

Long COVID

DNA Health Report

REPORT CATEGORIES —



COGNITION



ENERGY & FATIGUE



PAIN



RESPIRATORY HEALTH

Sample Client

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Personal information

NAME

Sample Client

SEX AT BIRTH

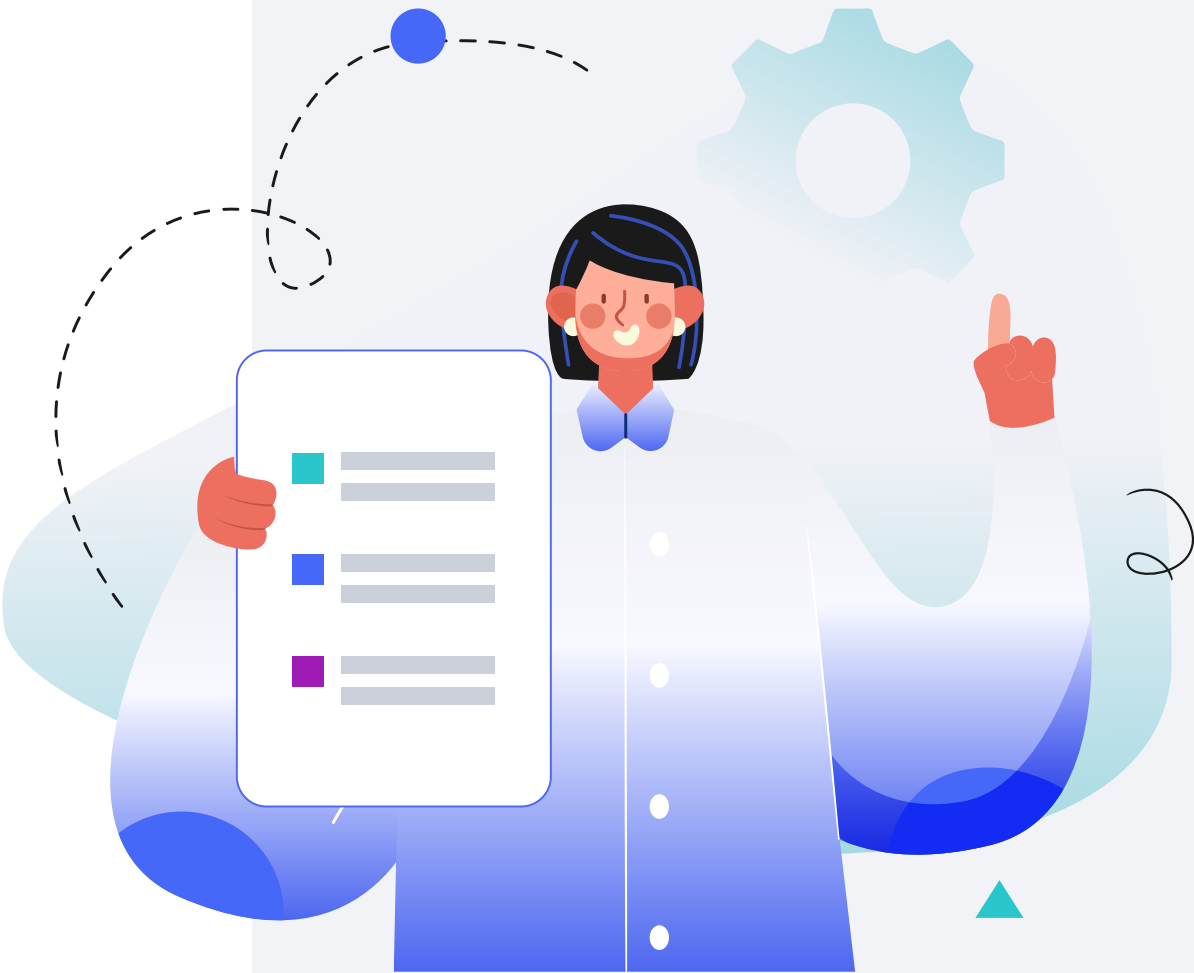
Male

HEIGHT

5ft 5" 165cm

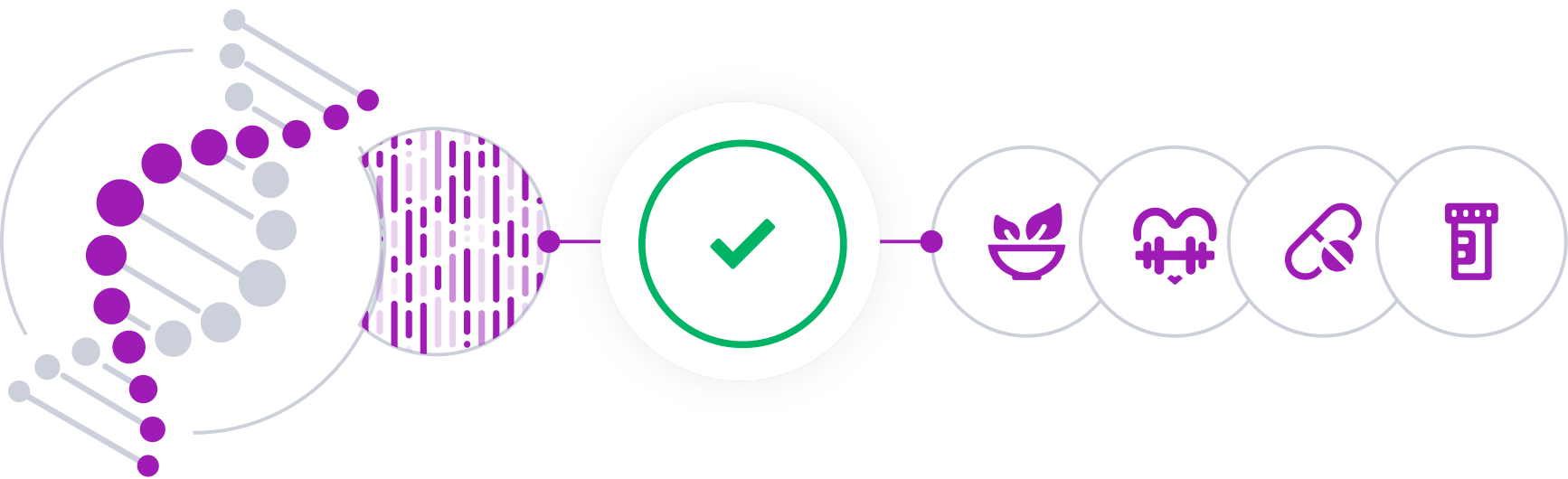
WEIGHT

137lb 62kg



How this works

Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.

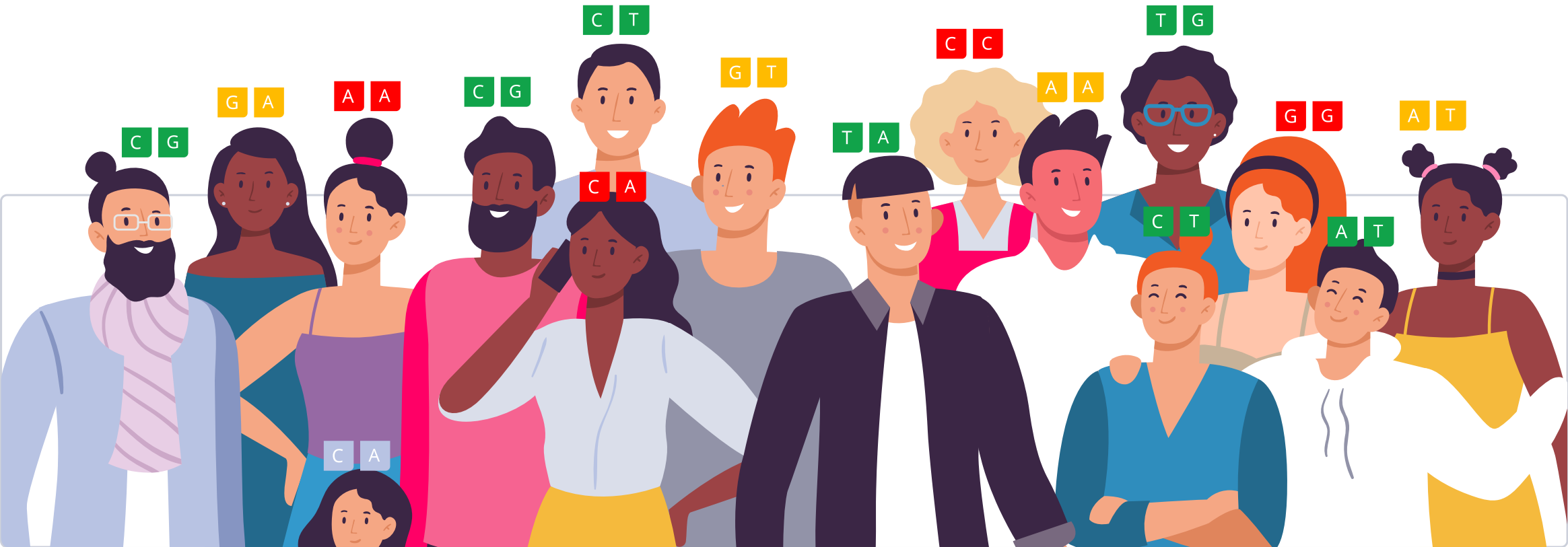


Similarly, our Trait Reports look at how your DNA influences your traits.



Your DNA is like an instruction manual — it contains a lot of information.
You can think of it as a blueprint for your body.

Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



We use artificial intelligence and machine learning to analyze all this information.
We then summarize your results as a risk score or display it on a gauge.

In total, we analyze up to 83 million genetic variants.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

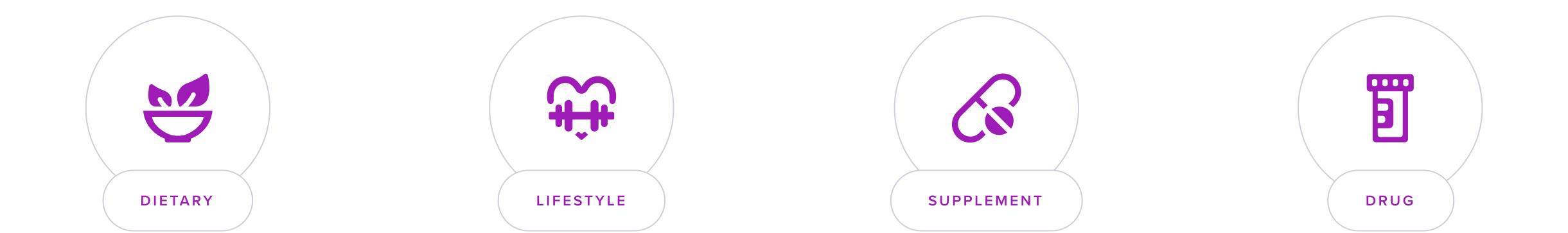
You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.
The following icons tell you which category a recommendation falls into:



Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

- 5 / 5
- Recommendations that are considered effective and generally recommended by experts and medical bodies.
-
- 4 / 5
- Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.
-
- 3 / 5
- Recommendations that are considered possibly effective and have many studies supporting them
-
- 2 / 5
- Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.
-
- 1 / 5
- Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.
-
- 0 / 5
- No evidence in humans.

Genotype-specific Evidence

- High-quality
- Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).
- Medium-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).
- Low-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).
- Indirect
- A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).
- In theory
- A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

Long COVID-19, also known as persistent COVID-19 or post-acute sequelae of SARS-CoV-2 infection (PASC), refers to a range of symptoms that continue for weeks or months beyond the initial recovery period from a COVID-19 infection. This condition affects individuals regardless of the severity of their initial infection, which can range from mild to severe, and the symptoms can fluctuate or relapse over time [\[R\]](#).

Research suggests that 1 in 5 people aged 18 to 64 has at least one medical condition that might be due to COVID-19 between one month and one year after having the infection. Among people aged 65 and older, 1 in 4 has at least one medical condition that might be due to COVID-19.

Long COVID presents with a broad array of symptoms, which can affect different organ systems and vary widely in their severity. Common symptoms include [\[R\]](#):

- Fatigue that is not relieved by rest
- Breathing difficulties such as shortness of breath, chest pain, and a feeling of tightness in the chest
- Cognitive impairments ("brain fog"), which include difficulties with concentration, memory, and carrying out daily activities
- Heart problems including palpitations, fast, or irregular heart rates
- Persistent loss of smell and taste
- Muscle and joint pain, which can be severe and limiting
- Mental health issues including depression, anxiety, and mood swings
- Neurological symptoms such as headaches, dizziness, and neuropathic pain
- Gastrointestinal symptoms including abdominal pain, diarrhea, and nausea
- Sleep disturbances
- Skin rashes or changes in skin appearance

Risk Factors and Treatment

Organ damage could play a role in long COVID. People who had severe COVID-19 illness might experience organ damage affecting the heart, kidneys, skin, or brain. The effects could also lead to the development of new conditions, such as diabetes or a heart or nervous system condition. Moreover, being admitted to the ICU due to COVID-19 is a traumatic experience that may cause extreme weakness and even PTSD [R].

While the exact cause of long COVID is still being researched, several risk factors have been identified:

- Severity of initial infection: those who had severe COVID-19, especially those requiring hospitalization, may be more likely to develop long COVID. However, even individuals with mild symptoms can experience it.
- Pre-existing conditions: having underlying health issues such as diabetes, high blood pressure, and obesity can predispose individuals to long COVID.
- Age and sex: older adults and women are more commonly affected.

There is no specific cure for long COVID. Vaccination is the most important measure to prevent it and reduce the severity of its symptoms [R, R, R].

Treatment is primarily supportive and symptomatic, and can include:

- A multidisciplinary approach involving physicians, rehabilitation specialists, and mental health professionals to address the broad range of symptoms.
- Medications to manage specific symptoms such as pain, inflammation, or depression.
- Physical therapy to help improve mobility and reduce fatigue.
- Cognitive rehabilitation for managing brain fog and cognitive impairments.
- Psychological counseling to support mental health and coping strategies.



MORE LIKELY

More likely to have long COVID-19 based on 9 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CXCR6	rs10490770	TC
CXCR6	rs17713054	GA
IL19	rs1800896	CT
PEDS1	rs6020298	GA
IL10RB	rs8178562	AG
CXCR6	rs11385942	GG
ACE2	rs2285666	C
NADSYN1	rs12785878	GG
PLXNA4	rs1424597	GG

The number of "risk" variants in this table doesn't necessarily reflect your overall result.

Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You’ll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

		DOSAGE			DOSAGE
1	Airway Muscle Training	30 minutes	2	Exercise Therapy	1 hour
3	PEA and Luteolin		4	Olfactory Training	
5	Hyperbaric Oxygen Therapy	90 minutes	6	Acupuncture	1 hour
7	Qigong	1 hour	8	Psychotherapy	1 hour
9	Neurostimulation Treatment	30 minutes	10	Maintain Optimal Vitamin D Levels	1000 iu
11	Creatine	4 g	12	Vitamin C and L-Arginine	
13	Meditation	30 minutes	14	Synbiotics	
15	Coenzyme Q10 and Alpha-Lipoic Acid	100 mg	16	Thiamine Supplements	100 mg
17	Aromatherapy	30 minutes	18	Hydrogen Water	
19	Low-Level Laser Therapy (LLLT)	30 seconds	20	Repetitive Transcranial Magnetic Stimulation	
21	Metformin		22	Oxaloacetate	
23	Glutamine	5 g	24	Luteolin	100 mg
25	Alpha-Lipoic Acid	600 mg	26	Vitamin C	2000 mg
27	Palmitoylethanolamide (PEA)		28	Coenzyme Q10 (CoQ10)	100 mg

1

Airway Muscle Training

IMPACT

4 / 5

EVIDENCE

4 / 5

How to implement

Perform airway muscle training exercises daily for at least 30 minutes. This can involve using specific devices designed to resist airflow in and out, thereby strengthening the respiratory muscles, or practicing breathing exercises that focus on inhaling and exhaling against resistance. Consistency is key, so aim to integrate this practice into your daily routine for ongoing respiratory health.

TYPICAL STARTING DOSE

30 minutes

Description

Airway muscle training is exercise that builds strength in the throat and tongue muscles. This can involve anything from controlled breathing to singing long notes. People use airway muscle training to improve sleep apnea, respiratory conditions, and exercise performance.

Airway muscle training is exercise that builds strength in the throat and tongue muscles. This can involve anything from controlled breathing to singing long notes. People use airway muscle training to improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Sleep apnea
- Respiratory conditions like COPD
- Exercise performance

How it helps

Patients with long COVID-19 often experience persistent respiratory symptoms such as shortness of breath or chest pain. Pulmonary rehabilitation through airway muscle training may help improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Aerobic capacity
- Fatigue
- Shortness of breath
- Anxiety and depression
- Physical fitness
- Quality of life
- Sleep

However, the results are mixed for some of these outcomes. Both face-to-face and telerehabilitation modalities or short and long treatment may be similarly effective. Airway muscle training may be most effective when combined with aerobic exercise.

2



Exercise Therapy

IMPACT4 / 5

EVIDENCE4 / 5

How to implement

Begin by consulting with a physical therapist to assess your condition and create a personalized exercise plan. Follow the prescribed exercises consistently, focusing on areas needing improvement, such as strength, flexibility, or mobility. Start with gentle exercises, gradually increasing the intensity as you build strength. Ensure you perform the exercises correctly to avoid injury. Regularly check in with your therapist to adjust the plan based on your progress and feedback. Stay committed to the routine for the best results.

TYPICAL STARTING DOSE

1 hour

Description

Exercise therapy is a tailored approach to physical activity designed to improve mobility, strength, and overall health. It is often used to rehabilitate injuries, manage chronic conditions, and promote cardiovascular fitness.

How it helps

In patients with long COVID-19, exercise-based rehabilitation programs may improve [\[R, R, R, R\]](#):

- Aerobic capacity
- Shortness of breath
- Depression
- Physical function
- Activities of daily living
- Quality of life

Successfully tested exercise modalities include [\[R, R, R, R\]](#):

- Low-intensity cardio
- Low-load strength exercises
- HIIT
- Combined cardio and resistance training

Exercise therapy may work better in combination with airway muscle training.

3



PEA and Luteolin

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Take a supplement in the range of 100-200 mg luteolin and 300-1,200 mg PEA per day, ideally with a meal to enhance absorption. It is recommended to continue this regimen daily for at least 6 to 12 weeks to evaluate its effectiveness.

Description

[Palmitoylethanolamide](#) (PEA) is a compound naturally made by the body to help combat inflammation [\[R\]](#).

It’s also made by plants and other animals. Good sources of PEA include [\[R\]](#):

- Soy lecithin
- Soybeans
- Egg yolk
- Peanuts

Luteolin is a flavonoid with potential anti-inflammatory and antioxidant properties, and it is found in various fruits and vegetables. Incorporating luteolin-rich foods into your diet may help reduce inflammation and support overall health.

How it helps

The combination of PEA and luteolin as an add-on to olfactory training improved olfactory threshold, discrimination, and identification scores better than olfactory training alone in 3 trials of 266 patients with long COVID-19. In one of them, the treatment also improved memory performance [\[R\]](#), [\[R\]](#), [\[R\]](#).

Long-term (10-month) supplementation improved fatigue and cognitive performance in a non-placebo-controlled trial of 26 patients [\[R\]](#).

This combination may help by restoring GABA activity and cortical plasticity [\[R\]](#).

4



Olfactory Training

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Begin by sniffing each scent individually for about 10-20 seconds, twice a day, ideally once in the morning and once in the evening. As you inhale each aroma, concentrate deeply on the scent and try to recall any associated memories or sensations, which can help reinforce neural pathways connected to olfactory recognition. Repeat daily for several months. Over time, you may begin to notice a gradual improvement in your ability to identify and differentiate smells.

Description

Olfactory training is a therapeutic approach designed to help individuals recover their sense of smell after it has been impaired or lost (*anosmia*). It involves repeatedly smelling a set of distinct scents for several months to stimulate and potentially rehabilitate the olfactory system. The standard practice includes sniffing at least four different odors—typically rose, lemon, clove, and eucalyptus—twice a day for about 10-20 seconds each.

People use olfactory training to help with anosmia associated with:

- COVID-19
- Chronic sinusitis
- Head trauma
- Aging
- Neurological conditions such as Alzheimer's or Parkinson's disease

How it helps

A few trials found olfactory training effective at improving subjective olfactory function in patients with long COVID-19. Its combination with PEA and luteolin may be most effective. However, intensifying the training by increasing the number of essences may offer no added benefits [\[R\]](#), [\[R\]](#), [\[R\]](#).

5



Hyperbaric Oxygen Therapy

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Schedule and attend sessions in a hyperbaric oxygen therapy chamber as your doctor prescribes, typically for about 60 to 90 minutes per session. The exact number of sessions required can vary based on the condition being treated, but it often ranges from 20 to 40 sessions, which may be conducted daily or a few times a week.

TYPICAL STARTING DOSE

90 minutes

Description

Hyperbaric oxygen therapy increases the amount of oxygen in the blood and tissues, which can help to improve circulation, reduce inflammation, and promote healing.

How it helps

In patients with long COVID-19 brain fog, hyperbaric oxygen therapy may improve global cognition, attention, executive function, information processing, verbal function, fatigue, sleep, pain interference, and cardiopulmonary function [\[R\]](#), [\[R\]](#), [\[R\]](#).

6



Acupuncture

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Visit a licensed acupuncturist for a session, typically lasting between 30 to 60 minutes, once or twice a week. Depending on your specific condition, a course of treatment might range from a few weeks to several months.

TYPICAL STARTING DOSE

1 hour

Description

Acupuncture is a part of traditional Chinese medicine. It involves inserting thin needles at specific points on the body. People use it to relieve pain and allergies, as well as reduce nausea and improve sleep.

[Acupuncture](#) is a part of traditional Chinese medicine. It involves **inserting thin needles at specific points on the body**. People use it to [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Relieve pain
- Improve sleep quality
- Relieve allergies
- Reduce nausea

How it helps

A meta-analysis found that acupuncture may improve the following long COVID-19 symptoms [\[R\]](#):

- Fatigue
- Depression
- Cognitive impairment
- Headaches
- Sleep disturbances

Alternatively, acupressure may help with breathing difficulties and weakness [\[R\]](#).

7



Qigong

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Practice Qigong exercises for 30 to 60 minutes daily, ideally in the morning to invigorate your body for the day ahead or in the evening to alleviate stress. Choose a quiet, comfortable space where you can move freely without distractions. Incorporating this routine consistently can lead to better physical and mental well-being over time.

TYPICAL STARTING DOSE

1 hour

Description

Qigong is a mind-body practice originating from traditional Chinese medicine. It involves gentle movements, meditation, and controlled breathing to promote relaxation, reduce stress, and improve physical and mental well-being.

Qigong is a traditional Chinese practice that combines movement, breath control, and meditation. It aims to cultivate and balance the body's vital energy, known as "qi" or "chi."

People often practice qigong for stress reduction, improving posture, increasing flexibility, and promoting overall wellness.

Baduanjin qigong is a type of medical qigong focused on health improvement, unlike religious or martial types.

How it helps

In patients with long COVID-19, qigong may improve [\[R\]](#), [\[R\]](#):

- Respiratory issues
- Dizziness
- Sleep disturbances
- Weakness
- Quality of life

8



Psychotherapy

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Schedule and attend regular sessions with a licensed psychotherapist, typically once a week for 50-60 minutes, over a period of several months to years depending on your individual needs and progress. Consistency is key, and the duration can vary widely based on personal goals and the type of psychotherapy being practiced.

TYPICAL STARTING DOSE

1 hour

Description

Psychotherapy is a broad term for therapeutic approaches that address mental and emotional health issues through talking and counseling. It can be used to treat a wide range of psychological and emotional challenges.

Psychotherapy (talk therapy) involves talking about your health with a licensed therapist. It may improve the way you react to certain experiences and help reduce stress [\[R, R\]](#).

Psychotherapy is a great way to improve many conditions, including [\[R, R, R, R, R, R\]](#):

- Depression
- Anxiety disorders
- PTSD
- OCD
- Weight problems
- Eating disorders

Cognitive-behavioral therapy (CBT) is a type of psychotherapy. CBT aims to change the way you think about your life and yourself. Through CBT, a therapist can help you develop healthy coping mechanisms [\[R\]](#).

How it helps

Psychotherapy may improve symptoms such as anxiety, depression, and post-traumatic stress in patients with long COVID-19. Successfully tested modalities include [\[R\]](#):

- Cognitive-behavioral therapy
- Dialectal behavior therapy
- Cognitive processing therapy

9



Neurostimulation Treatment

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Schedule sessions for neurostimulation treatment with a qualified healthcare provider. Typically, treatments are conducted 2-3 times a week for a duration of 4-6 weeks, depending on your specific condition and response to treatment. Ensure each session lasts approximately 30-60 minutes.

TYPICAL STARTING DOSE

30 minutes

Description

Neurostimulation treatments encompass various therapies that use electrical or magnetic stimulation to modulate neural activity, potentially alleviating chronic pain, mood disorders, or neurological conditions.

How it helps

Non-invasive neurostimulation may improve brain fog symptoms in patients with long COVID-19. Successfully tested techniques include:

- TMS [\[R, R\]](#)
- Photobiomodulation [\[R\]](#)
- iTBS [\[R, R\]](#)
- tDCS [\[R\]](#)
- tACS [\[R\]](#)

10



Maintain Optimal Vitamin D Levels

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Check your vitamin D levels, they should ideally be in the 30-66 ng/mL range. If your levels are lower than that, take a vitamin D supplement, 1000-4000 IU daily, to reach an optimal range.

TYPICAL STARTING DOSE

1000 iu

Description

Vitamin D, often referred to as the "sunshine vitamin," can be synthesized by the skin when exposed to sunlight, as well as being found in fish, eggs, and fortified milk. It helps regulate calcium absorption, promoting strong bones and a healthy immune system. Vitamin D deficiency can lead to conditions like rickets in children and osteoporosis in adults.

Your body needs [vitamin D](#) for strong bones. Vitamin D also plays a role in [\[R\]](#):

- Mood
- Immunity
- Heart health
- Blood sugar control

[Sunlight](#) is our main source of vitamin D. Experts recommend getting at least **5-15 minutes of midday sun, 2-3 times per week**. People with darker skin and those living at high latitudes may need longer periods of sun exposure [\[R\]](#), [\[R\]](#).

Foods like fish, eggs, and fortified milk provide small amounts of vitamin D. **People lacking vitamin D should consider taking a supplement** [\[R\]](#).

How it helps

Vitamin D deficiency has been associated with delayed recovery of long COVID-19 symptoms [\[R\]](#).

In line with this, a few trials found supportive evidence for the beneficial effects of vitamin D supplementation in long COVID-19 patients. However, a meta-analysis found mixed results [\[R\]](#), [\[R\]](#).

11



Creatine

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Take 4 grams of creatine supplement daily, ideally mixed with water or juice. This dosage can be maintained consistently without needing specific periods of cycling on or off.

TYPICAL STARTING DOSE

4 g

Description

Creatine is a popular dietary supplement among athletes and bodybuilders, known to enhance muscle performance during short bursts of high-intensity activities. It may help improve exercise performance and support muscle growth when used as directed.

[Creatine](#) is a compound naturally produced by the body. It’s stored in the muscles and brain [\[R\]](#).

During exercise, creatine is released to boost performance and help build muscles. For this reason, it’s a popular supplement among athletes [\[R, R\]](#).

Sources of creatine include [\[R\]](#):

- Red meat
- Seafood
- Supplements

How it helps

Coadministration of creatine (8 g/day) and glucose for 8 weeks replenished the brain creatine pool and improved several long COVID symptoms (including body aches, breathing problems, difficulties concentrating, headache, and general malaise) better than glucose alone in a placebo-controlled trial of 15 long COVID-19 patients [\[R\]](#).

Combining creatine (4 g/day) with breathing exercises for 3 months further increased time to exhaustion in a small, non-placebo-controlled trial of 8 long COVID-19 patients [\[R\]](#).

12



Vitamin C and L-Arginine

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Take 500-2000 mg of vitamin C and 500 mg of L-arginine supplement daily. It can be taken at any time of the day, with or without food, according to personal preference or tolerance.

Description

[Vitamin C](#) is an essential nutrient. This means that our bodies can’t produce it on their own, so we have to get it from food or supplements [\[R\]](#).

Foods rich in Vitamin C include: [\[R\]](#)

- Citrus Fruits
- Peppers
- Brussel sprouts
- Kiwi
- Broccoli
- Tomato
- Cantaloupe
- Cauliflower
- Spinach

Vitamin C has antioxidant properties. It supports immunity, heart health, and wound healing [\[R\]](#), [\[R\]](#).

Vitamin C deficiency is called *scurvy*. In the past, many sailors suffered from it [\[R\]](#).

[L-arginine](#) is a **building block for the proteins in our bodies**. This amino acid supports **healthy blood vessels** [\[R\]](#).

All major protein sources, including meat, fish, dairy, and beans, have L-arginine. People also take it as a supplement to [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Improve heart health
- Reduce blood sugar
- Support immunity
- Support sexual function

How it helps

Two studies on long COVID-19 patients found that the combination of vitamin C (500 mg) and L-arginine (1.66 g) taken 2x/day for 30 days improved walking performance, muscle strength, endothelial function, fatigue, and symptom severity while increasing the availability of the blood vessel-relaxing molecule NO [\[R\]](#), [\[R\]](#), [\[R\]](#).

13



Meditation

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Set aside 10-20 minutes each day in a quiet space without distractions to practice meditation. Focus on your breath or perform guided meditation using an app or audio track.

TYPICAL STARTING DOSE

30 minutes

Description

Meditation is a mindfulness practice that can reduce stress, improve mental clarity, and promote relaxation. Regular meditation is associated with numerous mental and emotional health benefits, including reduced anxiety and enhanced emotional well-being.

[Meditation](#) is a relaxation technique that trains your mind to focus and redirect your thoughts. Some of the main types of meditation are [\[R\]](#):

- Mindfulness
- Focused
- Transcendental
- Mantra
- Moving

People use meditation to improve [\[R\]](#), [\[R\]](#):

- Stress and anxiety
- Mood
- Sleep disturbances
- Pain

How it helps

In a non-placebo-controlled trial of 34 patients with long COVID-19, practicing ten 30-minute neuro-meditation sessions over 5 weeks improved cognitive impairment, physical and mental fatigue, muscle and joint pain, anxiety, depression, and sleep disturbances [\[R\]](#).

14



Synbiotics

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a synbiotic supplement that combines both prebiotics and probiotics daily, ideally with a meal. The specific dosage depends on the product, but generally ranges from 1 to 10 billion CFUs for probiotics. Consult the product's label for exact dosing instructions and continue use for at least 4 weeks to assess effectiveness.

Description

Synbiotics are dietary supplements that combine probiotics (beneficial bacteria) and prebiotics (fiber) to support gut health. They help maintain a balanced gut microbiome and digestive well-being.

How it helps

Imbalances in the gut and airway microbiome may play a role in long COVID-19 symptoms according to preliminary research [\[R\]](#).

In a placebo-controlled trial of 463 patients with long COVID-19, supplementation with a synbiotic containing three lyophilized *Bifidobacteria* strains and three prebiotic compounds (SIM01, 20 billion CFU/day) for 6 months improved fatigue, memory loss, difficulty in concentration, gastrointestinal upset, and general unwellness [\[R\]](#).

15



Coenzyme Q10 and Alpha-Lipoic Acid

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a combination supplement containing 100 mg of Coenzyme Q10 and 200 mg of Alpha-Lipoic Acid daily, ideally with a meal to enhance absorption. This supplement should be taken on a long-term basis for at least 3 to 6 months to potentially observe benefits.

TYPICAL STARTING DOSE

100 mg

Description

Coenzyme Q10 and alpha-lipoic acid (ALA) are antioxidants that may work synergistically to support cardiovascular health and cellular energy production. Together, they can help protect cells from oxidative damage and contribute to overall well-being.

How it helps

In a placebo-controlled trial of 174 patients with chronic COVID-19 symptoms, supplementation with coenzyme Q10 and alpha-lipoic acid reduced fatigue scores [\[R\]](#).

However, supplementation with coenzyme Q10 alone wasn’t more effective than the placebo at improving symptom severity in a placebo-controlled trial of 119 patients with long COVID-19 [\[R\]](#).

16



Thiamine Supplements

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take thiamine supplements orally, starting with a dose of 100 mg daily. This can be taken with or without food, but consistently at the same time each day for at least one month to help improve deficiency symptoms.

TYPICAL STARTING DOSE

100 mg

Description

Your doctor may recommend thiamine supplements. You can also discuss magnesium supplements with your doctor if your magnesium levels are low [\[R\]](#).

How it helps

Several cases of Wernicke’s encephalopathy have been reported in severe COVID-19, likely due to thiamine deficiency caused by ICU stay and poor nutrition. In all cases, combinations of parenteral and oral thiamine improved the condition [\[R, R, R, R, R, R\]](#).

17



Aromatherapy

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Select essential oils like lavender, peppermint, or eucalyptus. Use a diffuser to disperse the scent into your room for 30-60 minutes at a time, up to 3 times a day. Alternatively, apply a few drops diluted in a carrier oil directly to your skin, such as on your temples or wrists, twice a day.

TYPICAL STARTING DOSE

30 minutes

Description

Aromatherapy is a holistic practice that uses the scents and aromas of essential oils to promote physical, mental, and emotional well-being. It is often used for relaxation, stress reduction, and to address various health concerns through inhalation or topical application of essential oils.

Aromatherapy uses concentrated plant extracts known as **essential oils**. They can be inhaled using a diffuser (a device that releases small amounts of oil into the air) or applied to the skin using a roller [\[R\]](#).

[Lavender](#) is a decorative flower and a calming herb and its essential oil is commonly used in aromatherapy. People use it to [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Reduce anxiety [\[R\]](#)
- Improve sleep quality [\[R\]](#), [\[R\]](#)
- Relieve pain [\[R\]](#), [\[R\]](#)

Essential oils can be harmful if not used properly. Tips for using them safely include [\[R\]](#), [\[R\]](#):

- Diluting them properly using a plant-based carrier oil (such as olive oil or almond oil)
- Using diffusers in a well-ventilated area for a maximum of 1 hour
- If using on the skin, testing a small area first and waiting a day before using more
- Keeping essential oils away from candles or other heat sources

How it helps

In a placebo-controlled trial of 40 women with long COVID-19, aromatherapy with a blend of thyme, orange, clove bud, and frankincense essential oils (2x/day for 14 days) reduced fatigue and improved vigor [\[R\]](#).

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Hydrogen Water

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Drink 1.5 to 2 liters of hydrogen-rich water daily, spread out over the course of the day. It is best to start with a lower volume and gradually increase it to allow your body to adjust. This practice should be continued daily as a part of your lifestyle to maintain its potential benefits.

Description

Drinking hydrogen-rich water is believed to have antioxidant properties and may help combat oxidative stress in the body. Some studies suggest it could potentially support overall health and well-being.

How it helps

In a placebo-controlled trial of 55 patients with long COVID-19, drinking hydrogen water for 14 days improved fatigue, cardiorespiratory endurance, musculoskeletal function, and sleep quality. However, it didn’t improve shortness of breath [\[R\]](#).

19



Low-Level Laser Therapy (LLLT)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Use a low-level laser therapy device, as directed by its manual or a healthcare professional, on the affected area. Generally, treatment involves applying the laser for a specified duration, often between 30 seconds to several minutes, per treatment area. Sessions can be conducted 2-3 times per week for a period of 4-12 weeks, depending on the condition being treated and the device used.

TYPICAL STARTING DOSE

30 seconds

Description

Low-level laser therapy (LLLT), also known as photobiomodulation, is a type of light therapy that uses low-intensity lasers to promote healing. It has been shown to be effective in treating a variety of conditions, including pain, inflammation, and wound healing.

How it helps

In a non-placebo-controlled trial of 14 patients with long COVID-19 brain fog, both transcranial and whole-body LLLT improved cognitive function [\[R\]](#).

20



Repetitive Transcranial Magnetic Stimulation

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Attend sessions at a certified medical facility, where a healthcare professional will use a coil placed near your head to generate brief magnetic pulses. Typically, sessions occur 5 days a week for 4-6 weeks.

Description

Repetitive transcranial magnetic stimulation (rTMS) is a noninvasive procedure that stimulates the brain to improve symptoms of [\[R, R\]](#):

- Depression
- Muscle disease
- Parkinson's disease

rTMS delivers several magnetic pulses through an electromagnetic coil placed on the scalp. The pulses stimulate the region of the brain involved in mood and depression [\[R, R\]](#).

This technique is used in people who don’t respond to standard care. rTMS is generally painless and safe when performed by trained professionals [\[R, R\]](#).

How it helps

In 2 trials of 35 patients with long COVID-19, rTMS improved neuropsychiatric symptoms such as fatigue, apathy, and cognitive dysfunction [\[R, R\]](#).

21



Metformin

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Metformin is available in **immediate-release and extended-release formulations**. Doses are in the 500 to 2,550 mg range and are usually taken with food twice daily (immediate-release) or once daily (extended-release). It can also be taken in **combination with certain anti-diabetic medications** (rosiglitazone and metformin - Avandamet, glyburide, and metformin - Glucovance) [R].

Description

Metformin is classified as a biguanide. It’s used as a first-line drug treatment for type 2 diabetes and PCOS. Doctors may prescribe it for its "off-label" use in people with conditions such as [insulin resistance](#) and even cancer. It is the most commonly prescribed anti-diabetic medication in the world [R].

How it helps

In a placebo-controlled trial of 1126 COVID-19 patients, only 6.3% of those treated with metformin developed long COVID-19 symptoms compared to 10.4% of those who received the placebo [R].

Please note: Metformin may decrease kidney function. People with chronic kidney disease or undergoing procedures that may damage the kidneys such as CT scans should consult their doctors before taking metformin. This drug may also increase the risk of lactic acidosis in patients with liver cirrhosis [R, R, R, R, R, R].

22



Oxaloacetate

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 100mg of oxaloacetate supplement daily, preferably in the morning on an empty stomach to facilitate absorption. Continue this regimen consistently for at least several months to evaluate its benefits.

Description

Oxaloacetate supplements provide a stable form of the chemical that can be ingested. It is taken for its role in supporting cellular energy production, which may help boost energy levels and focus.

How it helps

In a non-placebo-controlled trial of 43 patients with long COVID-19, supplementation with oxaloacetate (1000 mg/day) for 6 weeks reduced fatigue by up to 46.8% [R].

23



Glutamine

IMPACT

0 / 5

EVIDENCE

1 / 5

How to implement

Take 5 to 10 grams of glutamine powder, mixed with water or another beverage, daily. It can be divided into two servings, one in the morning and the other in the evening. This supplementation is generally considered safe for long-term use, but it's best to consult with a healthcare provider for personalized advice.

TYPICAL STARTING DOSE

5 g

Description

Glutamine is an amino acid that plays a role in various bodily functions, including immune support and gut health. It may help with muscle recovery and overall well-being, particularly for individuals engaging in strenuous exercise.

L-glutamine is an amino acid produced by the body. Its levels may decrease during periods of stress or illness. It is important for protein and energy production, and helps control kidney pH balance [\[R\]](#).

Some people take L-glutamine as a supplement to help with [\[R\]](#):

- Gut health
- Immunity
- Exercise recovery and muscle performance
- Brain health

How it helps

Patients with long COVID-19 may have lower glutamine levels and glutamine/glutamate ratios [\[R\]](#), [\[R\]](#).

However, whether supplementation corrects these imbalances and improves long COVID-19 symptoms remains unknown.

24



Luteolin

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a luteolin supplement in the range of 100-200 mg per day, ideally with a meal to enhance absorption. It is recommended to continue this regimen daily for at least 8 to 12 weeks to evaluate its effectiveness.

TYPICAL STARTING DOSE

100 mg

Description

Luteolin is a flavonoid with potential anti-inflammatory and antioxidant properties, and it is found in various fruits and vegetables. Incorporating luteolin-rich foods into your diet may help reduce inflammation and support overall health.

How it helps

The combination of PEA and luteolin as an add-on to olfactory training improved olfactory threshold, discrimination, and identification scores better than olfactory training alone in 3 trials of 266 patients with long COVID-19. In one of them, the treatment also improved memory performance [\[R\]](#), [\[R\]](#), [\[R\]](#).

Long-term (10-month) supplementation improved fatigue and cognitive performance in a non-placebo-controlled trial of 26 patients [\[R\]](#).

How to implement

TYPICAL STARTING DOSE

600 mg

Description

People use alpha-lipoic acid to help with [[R](#), [R](#), [R](#), [R](#)]:

- Complications of high blood sugar
- Skin aging
- Weight loss
- Carpal tunnel syndrome

How it helps

However, supplementation with coenzyme Q10 alone wasn't more effective than the placebo at improving symptom severity in a placebo-controlled trial of 119 patients with long COVID-19 [R].

26



Vitamin C

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 500-2000 mg of vitamin C supplement daily. It can be taken at any time of the day, with or without food, according to personal preference or tolerance.

TYPICAL STARTING DOSE

2000 mg

Description

[Vitamin C](#) is an essential nutrient. This means that our bodies can’t produce it on their own, so we have to get it from food or supplements [\[R\]](#).

Foods rich in Vitamin C include: [\[R\]](#)

- Citrus Fruits
- Peppers
- Brussel sprouts
- Kiwi
- Broccoli
- Tomato
- Cantaloupe
- Cauliflower
- Spinach

Vitamin C has antioxidant properties. It supports immunity, heart health, and wound healing [\[R\]](#), [\[R\]](#).

Vitamin C deficiency is called *scurvy*. In the past, many sailors suffered from it [\[R\]](#).

How it helps

Two studies on long COVID-19 patients found that the combination of vitamin C (500 mg) and L-arginine (1.66 g) taken 2x/day for 30 days improved walking performance, muscle strength, endothelial function, fatigue, and symptom severity while increasing the availability of the blood vessel-relaxing molecule NO [\[R\]](#), [\[R\]](#), [\[R\]](#).

27



Palmitoylethanolamide (PEA)

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

For managing pain and inflammation, take 300mg to 1,200mg of palmitoylethanolamide (PEA) in divided doses throughout the day, preferably with meals to enhance absorption. This regimen should be followed for at least 6 weeks to evaluate its effectiveness.

Description

Palmitoylethanolamide (PEA) is a naturally occurring fatty acid amide. It is a compound found in various tissues of animals, including humans. PEA has been a supplement for the past couple of decades, and is utilized for its potential anti-inflammatory and pain-relieving properties.

[Palmitoylethanolamide](#) (PEA) is a compound naturally made by the body to help combat inflammation [\[R\]](#).

It’s also made by plants and other animals. Good sources of PEA include [\[R\]](#):

- Soy lecithin
- Soybeans
- Egg yolk
- Peanuts

How it helps

The combination of PEA and luteolin as an add-on to olfactory training improved olfactory threshold, discrimination, and identification scores better than olfactory training alone in 3 trials of 266 patients with long COVID-19. In one of them, the treatment also improved memory performance [\[R, R, R\]](#).

Long-term (10-month) supplementation improved fatigue and cognitive performance in a non-placebo-controlled trial of 26 patients [\[R\]](#).

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Coenzyme Q10 (CoQ10)

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a 100 mg Coenzyme Q10 (CoQ10) supplement once daily with a meal that contains fat for better absorption.

TYPICAL STARTING DOSE

100 mg

Description

Coenzyme Q10 (CoQ10) is a naturally occurring antioxidant that plays a crucial role in cellular energy production. It is often taken as a supplement to support heart health, improve energy levels, and provide antioxidant protection, especially for individuals with certain medical conditions or as they age.

[Coenzyme Q10](#) (CoQ10) is a compound that helps enzymes work better. By doing so, CoQ10 helps improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Energy levels
- Antioxidant protection
- Heart health
- Muscle strength
- Blood sugar control

The amount of CoQ10 made by your body decreases as you get older. Luckily, you can also get it from food or supplements. Good sources of CoQ10 include [\[R\]](#), [\[R\]](#):

- Organ meats
- Fatty fish
- Whole grains

How it helps

In a placebo-controlled trial of 174 patients with chronic COVID-19 symptoms, supplementation with coenzyme Q10 and alpha-lipoic acid reduced fatigue scores [\[R\]](#).

However, supplementation with coenzyme Q10 alone wasn’t more effective than the placebo at improving symptom severity in a placebo-controlled trial of 119 patients with long COVID-19 [\[R\]](#).

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.

