

Low Energy (Chronic Fatigue)

DNA Health Report

REPORT CATEGORY —



Sample Client

Report date: 03 September 2025

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Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

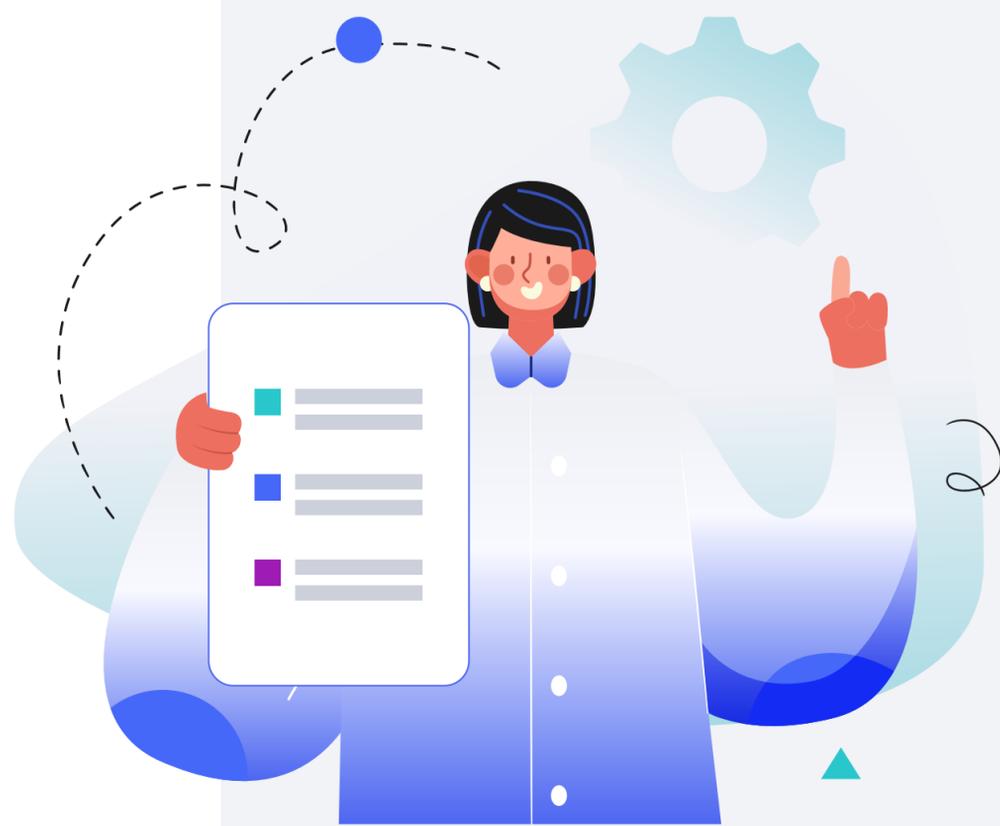
5ft 9" 175.0cm

WEIGHT

165lb 75.0kg

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.



Introduction

We all feel tired at one point or another, but normally a good night's rest or a vacation will set that right. Unfortunately for some people, their tiredness sticks around a while longer.

Chronic fatigue remains poorly understood and can have a significant impact on anyone. Even celebrities like Cher have reportedly struggled with prolonged fatigue. **But don't worry, you can believe in a life after chronic fatigue!**

While the struggles of fatigue are universal, the causes are not. What causes fatigue in one person may not have any impact on another. For example, **stress from work** may lead to fatigue in one office worker but not another. But what determines what will or won't exhaust you, and what can you do to prevent yourself from developing fatigue?

Well, a good part of the answer to both of these questions may lie in your genes.

If you happen to carry a poorly functioning [BDNF](#) genetic variant, then you could be more susceptible to fatigue from stress as a result of challenges in the workplace. In this situation, you could particularly benefit from some BDNF-boosting **relaxation techniques like massage** [\[R, R, R\]](#).

Or maybe you carry a [TMPRSS6](#) variant linked to **iron deficiency**, which is a common cause of fatigue. Iron is essential because it helps transport the oxygen our bodies need to make energy. In this instance, your best bet to counteract fatigue is to make sure you **get the recommended daily amount of iron** [\[R, R, R\]](#).

Another lesser-known cause of fatigue may be **food sensitivity**. Typically, food sensitivity makes you think of nausea or an upset stomach, but one of the most common symptoms is fatigue. A lot of food sensitivities are linked to genetics. It could be your [MCM6](#) gene lowering your **ability to digest lactose**, or your [HLA-DQA1](#) gene increasing your **sensitivity to gluten**. Either way, addressing these sensitivities may help improve fatigue [\[R, R, R, R, R, R, R\]](#).

Ultimately, the only way to combat chronic fatigue is to find out what the cause may be and to take action. Where's the best place to look for clues on where to start? **Your genes.**

Don't let your genes drain your battery. Recharge today using personalized recommendations tailored to fight the underlying causes of fatigue.

This report focuses on the genetics of fatigue. Read more to find out:

- **How your genetics play a role in fatigue**
- **Your genetic risk score based on over 8,000 genetic variants**
- **Personalized recommendations based on your genetics**

About Fatigue

Key Takeaways:

- Up to **40%** of differences in people's chances of having chronic fatigue may be due to genetics.
- Other risk factors include: serious infections, thyroid and liver problems, and nutrient deficiencies.
- Chronic fatigue is a rare condition, so even if your genetic risk is high, your actual risk is low.
- Chronic fatigue can cause poor sleep, brain fog, weakness, pain, gut issues, and flu-like symptoms.
- Click the **next steps** tab for relevant labs and lifestyle factors.

Fatigue is our body's way of telling us it's time to rest and recover. But what happens when that signal is sent too often, or all the time? What happens when normal, everyday activity is enough to drain you?

When fatigue goes on for more than 6 months, it's called *chronic fatigue* [R].

Chronic fatigue is often associated with [R, R, R, R, R, R, R, R]:

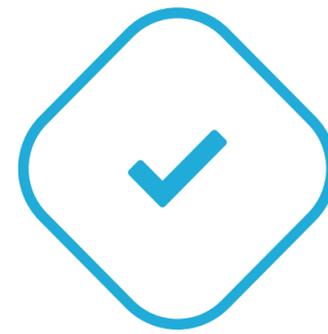
- Nutrient deficiency ([iron](#), [vitamin B12](#), [folate](#), [vitamin D](#))
- Thyroid problems
- Liver problems
- A recent serious infection

Chronic fatigue can lead to a decrease in social and physical activity. It can happen on its own or alongside chronic health conditions [R, R, R].

Some people can never seem to get their energy back, no matter how much they rest. This condition is known as *chronic fatigue syndrome*. It is a disabling condition that affects less than 1% of people [R, R].

Chronic fatigue can affect all parts of your body and may cause [R, R, R]:

- Poor sleep



TYPICAL LIKELIHOOD

Typical likelihood of fatigue based on 7,929 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

| GENE | SNP | GENOTYPE |
|----------|-------------|----------|
| MAPT | rs242924 | TT |
| IL17F | rs763780 | TT |
| DRD2 | rs6277 | GG |
| DRD3 | rs6280 | TT |
| BLMH | rs2066713 | GG |
| COMT | rs4680 | AG |
| ADRB2 | rs1042714 | GC |
| NR3C1 | rs852977 | GA |
| MAOA | rs1137070 | T |
| MAPKAPK3 | rs12492113 | AG |
| SPATA32 | rs117228037 | AA |
| SHISA4 | rs2279681 | CG |
| ARSA | rs1858756 | AA |
| HTR2A | rs6313 | GA |
| EPHA7 | rs72914217 | AC |
| SLC25A15 | rs11147812 | TC |
| CFB | rs4151667 | AT |
| MAOB | rs3027452 | G |
| MEGF9 | rs10985013 | TT |
| TCF4 | rs651350 | AA |

- Brain fog
- Weakness
- Pain
- Gut issues
- Flu-like symptoms

Unfortunately, there are no standard treatments for chronic fatigue. Many people try to manage their symptoms with alternative strategies [\[R\]](#), [\[R\]](#).

Chronic fatigue seems to run in families. **Up to 40% of differences in people's chances of having chronic fatigue may be attributed to genetics** [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Genes that contribute to fatigue tend to influence [\[R\]](#):

- The immune system ([TNE](#), [IL1B](#), [IL4](#), [IL6](#))
- Stress response ([NR3C1](#), [POMC](#))
- Sleep cycles ([NPAS2](#))
- Brain chemistry ([TPH2](#), [GRIK2](#), [MAOA](#), [MAOB](#), [COMT](#))

| GENE | SNP | GENOTYPE |
|---------|-------------|----------|
| KCTD10 | rs6606710 | CC |
| NTM | rs4937651 | CC |
| NMUR2 | rs34299746 | GG |
| EXD2 | rs4902704 | GC |
| GRIA1 | rs4644006 | TC |
| NLGN1 | rs529200 | GA |
| / | rs4265114 | CA |
| TNF | rs1800629 | GG |
| TPH2 | rs4570625 | GG |
| CFH | rs1061170 | TT |
| GLRX3 | rs148723539 | GG |
| KRT32 | rs139894014 | GG |
| SKAP1 | rs7221416 | AA |
| ZKSCAN8 | rs62620225 | CC |
| / | rs185907577 | TT |
| EXD3 | rs73581580 | GG |
| NRXN1 | rs79927354 | AA |
| CELF4 | rs948536 | AA |
| DCC | rs7233123 | GG |
| HTT | rs61348208 | TT |
| CADM2 | rs818215 | CC |
| IPO9 | rs2820309 | AA |

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 | | 2 | 100 mg |
| 3 | 1 hour | 4 | 30 minutes |
| 5 | 2 hours | 6 | |
| 7 | 30 minutes | 8 | 2 g |
| 9 | 30 minutes | 10 | |
| 11 | 10 mg | 12 | 30 minutes |
| 13 | 600 mg | 14 | |
| 15 | 500 mg | | |

1

Sleep for 7+ Hours

IMPACT

5 / 5

EVIDENCE

5 / 5

How to implement

Ensure you allocate enough time in your schedule to achieve a minimum of 7 hours of sleep each night. This might involve going to bed earlier or adjusting your evening routine to promote relaxation and make it easier to fall asleep.

Description

Optimizing sleep involves adopting healthy sleep habits and creating a sleep-conducive environment to ensure restorative and sufficient sleep duration. It supports cognitive function, mood stability, and overall physical health. Most experts recommend getting **at least 7 hours of good-quality sleep each night**.

Sleep supports your body and mind [R, R]. More precisely, sleep helps:

- Support brain health [R, R]
- Maintain a healthy weight and appetite [R, R, R]
- Regulate blood pressure [R, R]
- Balance blood sugar [R, R]

Ways to sleep better include [R]:

- Reducing your bright light exposure (screen time) in the evenings
- Sticking to a regular sleep schedule
- Avoiding hunger or large meals before bed
- Avoiding nicotine, caffeine, and alcohol before bed
- Maintaining a sleep area that’s cool, dark, and quiet

How it helps

Experts agree that optimizing sleep may help improve fatigue [R, R].

Sleep is often disturbed in people who work shifts or nights. These workers may be at greater risk of fatigue [R, R, R].

People with chronic health conditions also tend to have trouble sleeping. In turn, poor sleep may worsen fatigue linked to their conditions [R, R, R, R].

Optimizing sleep can help you better recognize the body’s sleep signals. It may reduce fatigue by helping you rest better [R, R].

PERSONALIZED TO YOUR GENES

Poor sleep may have a stronger impact on performance in people with your **TNF** gene variant [R, R].

| YOUR GENETIC VARIANTS | | | |
|-----------------------|-----------|----------|---|
| GENE | SNP | GENOTYPE | EVIDENCE |
| TNF | rs1800629 | GG | <div style="display: flex; align-items: center; gap: 5px;"> </div> |

2  **Caffeine**

IMPACT  4 / 5

EVIDENCE  3 / 5

How to implement

Consume 100 to 200 mg of caffeine supplement daily, ideally in the morning to avoid interference with sleep. This can be in the form of a pill or powder, taken with water. Avoid exceeding 400 mg per day to prevent side effects.

TYPICAL STARTING DOSE

100 mg

Description

Caffeine is a natural stimulant found in coffee, tea, and certain other beverages and foods. In moderate amounts, it can help increase alertness and concentration, potentially enhancing cognitive function and physical performance.

People drink coffee for an energy and mood boost. [Caffeine](#) is the main ingredient responsible for these effects [\[R, R\]](#).

Caffeine may also [\[R, R, R\]](#):

- Support heart health
- Maintain healthy blood sugar

Caffeine is also found in some topical products for hair loss [\[R\]](#).

How it helps

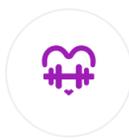
Caffeine enhances exercise performance across various activities, especially aerobic exercises like running and cycling [\[R, R, R\]](#).

Moreover, caffeine (100-300 mg) may improve alertness and reduce mental fatigue. This may be beneficial for sleep-deprived people, though tolerance may develop with frequent use [\[R, R, R, R, R, R, R, R\]](#).

Caffeine may delay physical fatigue by helping the muscles contract more forcefully, which allows longer exercise [\[R, R\]](#).

Please note: Too much caffeine (over 400 mg/day or 4 cups of coffee/day) may lead to sleep problems, high blood pressure and cholesterol, fast heart rate, and dependence. If you're pregnant, try to limit caffeine to 200 mg per day [\[R, R\]](#).

3



Psychotherapy

IMPACT

 3 / 5

EVIDENCE

 4 / 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

Types of psychotherapy available for people with chronic fatigue include [\[R, R, R\]](#):

- Cognitive-behavioral therapy (CBT)
- Mindfulness-based therapy
- Acceptance and commitment therapy

CBT helps people address the thoughts and beliefs that cause them stress and worsen their symptoms. By doing so, **CBT may help improve chronic fatigue** [\[R, R, R, R, R\]](#).

CBT is sometimes used in combination with mindfulness and acceptance therapies. These therapies, alone or combined, may also lower fatigue [\[R\]](#).

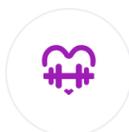


PERSONALIZED TO YOUR GENES

People with your **COMT** gene variant may respond better to talk therapy [R, R, R].

YOUR GENETIC VARIANTS

| GENE | SNP | GENOTYPE | EVIDENCE |
|------|--------|----------|----------|
| COMT | rs4680 | AG | |



Yoga



How to implement

Practice yoga for at least 20 to 30 minutes a day, most days of the week. Choose a style that matches your fitness level and goals, and consider attending a class or using online resources to guide your practice.

TYPICAL STARTING DOSE

30 minutes

Description

Yoga is a mind-body practice that combines physical postures, breathing exercises, and meditation. It enhances flexibility, strength, and mental well-being and is used for stress reduction, relaxation, and overall health improvement.

Yoga combines breathing, stretching, and relaxation techniques. Practicing yoga may help [R, R, R]:

- Reduce [stress](#)
- Improve fitness
- Lower blood pressure and heart rate
- Manage pain

How it helps

Yoga (1-3x/week for 6 weeks to 6 months) may reduce fatigue in healthy people and those with chronic conditions, such as [R, R, R]:

- Low back pain
- Multiple sclerosis
- Fibromyalgia
- Kidney disease
- Cancer

5



Spend Time in Nature

IMPACT

 3 / 5

EVIDENCE

 3 / 5

How to implement

Aim to spend at least 120 minutes per week in natural environments, such as parks, forests, or beaches. This can be divided into short durations throughout the week, for example, 17 minutes per day or longer sessions on weekends.

TYPICAL STARTING DOSE

2 hours

Description

Spending time in nature, also known as ecotherapy or forest bathing, is a wellness practice that involves immersing oneself in natural environments. It offers mental and physical health benefits, including reduced stress, improved mood and eye health, healthier weight, and blood sugar control.

Spending over 2 hours in nature every week is linked to better health and well-being [R].

Spending more time in nature or in urban green areas may help support [R, R, R, R, R]:

- Healthy weight
- Blood sugar control
- Heart health
- Mental health
- Eye health

To get in touch with nature, you can [R, R]:

- Go on a walk
- Go biking or camping
- Garden
- Visit a park

How it helps

Research suggests that people who spent time in natural settings (10-60 minutes at least once a week) may experience up to 53% less fatigue [R, R, R, R].

Being outdoors may help by causing a shift towards a more positive emotional state [R, R, R, R].



Cognitive-Behavioral Therapy (CBT)

IMPACT  3 / 5

EVIDENCE  3 / 5

How to implement

Schedule weekly sessions with a certified cognitive-behavioral therapist for a period of 5 to 20 weeks. Engage actively in exercises assigned by your therapist both during sessions and as homework to apply CBT strategies to daily life.

Description

Cognitive-behavioral therapy (CBT) is a psychotherapeutic approach that has been effective in treating various mental health conditions by helping individuals identify and change negative thought patterns and behaviors. It is widely used for conditions like depression, anxiety, and phobias.

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

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

- Depression
- Anxiety disorders
- PTSD
- OCD
- Substance use disorder
- Bipolar disorder

Cognitive-behavioral therapy (CBT) is a type of talk therapy. 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

Meta-analyses have shown cognitive-behavioral therapy (CBT), including its combination with mindfulness-based stress reduction, may reduce fatigue in conditions like [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Chronic fatigue syndrome
- Fibromyalgia
- Multiple sclerosis
- Cancer

CBT for chronic fatigue includes psychological strategies to tackle stress-inducing thoughts [\[R\]](#).

7



Meditation

IMPACT


EVIDENCE


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

Stress and fatigue are closely linked. Stress has the potential to cause or worsen physical and mental fatigue [\[R, R, R\]](#).

Relaxation techniques that may help include:

- Mindfulness meditation [\[R, R\]](#)
- Relaxation therapy (breathing and muscle relaxation) [\[R, R, R, R\]](#)
- [Yoga](#) [\[R, R, R\]](#)
- Tai chi [\[R, R, R, R, R\]](#)

Yoga (at least 60 minutes per week) may be especially helpful for fatigue from chronic health conditions [\[R, R, R, R, R, R, R\]](#).

Stress may cause fatigue by:

- Altering the fight-or-flight response [\[R, R, R\]](#)
- Reducing sleep quality [\[R\]](#)

8

Creatine

IMPACT

3 / 5

EVIDENCE

3 / 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

2 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

Supplementing with **creatine (20 g/day for 5-6 days)** may reduce muscle fatigue and improve athletic performance [\[R, R, R, R, R, R, R\]](#).

It may be somewhat less effective in people older than 55 [\[R, R, R, R, R\]](#).

Creatine supplements (5-20 g/day for 5-42 days) may also reduce mental fatigue and boost cognitive function. They tend to help people who don't get enough creatine from their diets (such as vegetarians) [\[R, R, R\]](#).

Creatine helps with fatigue by supplying the body with energy [\[R\]](#).



PERSONALIZED TO YOUR GENES

People with your **AMPD1** gene variant may respond better to creatine [\[R\]](#).

YOUR GENETIC VARIANTS

| GENE | SNP | GENOTYPE | EVIDENCE |
|-------|------------|----------|--|
| AMPD1 | rs17602729 | GG | <div style="display: flex; justify-content: center; gap: 5px;"> <div style="width: 10px; height: 10px; background-color: #800080; border-radius: 50%;"></div> <div style="width: 10px; height: 10px; background-color: #800080; border-radius: 50%;"></div> <div style="width: 10px; height: 10px; background-color: #ccc; border-radius: 50%;"></div> <div style="width: 10px; height: 10px; background-color: #ccc; border-radius: 50%;"></div> </div> |

9  **Mindfulness**

IMPACT
● ● ● ● ● 3 / 5

EVIDENCE
● ● ● ● ● 3 / 5

How to implement

Set aside 5-10 minutes each day to practice mindfulness meditation. Find a quiet place, assume a comfortable seated position, close your eyes, focus on your breathing, and observe your thoughts and sensations without judgment.

TYPICAL STARTING DOSE

30 minutes

Description

Mindfulness involves paying focused and non-judgmental attention to the present moment. It can reduce stress, improve emotional regulation, and enhance overall mental clarity and well-being.

Mindfulness is the practice of being aware of the present moment. When practicing mindfulness, a person acknowledges their thoughts, feelings, and sensations without any judgment [R].

Mindfulness and other types of [meditation](#) may improve [R]:

- Weight and anxiety
- Low mood
- Sleep disturbances
- Pain
- High blood pressure

How it helps

Mindfulness-based interventions in people with chronic medical conditions, especially cancer, may [R, R, R, R, R, R, R]:

- Lower anxiety and depression
- Improve cancer-related fatigue
- Increase vitality

Studied interventions include [R, R, R, R]:

- Mindfulness-Based Stress Reduction (MBSR)
- Mindfulness-Based Cognitive Therapy (MBCT)
- Mindfulness-Based Cancer Recovery (MBCR)
- Mindfulness-based art therapy

These benefits may persist for at least 3 months post-intervention [R].

10

Drink at Least 8 Glasses of Water a Day

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Consume a total of at least 64 ounces (or approximately 1.9 liters) of water over the course of the day. This can be divided into 8 glasses, each containing 8 ounces of water. Aim to drink evenly throughout the day to avoid dehydration.

Description

Water is an essential nutrient for nearly every process in your body, helping to maintain brain and gut function, maintain a healthy weight, as well as energy and performance levels, among others.

Water is essential for life. It supports nearly every process in your body [R].

Water helps maintain [R]:

- Energy and performance levels
- Brain function
- Gut function
- Healthy weight

Most experts recommend drinking **around 8 glasses (64 oz. or 2 L) of water daily**. You might need more or less than this, depending on how active you are, where you live, or what your overall health is like [R].

How it helps

Even mild dehydration may impact brain activity. It may lead to [R, R, R, R, R, R]:

- Fatigue
- Mental drain
- Lower physical performance
- Lower cognitive performance

In line with this, **drinking more water** may help reduce fatigue and boost performance [R, R, R].

PERSONALIZED TO YOUR GENES

People with your **AHR** gene variant tend to drink less water [R, R]. Make sure to stay hydrated to avoid fatigue.

| YOUR GENETIC VARIANTS | | | |
|-----------------------|-----------|----------|---|
| GENE | SNP | GENOTYPE | EVIDENCE |
| AHR | rs4410790 | TC | <div style="display: flex; align-items: center; gap: 5px;"> <div style="width: 15px; height: 10px; background-color: #800080; border-radius: 5px;"></div> <div style="width: 15px; height: 10px; background-color: #800080; border-radius: 5px;"></div> <div style="width: 15px; height: 10px; background-color: #ccc; border-radius: 5px;"></div> <div style="width: 15px; height: 10px; background-color: #ccc; border-radius: 5px;"></div> <div style="width: 15px; height: 10px; background-color: #ccc; border-radius: 5px;"></div> </div> |

11  **Dietary Iron**

IMPACT  **EVIDENCE** 

How to implement

Incorporate iron-rich foods into your daily meals, such as red meat, chicken, turkey, fish, beans, lentils, tofu, cooked spinach, and fortified cereals. Aim for at least 18 mg of iron per day for adult women and 8 mg per day for adult men. It's also beneficial to pair these foods with vitamin C-rich foods like oranges, strawberries, or bell peppers to enhance iron absorption.

TYPICAL STARTING DOSE

10 mg

Description

Iron (Fe) is an essential mineral. It helps make [hemoglobin](#), a protein that carries oxygen to cells. In this way, iron **increases energy** and supports **brain and immune system function** [\[R, R, R\]](#).

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

- Oysters
- White beans
- Beef
- Chocolate
- Spinach
- Fortified cereals

Women should be getting **8-18 mg** of iron per day, while **men** should be getting **8 mg** [\[R\]](#).

Groups at risk of iron deficiency include [\[R\]](#):

- Menstruating women
- Children
- Vegetarians
- Routine blood donors

How it helps

Iron helps transport oxygen to cells. This is essential for energy production. Thus, **fatigue is common in people with iron deficiency** [\[R, R\]](#).

In deficient people, supplementing with iron may help reduce fatigue. It may also boost physical performance [\[R\]](#).

Please note: *A high dose of iron can be toxic. If you are not deficient, it is best to get iron from food. Talk to your doctor before taking iron supplements* [\[R\]](#).

12  **Reflexology**

IMPACT  **EVIDENCE** 

How to implement

Attend a reflexology session with a certified practitioner for 30-60 minutes, once or twice a week. Continue consistently for at least 4-6 weeks to evaluate its impact on your well-being.

TYPICAL STARTING DOSE

30 minutes

Description

Reflexology is a holistic therapy that involves applying pressure to specific points on the feet, hands, or ears to stimulate natural healing processes throughout the body. It is believed to improve circulation, reduce stress, and promote relaxation, potentially benefiting overall well-being.

Reflexology is the practice of applying pressure to specific parts of your feet or hands. It's theorized that by pressing on these areas, you can relieve tension from other parts of the body [\[R\]](#).

People mainly use reflexology to help with stress and anxiety. It may also help with pain and sleep problems [\[R\]](#).

How it helps

Reflexology may reduce perceived fatigue and stress in healthy people [\[R\]](#), [\[R\]](#).

Reflexology may also help people with health conditions, such as [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Cancer
- Chronic kidney disease
- Rheumatoid arthritis

Foot reflexology may help by [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Accelerating blood and lymph flow
- Softening muscles, joints, and tendons
- Promoting relaxation and well-being

13



N-acetylcysteine (NAC)

IMPACT

3 / 5

EVIDENCE

2 / 5

How to implement

Take 600 mg of N-Acetylcysteine (NAC) supplement daily with water. It can be taken at any time of the day, but try to take it at the same time each day for best results.

TYPICAL STARTING DOSE

600 mg

Description

NAC is a supplement that contains a form of the amino acid cysteine, a protein building block that your body uses to make the antioxidant glutathione. It is used for its potential antioxidant properties and its ability to support lung, gut, and mental health.

[N-acetylcysteine](#) (NAC) is converted to cysteine in the body. Cysteine is a protein building block (amino acid) that helps make the antioxidant glutathione [\[R\]](#).

People take NAC to potentially support [\[R\]](#), [\[R\]](#):

- Mental health
- Ovarian health and pregnancy outcomes
- Lung health
- Gut health

How it helps

NAC (1,200-4,800 mg/day for 12 weeks) may reduce post-exercise muscle fatigue, oxidative stress, and inflammation. It may also help people with fatigue related to lupus [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Please note: NAC may interact with blood thinners (like aspirin, Plavix, Coumadin). If you are taking blood thinners or planning a surgery, consult your doctor before consuming NAC [\[R\]](#).

14  **Dark Chocolate**

IMPACT  **EVIDENCE** 

How to implement

Eat dark chocolate with a cocoa content of at least 70-85%, limiting intake to about 1-2 ounces (28-56 grams) a day to gain cardiovascular and mood-related benefits without excessive calorie intake.

Description

Dark chocolate, when consumed in moderation and with a high cocoa content, offers potential health benefits due to its antioxidants and flavonoids. It may support heart health, improve mood, and provide a source of natural energy.

[Cocoa](#) comes from the beans of the *Theobroma cacao* tree. It's often used for making chocolate, hot chocolate, and pastries. People have also used it as a medicine for over a thousand years [\[R, R\]](#).

Cocoa contains flavanols and other active components that may help [\[R, R, R, R\]](#):

- Control weight
- Lower fatigue
- Boost mood
- Improve digestion
- Balance blood sugar
- Support heart health

Dark chocolate contains more cocoa (50-90%) and less added sugars and fat than white or milk chocolate.

How it helps

Consuming dark chocolate (15g, 3x/day for 8 weeks) or cocoa-based drinks (supplying 520-994 mg flavanols, 2x/day for 6 weeks) may reduce fatigue and cognitive function and increase vigor [\[R, R, R, R, R\]](#).

A few doses may also offer benefits. In a small study, just half an ounce of chocolate consumed twice a day for three days significantly uplifted mood by decreasing fatigue [\[R\]](#).

Cocoa's rich polyphenol content may be credited for these positive effects. However, it's worth noting that chocolate also contains caffeine, which may contribute to reducing fatigue [\[R, R\]](#).

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Acetyl-L-Carnitine

IMPACT

2 / 5

EVIDENCE

3 / 5

How to implement

Take 500-1,000 mg of Acetyl-L-Carnitine per day, split into 2 or 3 doses, with or without food. Joe prefers taking 500 mg in the morning. It can be taken indefinitely for chronic conditions or for a period of several months for acute concerns.

TYPICAL STARTING DOSE

500 mg

Description

[Carnitine](#) is a protein building block (amino acid). It comes in many forms, such as acetyl-L-carnitine. Acetyl-L-carnitine may help with nerve damage and mood problems.

[Carnitine](#) is a protein building block (amino acid). It comes in many forms, such as acetyl-L-carnitine [\[R\]](#), [\[R\]](#), [\[R\]](#).

[Acetyl-L-carnitine](#) may help with [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Nerve damage
- Mood problems
- Cognitive decline

Doctors are also studying its potential effect on drug addiction [\[R\]](#).

How it helps

Acetyl-L-Carnitine aids in the production of energy by transporting fat into the mitochondria where it's converted into ATP (energy). This may reduce physical and mental fatigue, offering some relief for chronic fatigue sufferers.

A study involving 96 elderly subjects (>70 years) with chronic fatigue syndrome found that acetyl L-carnitine (ALC) treatment significantly reduced physical and mental fatigue, improved cognitive and functional status, and alleviated symptoms like muscle pain, prolonged fatigue after exercise, and sleep disorders [\[R\]](#).

65 women with fibromyalgia received duloxetine 60 mg/day or acetyl L-carnitine 1500 mg/day (500 mg, 3x/day). Both led to a general clinical improvement, with positive effects on pain and depressive symptoms; but neither induced a significant improvement in anxiety. Both had a positive effect on the physical component of the quality of life, but only duloxetine improved the psychological component [\[R\]](#).

In a trial with 102 fibromyalgia (FMS) patients, acetyl L-carnitine (LAC) treatment showed promise. It significantly reduced pain, tender points, and improved various aspects of patients' health and mental well-being, suggesting potential benefits for FMS management [\[R\]](#).

In a study involving fibromyalgia (FM) patients already on pregabalin (PGB) and duloxetine (DLX), adding palmitoylethanolamide (PEA) and acetyl-L-carnitine (ALC) for 12 weeks (Group 2) led to significant improvements in pain severity, Fibromyalgia Impact Questionnaire scores, and Fibromyalgia Assessment Status scores didn't improve further [\[R\]](#).

In 60 hepatitis C patients, 12 months of ALC supplementation reduced both mental and physical fatigue, improved health-related quality of life, and, therefore, has the potential to increase patient adherence to the combination regimen [\[R\]](#).

36 MS patients presenting fatigue were enrolled in a randomized, double-blind, crossover study. Patients were treated for 3 months with either amantadine (100 mg twice daily) or ALCAR (1 g twice daily). Statistical analysis showed significant effects of ALCAR compared with amantadine for the Fatigue Severity Scale [\[R\]](#).

However, in a study involving multiple sclerosis (MS) patients with fatigue, ALCAR only showed a trend toward reducing fatigue [\[R\]](#).

