an extreme adventurer, ultra-marathon sea swimmer, and author. He holds multiple world records but is best known for completing the World's Longest Staged Sea Swim in 2018 when he became the first person in history to swim 1,792 miles all the way around Great Britain in 157 days.

Physical activity or exercise can improve your health and reduce the risk of developing several diseases like type 2 diabetes, cancer, and cardiovascular disease. Physical activity and exercise can have immediate and long-term health benefits. Most important, regular activity can improve your quality of life.

At least 30 minutes a day can allow you to enjoy these benefits.

Benefits of regular physical activity

If you are regularly physically active, you may:

- reduce your risk of a heart attack
- manage your weight better
- have a lower blood cholesterol level
- lower the risk of type 2 diabetes and some cancers
- have lower blood pressure
- have stronger bones, muscles, and joints and a lower risk of developing osteoporosis
- lower your risk of falls
- recover better from periods of hospitalisation or bed rest
- feel better – with more energy, a better mood, feel more relaxed, and sleep better.

## A healthier state of mind

Several studies have found that exercise helps depression. There are many views as to how exercise helps people with depression:

- Exercise may block negative thoughts or distract you from daily worries.
- Exercising with others provides an opportunity for increased social contact.
- Increased fitness may lift your mood and improve your sleep patterns.
- Exercise may also change levels of chemicals in your brains, such as serotonin, endorphins, and stress hormones.

Aim for at least 30 minutes a day

To maintain health and reduce your risk of health problems, health professionals and researchers recommend at least 30 minutes of moderate-intensity physical activity on most, preferably all, days.

According to a Harvard study: No matter your age or fitness level, these activities are some of the best exercises you can do and will help you get in shape and lower your risk for disease:

## 1. Swimming

You might call swimming the best workout. The buoyancy of the water supports your body and takes the strain off painful joints so you can move them more fluidly. "Swimming is good for individuals with arthritis because it's less weight-bearing," explains Dr. I-Min Lee, professor of medicine at Harvard Medical School.

Research has found that swimming can also improve your mental state and put you in a better mood. Water aerobics is another option. These classes help you burn calories and tone up.

## 2. Tai chi

This Chinese martial art that combines movement and relaxation is good for both body and mind. It has been called "meditation in motion." Tai chi comprises graceful movements, one transitioning smoothly into the next. Because the classes are offered at various levels, tai chi is accessible — and valuable — for people of all ages and fitness levels. "It's particularly good for older people because balance is an important component of fitness, and balance is something we lose as we get older," Dr. Lee says.

Take a class to help you get started and learn the proper form. You can find tai chi programs at your local YMCA, health club, community center, or senior center.

## 3. Strength training

If you believe that strength training is a macho, brawny activity, think again. Lifting light weights won't bulk up your muscles, but it will keep them strong. "If you don't use muscles, they will lose their strength over time," Dr. Lee says.

Muscle also helps burn calories. "The more muscle you have, the more calories you burn, so it's easier to maintain your weight," says Dr. Lee. Similar to another exercise, strength training may also help preserve brain function in later years.

Before starting a weight training program, learn the proper form. Start light, with just one or two pounds. You should be able to lift the weights ten times with ease. After a couple of weeks, increase that by a pound or two. If you can easily lift the weights through the entire range of motion over 12 times, move up to a slightly heavier weight.

## 4. Walking

Walking is simple yet powerful. It can help you stay trim, improve cholesterol levels, strengthen bones, keep blood pressure in check, lift your mood, and lower your risk for several diseases (diabetes and heart disease, for example). A number of studies have shown that walking and other physical activities can even improve memory and resist age-related memory loss.

All you need is a well-fitting and supportive pair of shoes. Start with walking for about ten to15 minutes at a time. Over time, you can walk farther and faster until you're walking for 30 to 60 minutes on most days of the week.

## 5. Kegel exercises

These exercises won't help you look better, but they do something just as important — strengthen the pelvic floor muscles that support the bladder. Strong pelvic floor muscles can prevent incontinence. While many women are familiar with Kegels, these exercises can benefit men too.

To do a Kegel exercise correctly, squeeze the muscles you would use to prevent yourself from passing urine or gas. Hold the contraction for two or three seconds, then release. Completely relax your pelvic floor muscles after the contraction. Repeat ten times. Try to do four to five sets a day.

Many things we do for fun (and work) count as exercise. Raking the yard counts as physical activity. So does ballroom dancing and playing with your kids or grandkids. As long as you're doing aerobic exercise for at least 30 minutes a day, and you include two days of strength training a week, you can consider yourself an "active" person.

# 16 forms of exercise to benefit your health and lifestyle

There are a lot of good reasons to fit in a workout today. Whether you want to lose weight, combat anxiety and depression, improve memory, build endurance, or strengthen bones and muscles, exercise can help. But depending on your goals, some exercises work better than others.

To improve bone health, you'll want to do some resistance training like weightlifting. For rapid improvements in speed or strength, a high-intensity interval program might be best. To improve brain health, aerobic exercise might be most helpful.

Some benefits are visible within a few minutes, while others can take months or years. For sustained improvement, consistency is key. People see the most benefits if they work out regularly, multiple times a week, throughout their lives.

But any form of activity can be good for you and count as exercise. Skip the elevator to take the stairs, walk a mile to the store instead of driving, or go help a friend move on the weekend. It's good for your body and brain. Here's how much it takes for various forms of exercise to yield science-backed benefits.

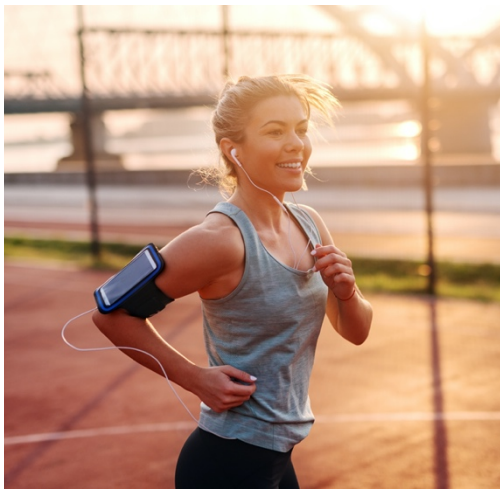
## To add years to your life, do this.

You can get big benefits without having to do a lot: running just five minutes per day could add years to your life, according to a study in the Journal of the American College of Cardiology.

To be clear, you'll probably want to exercise more than this. But it's worth knowing that even just a little exercise is far better than none. This study found that over a 15-year period, people who ran just a few times a week (averaging out to five minutes a day) had about a 30 percent lower risk of death than people who didn't run. And people who ran more had even healthier hearts.

## For a mood boost, do this.

Spending 30 minutes on a treadmill is enough to lift someone's mood, according to a study published in the journal of the American College of Sports Medicine. Even participants who moved at a walking pace received the same mood-lifting benefit.



This shows that no matter what pace you're going, moving has a positive effect, adding to the already significant body of research showing that running and other forms of exercise can improve mood and help fight depression.

In another study, women who did three 50-minute aerobic classes a week had significantly improved mood, decreased anxiety, and were more optimistic after 12 weeks.

## To improve your mental health, do this.

To lift symptoms of depression, that mood boost is a good start. But keeping up a regular exercise routine is most effective for improved mental health, no matter what type of workout you do.

In one pilot study, participants got 30 minutes of aerobic exercise a day for ten days straight, and showed significant improvement in depression symptoms by the end of the study.

Other studies have compared aerobic exercise to resistance training programs to see if one worked better for treating depression.

The overall verdict from one major review of studies found that either sort of activity could be equally beneficial. Sample training programs from several of those studies had participants engage in either strength training or aerobic exercise at least three times a week, 60 minutes each time, for 12 weeks.

## To cut your risk for death and chronic disease, do this.

To meet basic fitness guidelines, cut your risk for death and chronic disease, and improve mental health, exercise at least 30 minutes a day.

According to a new CDC report, only 22.9 percent of Americans aged 18 to 64 met the government's recommended physical activity guidelines between 2010 and 2015. Those guidelines call for healthy adults to do at least two and half hours of moderate-intensity activity – or 75 minutes of vigorous-intensity activity – plus at least two muscle-strengthening days a week.

To meet the CDC's minimum, you can put in about 30 minutes a day. Five days of moderate-intensity aerobic exercise – a 30-minute brisk walk or a casual bike ride – is enough to meet the aerobic guidelines. Then two days of resistance training, using weights or bodyweight exercises, is also important, as these activities are the most important things you can to strengthen bones and muscles.

If that sounds like a lot, you can still do things faster. It takes just 75 minutes of vigorous exercise to meet weekly guidelines. This could be a good-paced run or swim – anything that gets your heart pumping.

Research by the American Heart Association verifies that doing at least this much is enough to lower the risk of heart disease.

## To counteract the effects of sitting, do this.

To counteract the effects of sitting a lot, you want to get at least an hour of exercise each day. If you're doing a short interval training workout — something like a high-intensity 7-to-10 minute circuit — you should be doing it three to five times a week to see results. Sitting all day basically causes gradual damage to your heart, according to recent research.

While meeting the basic fitness guidelines is important, most studies show that isn't enough to offset the harms of sitting. To do that, you essentially need to double the recommendations, getting between 60 and 75 minutes of moderate-intensity aerobic exercise a day. Doing at least two days of strength training exercises is still important, too.

## To improve at any particular aspect of fitness, do this.

To improve at any particular aspect of fitness, try to get a real workout at least three days a week.

At the very start of a strength training program, some people see significant improvement working out two days a week, Shawn Arent, director of the Center for Health and Human Performance at Rutgers University and a Fellow in the American College of Sports Medicine, told Business Insider. But most research shows that to improve aerobic fitness or strength, people need to work out at least three times a week.

Ideally, do something fitness-related every day since inactivity is a real killer. But whether you're trying to get stronger or build up aerobic fitness, you want to work towards those goals at least three times a week, and maybe more.

## To get results from a short interval training workout, do this.

If you're doing a short interval training workout — something like a high-intensity 7-to-10 minute circuit — you should be doing it three to five times a week to see results.

Though short workouts can be effective, you still have to do them enough that your body is regularly stimulated and your muscles grow. For quick interval circuits like the popular 7-minute workout, that means doing them a minimum of three to five times a week, the exercise physiologist who came up with that workout told Business Insider.

And even though these workouts can help you fit exercise in when you're busy, it's best if you're spending more than just a few minutes a day being active.

## To strengthen muscles, do this.

People's muscles start to get stronger and better at contracting within a few weeks after starting a new program. It doesn't take long for your body to change if you start working out. Within a week of starting an exercise program, mitochondria, the energy factories for cells, start to multiply, which provides more fuel for your muscles.

"After two to four weeks, your nervous system is much more efficient at being able to contract your muscles," Robert Newton, director of Edith Cowan University's Exercise Medicine Research Institute, recently told Australia's Nine News.

Within 6-8 weeks, you may have 50 percent more mitochondria, which helps provide more endurance. Give yourself 8 to 9 weeks to train for your first 5k race. A 5-kilometre (3.1 mile) race is an accomplishable goal for most people. Most beginner starting plans say that runners can go from being total couch potatoes to running a 5k in nine weeks, training 30 minutes at a time, three times a week. If you're already in good shape, more specialised training programs can help you hit an ambitious time goal within eight weeks.

## To significantly improve strength, do this.

To significantly improve strength, endurance, or visible muscle definition, give yourself 12-16 weeks.

Exercise is progressive, and – depending on your starting fitness and age – you may see steady improvements for years. But if you're starting a new fitness program or trying to prepare for a specific competition, give yourself 12-16 weeks to make meaningful progress, according to Shawn Arent, director of the Center for Health and Human Performance at Rutgers University and a Fellow in the American College of Sports Medicine.

It's not that you won't see improvement sooner. But 12 to 16 weeks is the time most exercise scientists say you should give yourself to see significant improvement from any training program. To stick with a training regimen, hit this goal.

If you can make it six months, you're most likely to stick with a training regimen. During the first six months, many exercise programs see a 50 percent drop-off rate. But after this point, people are more likely to stick with a program.

As your body adapts, you see results, and you grow to appreciate the mood boost that comes from exercise, it will get harder and harder to skip a workout.

## The fastest way to improve peak fitness.

High-intensity interval training is probably the fastest way to improve peak fitness, with 12-to-16 week HIIT programs often showing improvements equal to or better than those from traditional workouts

High-intensity interval training involves workouts that alternate bursts of activity at close to the maximum intensity with periods of rest.
Various studies show these programs are an excellent way to improve the body's ability to use oxygen, often considered a benchmark for overall fitness. They also have strong effects on blood pressure and fat-burning capacity.

Even a minute of full intensity training can improve the aspects of health. In one small study published in 2016, researchers had a group of men do workouts consisting of three 20-second bursts of all-out exertion, with some warm-up, cool-down, and rest between sets. The results suggested those participants' fitness levels improved as much as those of men who worked out for 45 minutes at moderate intensity.

Most high-intensity workouts are of slightly longer duration (between a minute and three minutes), and research shows these are often the most effective ways to improve VO2Max, blood sugar levels, and more.

## To get strong quickly, do this.

To get strong quickly, a high-intensity training program can improve strength within three to six weeks.

A recent study by the American Council on Exercise compared two small groups of men and women, enrolling them in either a more traditional strength training program or a type of high-intensity interval strength training program.

In the regular program, participants lifted at 60-70 percent of the max weight for more repetitions. In the high-intensity program, participants lifted 100 percent of their max weight for fewer reps.

After six weeks, participants in both groups were significantly more fit. But participants in the high-intensity training got stronger faster, showing improvement within three weeks sometimes – and only spent half as much time working out.

## To protect the brain from ageing, do this.

There's some evidence that to protect the brain from ageing, regular moderate-intensity aerobic exercise at least four days a week may be best.

Researchers have found that older adults with mild cognitive impairment who begin a program of walking 30 minutes a day at least four days a week for 12 weeks show strengthened connections in areas of the brain associated with memory. There's also animal research showing that endurance workouts (the equivalent of distance running) are associated with the development of new nerve cells in the brain.

This research indicates that endurance aerobic exercise is more beneficial for neurogenesis than strength training or high-intensity interval training. Other researchers have found that adults who engage in aerobic exercise show increased brain volume in areas connected to memory.

## To make better use of oxygen, do this.

Nine months into cardio training, your body should be significantly more able to make use of oxygen.

If you've been focused on cardio training, like distance running or swimming, your body's VO2max, or ability to make use of oxygen, should have increased about 25 percent by now. It's possible you could see even more improvement if you incorporate interval workouts into your program.

## To improve bone health, do this.

To improve bone health, keep up with strength training for at least six to 12 months. After age 30, we begin to lose muscle mass and bone density. By building up strength, you can delay and even reverse the loss of bone density and muscle mass that come with getting older, according to Arent.

It can take time for your skeleton to start to adapt, potentially up to a year. Within that amount of time, some research shows it's possible to actually reverse the effects of osteoporosis with regular resistance training. But by that time, muscles will have grown, endurance will have improved, heart function will be better, and bones will be getting stronger.

## Do whatever it takes.

To sum it all up, just do whatever it takes to make fitness a lifelong habit.

To hit minimum fitness guidelines for aerobic exercise and resistance training, do something every day, every even if it's a moderate intensity brisk walk. Those walks can be enough to meet minimum aerobic workout guidelines or can be a good recovery day if you are going harder on other days.

On days where you have little time, know that still possible to make significant progress with a short, intense workout.

But there are benefits to working out for longer periods of time too, which can help you burn more calories and might be beneficial for brain health. If you want to improve at something, do it at least three days a week.

Finally, turn fitness into a lifelong habit, as the longer you do it, the more benefits you will see.

# STAR TIPS

In Ross Edgely's best-selling book, THE WORLD'S FITTEST BOOK, he takes a serious deep dive into all areas of human performance from both an academic and extensive testing viewpoint.

These three tips that will make a difference to your life and optimising your body's performance.

1. How to lose fat: Shredding fat basically comes down to maintaining a calorie deficit, and this can be achieved in two common ways 1) crash diets that promote massive calorie restrictions over a short period, 2) maintainable calorie management that see fat slowly shedding over a long while. What typically works is the long-term approach, so avoid these quick fix plans. You'll only get angry and starve your body of nutrients it needs to perform. What matters is eating a diverse nutrient-dense diet which means your body makes the best use of everything you digest AND building muscle. Muscles are hungry, so they will constantly eat into your stored fat reserves as they burn energy. Check out Ross' book to help you write your own diet in five simple steps. Remember, this is all backed by science and takes a holistic view as to your body's overall performance

2. How to get toned and strong: Strength all comes from nailing your Master Lifts. You can forget everything else. Getting this right is really the platform for any workout plan for the rest of your life. Your Master Lifts include the following; The Squat, The Bench Press, and The Deadlift. You need to make sure you start with a lighter weight and focus on execution. Otherwise, with a heavier weight, you will do damage. Again, check out THE WORLD'S FITTEST BOOK for the right posture and tips.

3. How to improve speed and power: Speed is all about Rate of Force Development (ROFD). This is the body's ability to generate the greatest force in the shortest time - basically, the faster your ROFD, the more explosive your movements are. Both Box Jumps and the Clean and Jerk lift are core exercises that will improve your ROFD.

When it comes to supplements that support accelerated improvements in lean muscle mass, endurance, and recovery, there is a range of widely used peptide stacks available.

These include CJC-1295/Ipamorelin (an all-round base level peptide stack), through to CJC-1295/GHRP6 and Hexarelin, which are more focused on muscle development.

## SLEEP

With optimal human performance, we generally focus on our diets and hitting the gym, and dismiss the importance of sleep. We live in an age where it is 'cool' to survive on 5 hours of sleep and work in bed in front of a screen until we simply pass out.

Sleep is nothing to snooze about! Getting your sleep cycle right has positive impacts on the rest of your body, your health, and the lifespan - so wake up and listen!!

This section will hit you with some tried and tested strategies, and at the end of the section, we'll outline some of Ben Greenfield's killer sleeping tips that will have you napping like a bear.

### 1.Power Down

The soft blue glow from a cell phone, tablet, or digital clock on your bedside table may hurt your sleep.

Tip: Turn off TVs, computers, and other blue-light sources an hour before you go to bed. Cover any displays you can't shut off.

### 2. Time Your Naps

You'll rest better at night. But if you have to snooze while the sun's up, keep it to 20 minutes or less—nap in the early part of the day.

Tip: Overcome an afternoon energy slump with a short walk, a glass of ice water, or a phone call with a friend.

### 3. Block Your Clock

Do you glance at it several times a night? That can make your mind race with thoughts about the day to come, which can keep you awake.

Tip: Put your alarm clock in a drawer, under your bed, or tur

## 4. Try a Leg Pillow for Back Pain

Your lower back may not hurt enough to wake you up, but mild pain can disturb the deep, restful stages of sleep. Put a pillow between your legs to align your hips better and stress your lower back less.

Tip: Do you sleep on your back? Tuck a pillow under your knees to ease the pain.

## 5. Put Your Neck in 'Neutral'

Blame your pillow if you wake up tired with a stiff neck. It should be just the right size -- not too fat and not too flat -- to support the natural curve of your neck when you're resting on your back. Do you sleep on your side? Line your nose up with the center of your body. Don't snooze on your stomach. It twists your neck.

Tip: Use good posture before bed, too. Don't crane your neck to watch TV.

## 6. Seal Your Mattress

Sneezes, sniffles, and itchiness from allergies can lead to lousy shut-eye. Your mattress may hold the cause. Over time, it can fill with mold, dust mite droppings, and other allergy triggers. Seal your mattress, box springs, and pillows to avoid them.

Tip: Air-tight, plastic, dust-proof covers work best.

## 7. Save Your Bed for Sleep and Sex

Your bedroom should feel relaxing. Don't sit in bed and work, surf the Internet, or watch TV.

Tip: The best sleep temperature for most people is between 68 and 72 degrees.

## 8. Set Your Body Clock

Go to sleep and wake up at roughly the same time every day, even on weekends. This routine will get your brain and body used to being on a healthy snooze-wake schedule. In time, you'll be able to nod off quickly and rest soundly through the night.

Tip: Get out in bright light for 5 to 30 minutes when you get out of bed. Light tells your body to get going!

## 9. Look for Hidden Caffeine

Coffee in the morning is fine for most people. But when the clock strikes noon, avoid caffeine in foods and drinks. Even small amounts found in chocolate can affect your ZZZs later that night.

Tip: Read labels. Some pain relievers and weight loss pills contain caffeine.

## 10. Work Out Wisely

Regular exercise helps you sleep better -- as long as you don't get it in too close to bedtime. A post-workout burst of energy can keep you awake. Aim to finish any vigorous exercise 3 to 4 hours before you head to bed.

Tip: Gentle mind-body exercises, like yoga or tai chi, are great to do just before you hit the sack.

## 11. Eat Right at Night

Don't eat heavy foods and big meals too late. They overload your digestive system, which affects how well you sleep. Have a light evening snack of cereal with milk or crackers and cheese instead.

Tip: Finish eating at least an hour before bed.

## 12. Rethink Your Drink

Alcohol can make you sleepy at bedtime but beware. After its initial effects wear off, it will make you wake up more often overnight.

Tip: Warm milk and chamomile tea are better choices.

## 13. Watch What Time You Sip

Want to lower your odds of needing nighttime trips to the bathroom? Don't drink anything in the last 2 hours before bed. If you have to get up at night, it can be hard to get back to sleep quickly.

Tip: Keep a nightlight in the bathroom to minimize bright light.

## 14. Lower the Lights

Dim them around your home 2 to 3 hours before bedtime. Lower light levels signal your brain to make melatonin, the hormone that brings on sleep.

Tip: Use a 15-watt bulb if you read in the last hour before bed

## 15. Hush Noise

Faucet drips, nearby traffic, or a loud dog can chip away at your sleep. And if you're a parent, you might be all too aware of noises at night long after your children have outgrown their cribs.

Tip: Use a fan, an air conditioner, or a white noise app or machine. You can also try earplugs.

## 16. Turn Down Tobacco

Nicotine is a stimulant, just like caffeine. Tobacco can keep you from falling asleep and make insomnia worse.

Tip: Many people try several times before they kick the habit. Ask your doctor for help.

## 17. Beds Are for People

A cat's or a dog's night moves can cut your sleep short. They can also bring allergy triggers like fleas, fur, dander, and pollen into your bed.

Tip: Ask your vet or animal trainer how you can teach your pet to snooze happily in its own bed.

## 18. Free Your Mind

Put aside any work, touchy discussions, or complicated decisions 2 to 3 hours before bed. It takes time to turn off the "noise" of the day. If you've still got a lot on your mind, jot it down and let go for the night. Then, about an hour before you hit the sack, read something calming, meditate, listen to quiet music, or take a warm bath.

Tip: Even 10 minutes of relaxation makes a difference.

## 19. Use Caution with Sleeping Pills

Some sleep medicines can become habit-forming, and they may have side effects. Ideally, pills should be a short-term solution while you make lifestyle changes for better Zzzz's. Ask your doctor what's OK.

Natural alternatives…

- DHH-B Plus Ashwagandha
- Biov8 Products (https://biov8.com.au)
- Melatonin

## 20. Know When to See Your Doctor

Let them know if your sleeplessness lasts for a month or more. They can check to see if a health condition -- such as acid reflux, arthritis, asthma, or depression -- or medicine you take is part of the problem.

# STAR TIPS

In Ben Greenfield's best-selling book BOUNDLESS he devotes a whole chapter to the topic of sleep. There is no doubt we all suffer for the occasional, or even regular, night of poor sleep, so here are some key tips on how to mitigate the damage:

1. Stay hydrated as your cells require both water and minerals, and in a situation of poor sleep optimising your cell's environment becomes critical. Drink plenty of filtered water, and even add some good quality sea salt (which will improve the hydration process).

2. Avoid too much coffee - overcompensating will only impact the next night's sleep, and the pattern continues.

3. Catch some sun - the best way to reset your internal clock is to get outside and into the sun and do some light aerobic exercise. This movement, light, and vitamin D will realign your circadian rhythm and reduce anxiety.

4. Eat right - when you're sleep deprived, your hunger hormones (leptin) will be high. Don't choose refined carbs and fats; opt for food high in protein and low in fat for sustained energy and improved alertness

When it comes to elite sleeping supplements that won't leave you feeling like you've been trampled by a hippo, melatonin is the naturally occurring hormone secreted by the pineal gland that produces a sedative and hypnotic effect. Click here to read more https://biov8.com.au/products/melatonin

# BREATHING / MEDITATION

## Breathwork exercises:

## Dean gladstone - to Chill

Many people think Breathwork needs to be a spiritual practice. Breathing exercises like this are scientifically proven to slow the heart rate, lower blood pressure, and help people relax. This improves performance increases concentration amongst a range of other benefits. **Watch the video.**

## **Wim Hoff** breathing for beginners

This is a slower-paced Wim Hof Method breathing exercise that starts with a 30 seconds hold, building up to 90 seconds of breath hold. Very suitable for beginners or anyone who prefers a more gentle guidance. **Watch the video.**

**Pranayama** is a breath-control technique. In Sanskrit, pran means life and ayama means way. Pranayama can help you regulate your system, alter your mood and ensure longevity. These pranayamas are simple, but very effective tools for relaxation.
**Watch the video.**

# STAR TIPS

## NOOTROPICS

For upgrading your brain, there are a raft of strategies, tools and supplements that have clear and scientifically proven benefits. Whether you jump into Pulsed Electromagnetic Field Therapy, Neurofeedback, or Brain Wave Entertainment you are bound to be exposed to some powerful outcomes. However, the brain upgrade really taking off on scale around the globe are nootropics, with everyone from Joe Rogan to Ben Greenfield singing their praises.

Nootropics, also known as the 'Limitless' drug, are essentially multivitamins for your brian praised for their abilities to improve memory, clear brain fog, and enhance cognitive functionality.

This section will give you a good overview of this supplement, and at the end, we'll highlight some key hacks to upgrade your brain.

## WHAT ARE NOOTROPICS? AND DO THEY

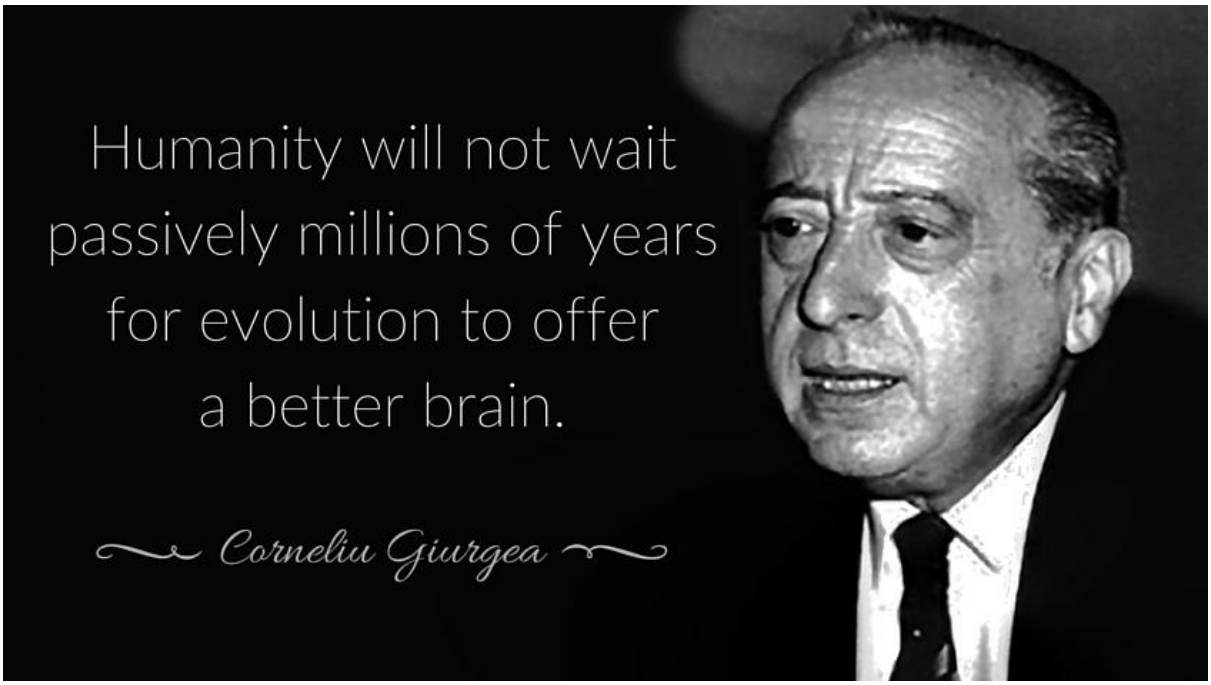
Nootropics are cognitive technology. They support healthy brain function or enhance mental ability. You might have heard others call them "smart drugs" or "the limitless pill." This is your Nootropics 101.

Nootropics include various **foods, supplements, and drugs**. Healthy adults use them to improve memory, learning, focus, mood, concentration, information processing, motivation, and attention. Some people use them to decrease brain fog and increase mental clarity. Older adults also use them to support healthy cognitive aging.

What's the meaning of the term "nootropic" derived from the Greek meaning "mind-turner." That may sound strange. Can recreational nootropics get you high?

Generally, no. But that's also not their purpose. Their purpose is much more practical. Giurgea identified substances with these six features as nootropics:

1. "Enhancement of learning acquisition" – improve learning and memory
2. "Resistance to impairing agents" – support brain health
3. "Facilitation of interhemispheric transfer of information" – improve processing
4. "Enhanced resistance to brain 'aggressions'" – protect the brain
5. "Increased tonic, cortico-subcortical 'control'" – improve focus and attention
6. "Absence of usual pharmacological effects of neuro psychotropic drugs" – safe




To summarize Giurgea, a nootropic should safely support and improve cognitive performance. If a substance doesn't have these features, it's not a nootropic.

That doesn't mean that everything anyone calls a "nootropic" actually lives up to the name. Some Scientists haven't studied substances enough to know whether claims are more than anecdotal. And research demonstrates that some substances have little to no effect or may even pose significant health risks. But studies have shown the efficacy and safety of other substances to varying extents.

# HISTORY OF NOOTROPICS

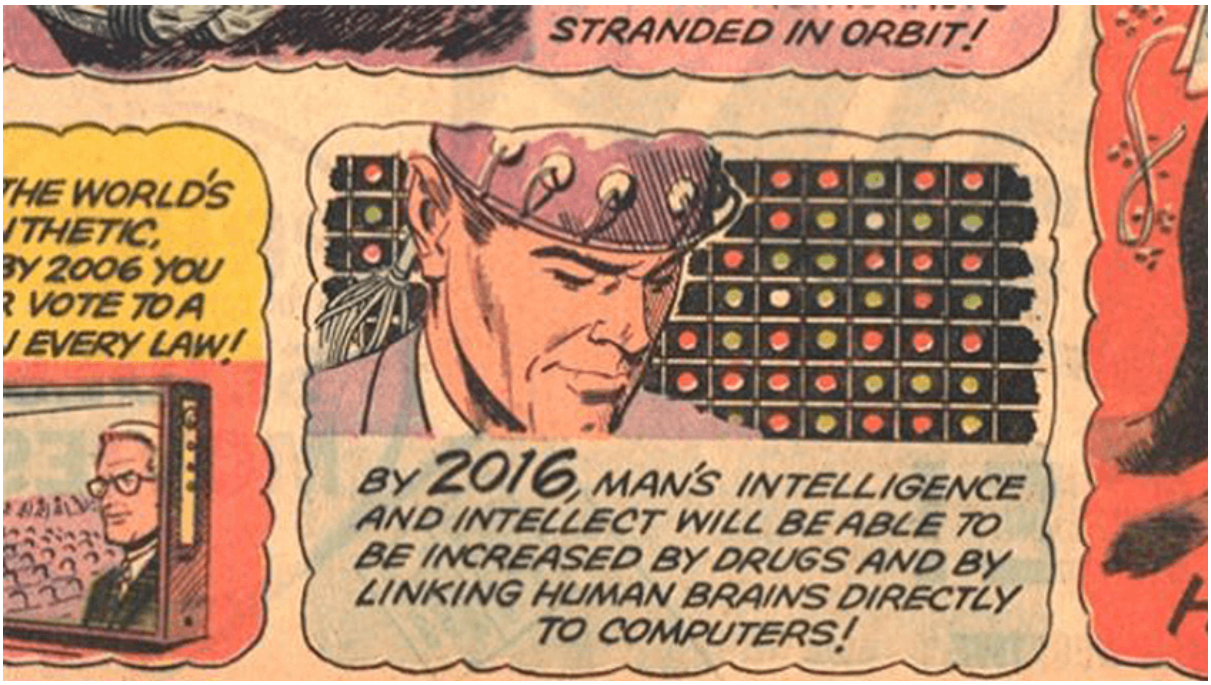
The history of cognitive enhancement began thousands of years before Giurgea. We didn't need to know anything about brain cells to use our brains. And humanity had begun exploring ways to modify cognition for purposes of religion, medicine, and recreation.

Our prehistoric ancestors may have used psychoactive substances to inspire their artwork. Indian Ayurvedic medicine, known for adaptogenic herbs like Ashwagandha, may have begun as an oral tradition around 5000 BCE. And as early as 1500 BCE, Ancient Egyptians cataloged hundreds of stimulants, sedatives, motor excitants, motor depressants, narcotics, and hypnotics.

During the last few centuries, our modern ancestors have been working toward more powerful, dependable, and flexible ways to enhance cognition. As the scientific method matured, alchemy became chemistry. In the eighteenth century, James Lind conducted what may have been the first clinical trial. And in the nineteenth century, Richard Canton observed electrical impulses in brains.

In the twentieth century, scientists greatly expanded efforts to address the challenges of mental health. Doctors diagnosed Alzheimer's and attention deficit hyperactivity disorder (ADHD) early in the century. And by mid-century, chemists had introduced many new drug interventions to improve brain function.

Also, in the twentieth century, science fiction and emerging technology sparked the imagination. A fun example appeared in "Our New Age" comic strip on 26 December 1965. It predicted that humanity would develop nootropic smart drugs and brain computer interfaces by 2016.




In 2011, the Limitless movie brought nootropics to popular attention. You might remember. In the movie, the main character uses NZT-48. It's a fictional smart drug that activates 100% of his brain and radically increases his intelligence.

As it turns out, you already use your whole brain. And real nootropics are not yet as powerful as smart drugs in science fiction. But that hasn't stopped them from becoming popular. For example, see Google searches for "nootropics" compared to "mnemonics" (the study of systems to improve memory).

Given humanity's ancient and persistent interest in cognitive enhancement, it seems unlikely that scientists will stop researching it any time soon. And who knows? Maybe someone in a silicon valley garage is integrating a smart drug with a brain computer interface. And the powerful brain boosting drugs of the future are just an epiphany away.

## NOOTROPIC EXAMPLES

**BIOV8 Brain**
**Modafinil**

Perhaps the most well-known cognitive enhancers are the Afinil wakefulness drugs. They were first developed in France in the late 1970s. And they are sold in the United States as prescription drugs under various brand names. These prescription nootropics are artificial, but they appear to have a low risk of side effects.

Afinils are particularly notable for reducing mental fatigue, according to multiple human studies. They may also subtly improve mental performance, such as reaction time and short-term memory, in healthy adults. And studies suggest that Afinils may provide other benefits, although the evidence may not be as reliable.


Other well-known cognitive enhancers include Racetams. They are legally available in the United States. But the Food and Drug Administration (FDA) does not allow vendors to market Racetams as dietary supplements.

First developed by Giurgea in Romania in the early 1970s, Racetams are artificial smart drugs. They may provide a notable decrease in cognitive decline, according to multiple human studies. They may also provide other benefits, although evidence for them may not be as reliable. And they appear to have a low risk of side effects.

Many of the best nootropics with solid evidence and notable effect come from herbs, amino acids, vitamins, and other natural substances. Complementary and alternative medicine often recommends them. As dietary supplements, these are widely available and legal nootropics in the USA. You can buy nootropics in stores or online without a prescription.

Here are some examples:

- Ashwagandha may decrease stress.
- Bacopa Monnieri may increase memory.
- Creatine may increase energy.
- Feverfew may decrease migraine.
- Fish Oil (omega-3 fatty acids) may support mood.
- Ginkgo Biloba may support healthy cognitive aging.
- Inositol may decrease stress.
- Melatonin may promote sleep.
- Rhodiola Rosea may increase energy and improve focus.
- L Theanine may promote relaxation.
- Vitamin B2 may decrease migraine.
- Zinc may support mood.

## NOOTROPIC EFFECTS

Do nootropics work? Everyone's different, but some nootropics work for most healthy people. For example, my list of real smart drugs references **over 100 studies for more than 12 substances**.

Most of the studies are peer-reviewed, double-blind, placebo-controlled trials. Some are meta-analyses or cohort studies. All are the formal work of credentialed scientists – not just journalists writing news articles or enthusiasts tapping out blog posts.

The studies are related to clinical trials on humans – not just on mice or in test tubes. And most of the studies found significant statistical support for notable effect. The few that didn't are still helpful for scoping effective applications, dosages, and timelines.

How do nootropics work? And how well do they work? Different substances have different effects on different timelines and at different magnitudes. So the answers depend in part on the effect you're looking for: focus, memory, mood, or otherwise.

The answers also depend in part on how disciplined you think you can be. Some, such as Caffeine, work best when you use them only for the short term. And there are others that you can take daily, like Bacopa, which becomes more effective over the long term.

In 2013, a study quantified the magnitude of effect for a popular nootropic drug. The scientists used Cohen's D, which is a standard statistical method from behavioral science. The method generates outputs on a scale of 0 to 1:

- 0 is no effect
- .2 is small effect
- .5 is medium effect
- .8 is large effect.

The scientists applied this method to the results of seven human studies. They found that **the nootropic drug had a magnitude of effect of .77**, which was nearly a large effect. The study also used the nootropic drug as a benchmark for assessing two natural nootropic herbs.

One herb was Panax Ginseng, and the other was Bacopa Monnieri. When the scientists applied Cohen's D to nine studies of Ginseng, they found that the **Ginseng magnitude of effect was .86**. And when they applied the method to seven studies of Bacopa, they found that the **Bacopa magnitude of effect was .95**.

These results indicate that Ginseng and Bacopa may both have large effects. And their effects may be larger than the effect of the nootropic drug. However, each affects different cognitive functions on different timelines. The study concluded:

"Neurocognitive enhancement from well characterized nutraceuticals can produce cognition enhancing effects of similar magnitude to those from pharmaceutical interventions."

# STAR TIPS

According to Ben Greenfield, in his deep dive into Smart Drugs and Nootropics, there are some sweet brain-boosting stack that are worth checking out;

1) Caffeine and nicotine: nicotine enhances your locomotive performance and cognitive performance when combined with coffee, but also exercise performance by 18-21%. Nicotine can be addictive, and Ben recommends no more than 1-2 pieces of nicotine gum per day before a workout

2) Ginkgo, Bacopa, and Lion's Mane is a stack that will boost mental focus, memory, learning, and cognitive performance while reducing anxiety and depression. Results kick in after about 12 weeks.

3) Stack Artichoke extract with Forskolin, which has also been recommended by Tim Ferris

4) A raft of powerful peptides have laser-focused specificity for improving cognitive functionality, including Dihexa.

5) Check out this link for nootropic peptides available in Australia https://biov8.com.au/collections/peptides/products/dihexa

# PEPTIDES

With human optimisation it is hard not to discuss the increasing popularity of peptides. These short-chain amino acids that naturally occur in the human body perform critical functions in our bodies from optimising our cellular cycles (which is critical to the overall health of the body and its longevity, through to skin health and lean muscle mass.

Unfortunately, our peptides deplete over time, meaning our bone density decreases, our strength slows, and everything slows. As such, supplementing with peptides has gained huge popularity due to the results being seen and their future potential.

In this section, we help you get a better understanding of what peptides are all about.

Peptides, which are found in all living cells, are molecules made up of chains of amino acids. So are proteins, but the chain-like structures of proteins contain at least 50 amino acids, whereas a peptide can have as few as two. Peptides are sometimes thought of as protein's little brothers.

Other than a vague recollection from a mostly forgotten biology class, you may not know the importance that peptides play in the overall health of our bodies. Peptides, linked together, form the building blocks of protein, which is the underlying structure of tissue throughout the body, including the internal organs and the skin.

Some functions supported by peptides include:

- anti-inflammatory
- building muscle
- increasing nutrient potential of foods
- decreasing levels of harmful microbes
- aiding the fight against diseases
- Stimulating your metabolism
- Boosting your immune system

Another benefit of peptides is their potential for having anti-aging properties. Collagen, a protein, makes up roughly 75 percent of the skin. The collagen gives skin its elasticity and youthful appearance. Unfortunately, as we age, the body's production of collagen slows down.

To make matters worse, the collagen that remains is susceptible to becoming fragmented and broken apart. This leads to the all too familiar lines, wrinkles, and sagging skin.

Fortunately, ongoing research indicates the benefits of incorporating peptides, the building blocks of proteins, into anti-aging products, including those targeting the restoration of collagen in the skin. Some peptides are believed to not only stimulate the production of new collagen, but also aid the immune system in wound healing, reduce inflammation and have antioxidant properties.

Anti-aging is often not understood. It does not refer to science fiction scenarios that focus on immortality through some magical potion, nor is the rapidly growing field of regenerative medicine defined simply by the charts and graphs that show increased longevity statistics and predictions.

According to the special report published by Dr. Judi Goldstone of the Southern California Center for Anti-Aging: "*Anti-Aging/Regenerative Medicine aims not to just prolong the total years of an individual's life, but to ensure that those years are enjoyed in a productive and vital fashion.*"

Anti-aging is as much about the quality of aging as it is the goal of slowing it down. This means developing and using tools and methods to address the metabolic causes behind aging. Some of the most common of those causes include:

- hormonal changes, including excessive insulin
- chronic, internal inflammation
- damage from free radicals
- decreased ability for the body to remove toxins
- oxidative stress
- loss of DNA's ability to reproduce and repair its cells and gene mutations
- weakening of the immune system
- decreased cellular function

# STAR TIPS

When it comes to peptides and how to best use these powerful amino acids, Ben Greenfield is definitely a leader in this space. His deep knowledge comes not only from interviewing medical experts and scientists on his podcasts but also from testing and tracking his results with his personal peptide protocols.

It is commonly known that peptides are critical to the health of our cells and their cycles, which dictate the health of our bodies, including bone density, sleep, collagen levels, lean muscle mass, and cognitive functionality. Essentially they can delay cell senescence which delays cell mutation, which prevents diseases and many of the key processes linked to aging, according to Dr Seeds, a world thought leader and medical practitioner in this space.

In relation to rapid injury repair, whether this is bone damage, tendon-to-bone issue, through muscle damage, the peptide stack is widely discussed in BPC-157 and TB500. Together they actively work together to repair the body with amazing results, according to leaders in this space.

With lean muscle mass, Ben Greenfield recommends stacking CJC-1295/Ipamorelin, with IGF-1 LR3 and Hexarelin. This not only improves cellular function, but accelerates recovery times, endurance, strength, and lean muscle mass.

# SUMMARY

Human optimisation is an exciting trend that engages a raft of strategies and supplements to improve long-term health and avoid many illnesses that are having an increasing impact on the human population.

As the health and wellness industry advances, supported by larger investments into science and smart supplements, we are now presented with practical and powerful ways to live a longer, healthier life, and a more active lifestyle.

We hope that the information provided in this guide will help you on your path to optimising your body and its potential.

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HUMAN OPTIMISATION