

Sleep

Summary Report

REPORT CATEGORY —



Sample Client

Report date: 30 April 2026

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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.

Viewing this medical test requires a medical doctor or use one of our contracted genetic counselors. By accessing these results, you acknowledge and agree that you will consult with a licensed physician or one of our contracted genetic counselors to review and interpret the results, and you agree not to rely on this information as a substitute for professional medical advice, diagnosis, or treatment.

Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 10" 178cm

WEIGHT

215lb 97.5kg

REPORT PROVIDED BY

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Summary

At one point or another, we've all tossed and turned in bed, desperately trying to get some much needed rest. Trouble sleeping can lead to chronic tiredness, irritability, difficulty concentrating, and a general lack of energy [R].

Every year, **1 in 3 people** in the US experience issues getting a good night's sleep [R, R]. **Are you one of them?**

If you already tried the same generic advice for better sleep, and it didn't work—don't despair! The secret behind a long and refreshing night's sleep **may be hidden in your DNA!**

That's why we created this Comprehensive Sleep Report to analyze your genetic predisposition to various sleep-related traits and conditions. This is your one-stop destination for sleep genetics and personalized sleep improvement tips.

Don't waste your time counting sheep! Use your DNA to target the root cause of your sleep issues.






This summary report contains:

22 Genetic Results










15 Recommendations

Overview of Your Results


🕒 Sleep Markers

 LOWER LEVELS Melatonin Predisposed to lower melatonin levels	 TYPICAL Sleep Duration Predisposed to typical sleep duration	 TYPICAL Sleep Quality Predisposed to typical sleep quality
 DEEP Deep Sleep (ADA) Likely a deep sleeper	 LOWER Sleep Latency Predisposed to lower sleep latency	


🗨️ Sleep Disturbances

 MORE LIKELY Snoring More likely to snore	 TYPICAL LIKELIHOOD Insomnia Typical likelihood of insomnia	 TYPICAL LIKELIHOOD Sleep Movement Typical likelihood of sleep movement
 TYPICAL LIKELIHOOD Restless Legs Typical likelihood of restless legs syndrome	 TYPICAL LIKELIHOOD Caffeine-Related Sleep Problems Typical likelihood of caffeine-related sleep problems	 TYPICAL LIKELIHOOD Night Peeing Typical likelihood of nocturia
 LESS LIKELY Sleep Apnea Less likely to have sleep apnea	 LESS LIKELY Daytime Sleepiness Less likely to experience daytime sleepiness	 LESS LIKELY Narcolepsy Less likely to have narcolepsy

Sleep-Related Behaviors


 **LESS LIKELY**
Napping

Less likely to take naps


 **EARLY BIRD**
Early Bird or Night Owl?

More likely to be an early bird


Sleep Genes

 **WORSE GENETICS**
BTBD9 (Restless Legs)

Likely worse BTBD9 genetics

 **WORSE GENETICS**
NPAS2 (Mood/ Sleep Schedule)


Likely worse NPAS2 genetics

 **TYPICAL ACTIVITY**
CLOCK (Sleep & Weight)

Likely typical CLOCK activity

 **TYPICAL ACTIVITY**
GRIA3 (Sleep/Mood)

Likely typical GRIA3 activity

 **DEEP**
Deep Sleep (ADA)

Likely a deep sleeper

 **HIGHER ACTIVITY**
MTNR1A (Melatonin)

Likely higher MTNR1A activity

Recommendations Overview

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		Airflow Devices	
2		Continuous Positive Airway Pressure (CPAP)	
3	30 minutes	Maintain a Healthy Weight	30 minutes
4		Airway Muscle Training	30 minutes
5		Avoid Sleeping on Your Back	
6		Mandibular Advancement Devices (MADs)	
7		Bed Head Elevation	
8		Acupuncture	1 hour
9	90 minutes	Hyperbaric Oxygen Therapy	90 minutes
10		Aerobic Exercise (Cardio)	1 hour
11	1000 iu	Maintain Optimal Vitamin D Levels	1000 iu
12		Yoga	30 minutes
13	10 minutes	Progressive Muscle Relaxation	10 minutes
14		Avoid Meals 3-4 Hours Before Bedtime	
15	30 minutes	Transcutaneous Electrical Nerve Stimulation (TENS)	30 minutes

Your Results in Details



Sleep Markers

We use different parameters to describe and measure sleep, and genetics plays a role in all of them! The two main ones are **sleep duration and sleep quality**.

It's crucial to maintain an optimal sleep duration. Adults typically need **7-9 hours** of sleep per night. The quality of your sleep can also have a big impact on your energy, mood, and quality of life [\[R, R, R, R\]](#).

Sleep quality can be measured in different ways. One parameter that tells a lot about your sleep quality is **deep sleep**. This sleep stage is crucial for your mind and body to rest and repair [\[R\]](#).



LOWER LEVELS

Melatonin

Predisposed to lower melatonin levels



TYPICAL

Sleep Duration

Predisposed to typical sleep duration



TYPICAL

Sleep Quality

Predisposed to typical sleep quality



DEEP

Deep Sleep (ADA)

Likely a deep sleeper



LOWER

Sleep Latency

Predisposed to lower sleep latency

Melatonin

Key takeaways:

- Up to **80%** of differences in people's melatonin levels may be due to genetics.
- Low melatonin is a common issue. It may disrupt sleep and cause tiredness.
- Artificial light, stress, caffeine, alcohol, and tobacco may reduce melatonin levels.
- Lack of sunlight, liver issues, and some supplements and drugs may increase melatonin levels too much.

Up to 80% of differences in people's melatonin levels may be due to genetics [\[R\]](#).

Genes involved in melatonin levels may influence [\[R\]](#), [\[R\]](#):

- Light sensitivity
- Sleep-wake cycle
- Brain development and health
- Mental health

Factors linked to **low melatonin levels** include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Artificial light, including your phone and TV
- Long daylight in the summer
- Stress
- Caffeine, alcohol, tobacco
- Late-night physical activity
- Some drugs (e.g., beta-blockers)
- Aging

Excessive melatonin levels may result from [\[R\]](#), [\[R\]](#):

- Colder and darker winter months
- Liver issues
- Supplements (e.g., 5-HTP, tryptophan, vitamin B3 or B6)
- Some antidepressants



LOWER LEVELS

Predisposed to lower melatonin levels based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GALNT13	rs7571016	GG
GALNT15	rs142037747	GG
LDLRAD3	rs9645614	AA
ANXA2R	rs6451653	GG
ZFH3	rs17681554	AA

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

Sleep Duration

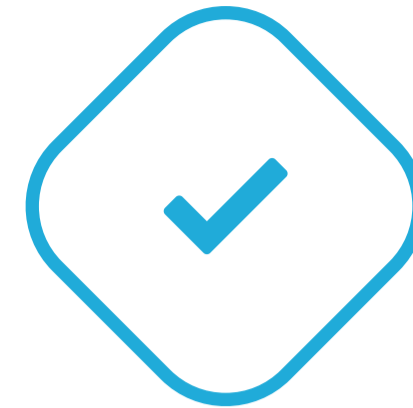
The amount of sleep you need depends on many factors, such as your age. Adults typically need 7-9 hours of sleep per night [\[R, R, R\]](#).

How much sleep you actually get may depend both on your genes and the environment. Around 50% of the differences in sleep duration between people may be due to genetics [\[R\]](#).

Many of the genes that affect sleep duration are involved in the circadian clock. This is our internal clock that helps control and adjust the sleep-wake cycle to the 24-hour cycle of the Earth's day [\[R, R, R, R\]](#).

Strategies that may help you get the recommended amount of sleep include [\[R\]](#):

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



TYPICAL

Predisposed to typical sleep duration based on 7,192,262 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IGKV10R2-108	rs62158206	TT
MBOAT2	rs79512144	AA
ZCCHC7	rs10973207	GG
RBFOX1	rs77684884	AA
TTC21B	rs12463754	CC
COG5	rs6979198	TT
LPCAT1	rs365663	GG
DAB1	rs540431	GG
/	rs12791153	AT
VRK2	rs116219610	TC
CLOCK	rs12649507	AG
SEMA6D	rs13329140	GA
TCF4	rs12607679	CT
PAM	rs6889592	GA
FOXP2	rs1668331	TG
ANKK1	rs17601612	GC
PAX8	rs2863244	AG
BUD13	rs1263056	GA
BANK1	rs13109404	TT
ERC2	rs112230981	AA
NRXN3	rs11621908	CC
ACTR1A	rs144625846	AA
CLOCK	rs2070062	AC
MRM2	rs3823624	CC
ZSCAN23	rs34388845	AA
VRK2	rs11682175	CC
H2BC12	rs12215241	GG
MAPT	rs62061734	TT
FTO	rs8047587	GG

GENE	SNP	GENOTYPE
ZFP57	rs1633063	CC
PM20D2	rs9451146	CC
PRKG2	rs41501452	AA
GPD2	rs11883686	AA
COG5	rs7778250	AA
/	rs9362971	TT
/	rs4688116	TT

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

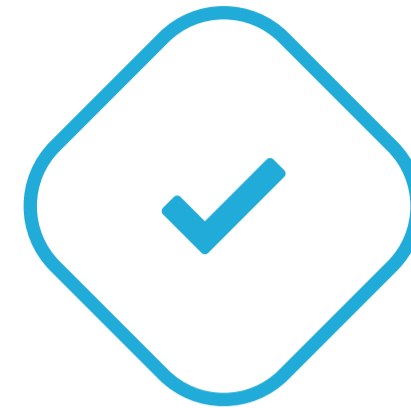
Sleep Quality

The quality of your sleep can have a big impact on how much energy you have during the day [R, R].

Many genetic variants influence sleep [R]. However, your environment and your habits also affect sleep quality.

Some strategies that may improve sleep quality 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



TYPICAL

Predisposed to typical sleep quality based on 576,285 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs71365296	AA
KANSL1	rs1107820	TT
VGLL2	rs4946246	TG
RALYL	rs118149821	CC
CHRM2	rs146885652	GG
FOXO6	rs2226263	TT
/	rs184060364	GG
TENM4	rs117191802	AA
TCF21	rs13201465	AA
RALYL	rs191939331	GG
FBN2	rs115375165	GG
TJP2	rs7030480	AA
COQ8A	rs113207574	CT
PRICKLE1	rs11829548	GT
ADCY1	rs79209880	CC
CHRM2	rs74757156	CC
/	rs111921861	AA
/	rs140707667	GG
FUT9	rs142123475	CC
UFL1	rs75842709	CC
COX7C	rs2964898	CC
ERCC4	rs74321030	TT
VRK1	rs78807545	GG
/	rs147738873	CC
MSX2	rs28450080	CC
RFX4	rs11610873	GG
CDH13	rs111702115	GG
CASP3	rs7695597	AA
TNF	rs1800629	GG

GENE	SNP	GENOTYPE
NREP	rs140529718	GG
EPB41L4A	rs146128029	TT
RBMS3	rs17023449	TT
SASH1	rs112390069	GG
FAM107B	rs74122981	AA
PLK2	rs76395602	GG
RGS6	rs36032616	AA
PIGZ	rs4916588	CC
PLK2	rs170741	TT
ENC1	rs76768179	TT
ZNF626	rs6511152	CC
CD36	rs4437584	TT
LAMA2	rs11962701	CC

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

Deep Sleep (ADA)

Deep sleep is one of the stages of non-REM sleep. It is also called *slow-wave sleep* or *delta-wave sleep* because the brain emits slow (delta) waves during this stage [R, R, R].

A compound called [adenosine](#) builds up in the brain while we are awake and peaks at bedtime, causing us to feel sleepy. The longer we stay awake, the sleepier we get. Adenosine decreases while we sleep, so we feel rested when we wake up [R].

The [ADA](#) gene helps make an enzyme that breaks down adenosine. Scientists suggest that one variant in this gene reduces the enzyme's activity. This variant is linked to a faster buildup of adenosine [R].

People with at least one copy of this variant tend to [R, R, R]:

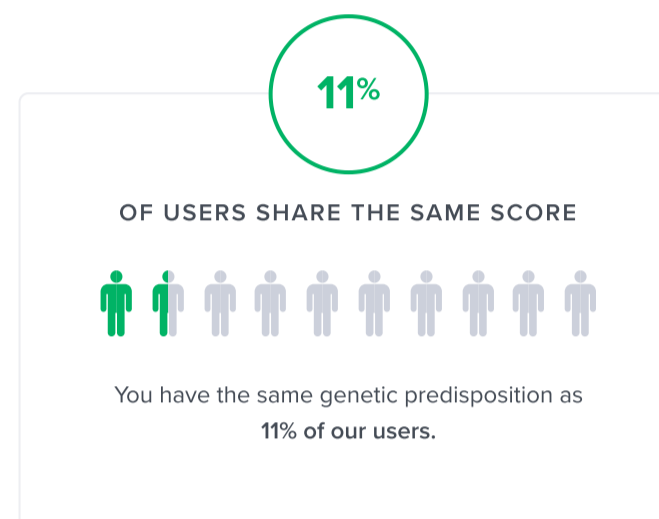
- Be sleepier
- Awaken less often during the night
- Have longer deep sleep
- Have stronger slow (delta) waves

[Caffeine](#) can promote wakefulness and interrupt sleep by reducing adenosine activity. However, it's still not clear if the effects of caffeine on sleep depend on this gene variant [R].



DEEP

Likely a deep sleeper based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADA	rs73598374	TC

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

Sleep Latency

How long does it take for you to fall asleep? Do you pass out as soon as your head hits the pillow? Or do you toss and turn for what seems like hours, before you drift asleep? The time it takes for you to fall asleep is referred to as **sleep latency** [R].

Many factors can affect your sleep latency, including your genes. About **20-45% of differences in sleep latency are due to genetics**. Scientists identified several genes that play a key role in sleep latency by influencing the release of neurotransmitters such as GABA or by affecting the setting of the body's internal clock [R, R, R].

If you are struggling to fall asleep at night, these may improve your sleep latency [R, R, R, R, R, R]:

- Sticking to a regular sleep schedule and having a consistent sleep routine
- Maintaining a sleep area that's cool, dark, and quiet
- Avoiding hunger or large meals before bed
- Avoiding nicotine, caffeine, and alcohol before bed
- Getting enough daytime exposure to natural light
- Getting regular physical activity
- Addressing stress and anxiety, e.g. by mindfulness and relaxation techniques



LOWER

Predisposed to lower sleep latency based on 7,281,604 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MDFIC2	rs147786325	TT
SLC26A7	rs77942316	GA
SLC26A7	rs61134957	AC
NDUFA4	rs73678284	CC
IL21	rs62324204	TC
SP140L	rs17273810	AC
MCTP2	rs11074250	AT
PMP22	rs9907309	GA
CSNK2A1	rs112815007	AA
CSNK2A1	rs74448913	TT
CSMD1	rs62480124	GG
FRAS1	rs6842385	GG
/	rs62217115	TT
GRM7	rs185934952	GG
RANBP3L	rs114965806	CC
ERCC4	rs12934187	CC
CDC42EP3	rs144261420	AA
HLF	rs79692461	AA
KLHL29	rs62126824	AA
RANBP3L	rs74541420	CC
MALRD1	rs2686656	AA
NAT1	rs7845127	CC
VAV3	rs17556028	CC

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












Sleep Disturbances

Every year, **1 in 3 people** in the US experience issues getting a good night's sleep. **Insomnia** is the most common sleep problem in the US. In fact, about **1 in 4** Americans are struggling with it [\[R, R, R\]](#).

There are many other sleep disturbances besides insomnia. They include **snoring, sleep apnea, excessive sleep movements, restless legs**, and more. They can all affect sleep quality and in turn lead to fatigue, mood problems, and impaired cognition [\[R, R\]](#).

This section reveals your genetic predisposition to insomnia and other sleep disturbances.

<p> MORE LIKELY Snoring</p> <p>More likely to snore</p>	<p> TYPICAL LIKELIHOOD Insomnia</p> <p>Typical likelihood of insomnia</p>	<p> TYPICAL LIKELIHOOD Sleep Movement</p> <p>Typical likelihood of sleep movement</p>
<p> TYPICAL LIKELIHOOD Restless Legs</p> <p>Typical likelihood of restless legs syndrome</p>	<p> TYPICAL LIKELIHOOD Caffeine-Related Sleep Problems</p> <p>Typical likelihood of caffeine-related sleep problems</p>	<p> TYPICAL LIKELIHOOD Night Peeing</p> <p>Typical likelihood of nocturia</p>
<p> LESS LIKELY Sleep Apnea</p> <p>Less likely to have sleep apnea</p>	<p> LESS LIKELY Daytime Sleepiness</p> <p>Less likely to experience daytime sleepiness</p>	<p> LESS LIKELY Narcolepsy</p> <p>Less likely to have narcolepsy</p>

Snoring

Snoring is a common issue of disrupted breathing during sleep due to restricted airways. A variety of factors can influence susceptibility to snoring, including your genetics. While snoring once in a while usually isn't a serious problem, regular snoring can disrupt your sleep. It may also be a symptom of a more serious health condition such as sleep apnea [R].

Snoring may often be improved with a few lifestyle changes, such as [R, R, R, R]:

- Treating any ongoing nasal congestion
- Losing weight, if you're overweight
- Quitting smoking
- Sleeping on your side
- Elevating your head with an extra pillow
- Doing vocal exercises that increase muscle tone in the throat
- Going to sleep at the same time every night
- Not eating or drinking alcohol near bedtime

Having a partner who snores is a common reason for sleep loss in non-snorers. Chronic sleep loss can have negative impacts on your health. It can also lead to feelings of resentment in the relationship. If you have a partner who snores, work with them to find a good solution. If lifestyle changes don't help, encourage them to talk to their doctor [R, R, R].

Improving snoring can help benefit your overall health. It may also improve sleep quality for you and your bed partner [R, R, R].



MORE LIKELY

More likely to snore based on 1,016,116 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TSHZ3	rs8108822	CC
MSRB3	rs10878269	TT
LGR4	rs2049045	GG
FOXO1	rs12429765	AA
/	rs145367119	CC
GATA3	rs725861	AG
ANAPC4	rs34811474	AG
BCL11B	rs2664299	TC
XKR9	rs13251292	GA
SIM1	rs17060460	GA
PITX1	rs4976269	AG
GRM5	rs11018488	AT
SRR	rs8069947	TC
CEP120	rs34732995	CINS(TA)
KDSR	rs4987719	CC
PTBP2	rs12119849	GG
GPD2	rs61597598	GG
PLEKHM1	rs57222984	AA
POC5	rs2307111	CC
KHDC1L	rs947612	AA
/	rs80093081	GG

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

Insomnia

Key Takeaways:

- About **40%** of differences in people's chances of getting insomnia may be due to genetics.
- Insomnia is common, affecting about **1 in 4 Americans**.
- Even if your genetic risk is low, your overall risk can still be high due to other factors.
- Risk factors include: depression, shift work, caffeine, inconsistent bedtimes, and more.
- Insomnia can contribute to fatigue, high blood pressure, obesity, heart disease, and diabetes.
- Click the **next steps** tab for relevant labs and lifestyle factors.

You have a 'clock' inside your body that regulates sleep and other 24-hour cycles. These cycles are called *circadian rhythms* [R].

If your internal clock is disrupted, it can lead to insomnia. People with insomnia have trouble falling asleep, staying asleep, or both [R, R].

Insomnia is the most common sleep condition in the US. In fact, **about 1 in 4 Americans are struggling with it** [R, R].

If you've ever struggled to fall or stay asleep, you're likely to [R, R]:

- Feel tired
- Have trouble focusing
- Have trouble remembering things
- Feel irritable

Insomnia may also lead to more serious problems, such as [R]:

- High blood pressure
- Heart disease
- Obesity
- Diabetes
- Asthma

Luckily, **there are many things you can try to potentially help with insomnia.** Doctors often recommend medication, talk therapy, or changing your sleep habits [R, R].

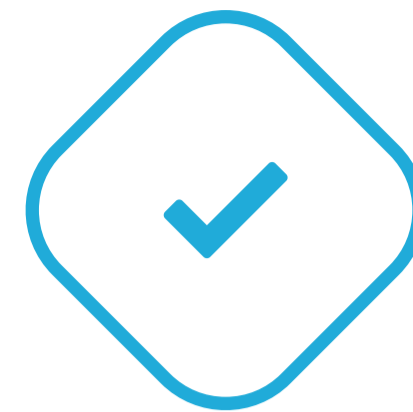
People are more likely to develop insomnia if they're under a lot of stress. Other risk factors for insomnia include [R, R]:

- Depression
- Shift or night work
- Noise or light at night
- Traveling to different time zones
- Going to bed at different times every night
- Taking a lot of naps during the day
- **Genetics**

In fact, **about 40% of differences in people's chances of getting insomnia may be attributed to genetics.** Genes that may contribute to insomnia influence [R, R, R, R, R]:

- Circadian rhythm ([CLOCK](#), [PER2](#), [MTNR1A](#))
- Brain function ([CACNA1C](#), [RBFOX3](#))
- Stress response and alertness ([SLC6A4](#))

Moreover, genetically low L-carnitine levels may be causally associated with insomnia in Parkinson's disease [R].



TYPICAL LIKELIHOOD

Typical likelihood of insomnia based on 771,781 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
OXGR1	rs143612171	GG
NAT8	rs62149809	AA
ZFP64	rs117028917	GG
UBA7	rs140864960	GG
OLFM4	rs117806190	GG
HYAL3	rs144954862	CC
ZBTB26	rs180801476	TT
CPED1	rs62472321	AA
NPL	rs509476	CC
MDFIC2	rs115288777	AA
BMP15	rs17315269	T
MEIS1	rs62144053	AG
TMEM25	rs1064939	TA
OR2J2	rs62405961	AT
ZBTB6	rs4838024	AG
RC3H2	rs12684080	TC
STRBP	rs1001774	GC
PER2	rs62194948	GG
THSD7B	rs532858227	GG
COL11A2	rs118109745	AA
SDK1	rs75218827	CC

GENE	SNP	GENOTYPE
SDK1	rs185529042	GG
MEIS1	rs72826719	GG
NEK7	rs58783316	AA
SDK1	rs139200930	GG
GTF2B	rs138805281	TT
MEIS1	rs115179220	CC
SDK1	rs78962708	GG
/	rs141283443	TT
HLA-E	rs55777621	GG
OLFM4	rs1867369	CC
MST1R	rs145439991	GG
NUAK2	rs138122366	CC
SDK1	rs187543070	AA
CSMD3	rs118137068	GG
MEIS1	rs76502257	GG
CNTN5	rs72984318	AA
DIAPH3	rs142634286	TT
C17ORF78	rs139986980	TT
SLC39A8	rs13107325	CC
SDK1	rs118171694	AA
ZSCAN9	rs113627971	AA
NEGR1	rs12750136	GG
UHRF1BP1	rs111973424	GG

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

Sleep Movement

Have you ever been told you move while you sleep? Sleep movements are common. They don't usually disturb the mover's sleep. However, when they do disrupt sleep, they can make a person sleepy during the day [R, R].

People may be more likely to experience periodic limb movements as they age. About 1 in 3 people over the age of 60 experience sleep movements [R, R]

Other factors that may influence sleep movement include [R, R]:

- **Sex** – men tend to move more in their sleep
- **Diet** – a lack of iron in the diet may make sleep movements worse
- **Genetics**

Scientists have linked several genes to increased sleep movement. For example:

- **MEIS1** gene, which influences the iron metabolism in the brain [R, R, R, R, R].
- **BTBD9** gene, which may influence the brain dopamine metabolism [R, R, R, R, R].
- **TOX3** gene, which may play an important role in nerve cell activity [R, R, R].



TYPICAL LIKELIHOOD

Typical likelihood of sleep movement based on 7,138,059 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MEIS1	rs2300478	GT
GLO1	rs3923809	GA
TOX3	rs3104788	TC
MEIS1	rs113851554	GG

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

Restless Legs

Key Takeaways:

- Around **60%** of the differences in people's risk of developing RLS may be due to genetics.
- Other risk factors include iron deficiency, pregnancy, toxicurea levels, and certain medical conditions.
- RLS is fairly common, occurring in about **1 in 10 people**.
- If you have a high genetic risk, your overall risk may be lowered by taking action on risk factors that you can change.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

Restless legs syndrome (RLS) is a condition that causes an uncontrollable urge to move the legs. It is relatively common - around **1 in 10 people** have it [R].

Experts aren't sure what causes RLS. There is evidence that it may have to do with iron or dopamine levels in the brain [R, R].

RLS occurs in all age groups. Factors that may raise the risk for RLS include [R, R]:

- Iron deficiency
- Pregnancy
- Toxic buildup of urea in the blood (often found in people with kidney disease)
- Other chronic medical conditions
- **Genetics**

The feelings associated with RLS are described as pulling, creeping, and tugging. Typically, RLS symptoms [R]:

- Begin with rest, such as driving or sitting at a movie theater
- Relieve with movement, such as stretching, jiggling the legs, or walking
- Worsen in the evening
- May be associated with limb twitching

If left untreated, RLS may disrupt sleep. This can lead to daytime sleepiness, irritability, or problems at work.

The following lifestyle changes can help improve symptoms [R, R]:

- Exercise
- Massage
- Applying heat using a heating pad or a warm bath
- Avoiding or limiting caffeine, alcohol, and tobacco

Some supplements, like iron, may help people with RLS who have low iron. For severe cases, a doctor may prescribe medications.

Around 60% of the differences in people's risk of developing RLS may be due to genetics. Genes involved with RLS may influence [R, R, R, R]:

- Iron metabolism
- Nerve function
- Dopamine activity



TYPICAL LIKELIHOOD

Typical likelihood of restless legs syndrome based on 34 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GLO1	rs9296249	TT
GLO1	rs9357271	TT
GLO1	rs3923809	GA
MEIS1	rs2300478	GT
SEMA6D	rs111652004	GG
TOX3	rs3104767	GT
CCDC167	rs17636328	AA
MEIS1	rs6747972	AG
HOXB2	rs12450895	AA
PTPRD	rs62535767	CC
PRMT6	rs12046503	CT
ZNF804B	rs10952927	AG
C1D	rs1820989	AC
PIK3R4	rs35987657	GA
PKP4	rs80319144	TC
OPRL1	rs365032	AG
RANBP17	rs10068599	CT
CRBN	rs1848460	AT
SLC40A1	rs10188680	TA
PMAIP1	rs58127855	CC
MEIS1	rs113851554	GG

GENE	SNP	GENOTYPE
MAP2K5	rs12593813	AA
PTPRD	rs4626664	GG
PTPRD	rs1975197	GG
MICALL2	rs112716420	CC
DPH6	rs996064	AA
DCDC2C	rs10208712	GG
DACH1	rs340561	GG
SETBP1	rs12962305	CC

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

Caffeine-Related Sleep Problems

Caffeine is a well-known stimulant. It can promote wakefulness and interrupt sleep by reducing the activity of [adenosine](#), a sleep-promoting compound that builds up while we are awake and decreases while we sleep. **Caffeine's effects on sleep tend to be strongest in the evening, before bedtime.** Older people and those who sleep less may be more sensitive to caffeine [[R](#), [R](#), [R](#)].

Up to **40%** of differences in caffeine-related sleep problems may be due to genetics. Interestingly, the majority of these genetic factors are specific to caffeine, and they don't affect sleep in general [[R](#)].

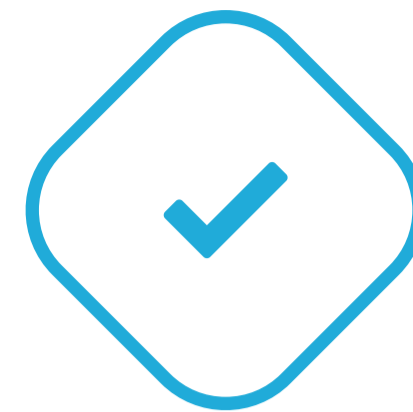
A gene called [ADORA2A](#) helps make a receptor for adenosine. Caffeine promotes wakefulness and interrupts sleep by blocking this receptor. Unsurprisingly, a variant belonging to this gene, [rs5751876](#), is linked to caffeine-related sleep problems [[R](#), [R](#), [R](#)].

What's surprising is the opposite effect of this variant on caffeine-related anxiety. **People carrying the "T" allele may be less prone to sleep problems but more prone to anxiety due to caffeine intake** [[R](#), [R](#), [R](#)].

Other gene variants linked to caffeine-related sleep problems may affect:

- Melatonin ([MTNR1B](#))
- Compounds similar to adenosine ([GBP1](#), [GBP4](#))
- Brain function ([ADGRL2](#))
- Heart function ([NEBL](#))

Please note: Your other gene variants, lifestyle, and environment may also affect caffeine-related sleep problems.



TYPICAL LIKELIHOOD

Typical likelihood of caffeine-related sleep problems based on 18 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADORA2A	rs5751876	CT
NEBL	rs9665295	CC
ALDH7A1	rs13172305	GG
FCHSD2	rs1791933	TC
KCTD15	rs11878836	TT
MDFIC2	rs7628219	CC
GBP7	rs521704	CA
ADGRL2	rs12725617	CT
COMT	rs4680	GA
PRIMA1	rs6575353	AG
PRIMA1	rs12895096	GT
/	rs16905439	CC
TMEM51	rs2103117	GG
GBP3	rs12407812	CC
ADORA2A	rs2065779	GG
SLC7A1	rs2388082	CC
MTNR1B	rs10830964	CC
LRTM1	rs11706236	AA
NEDD4L	rs158856	CC

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

Night Peeing

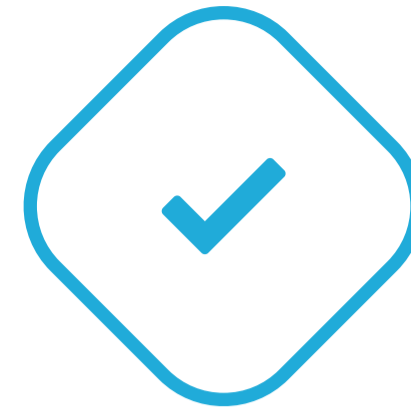
Treatment for nocturia depends on the underlying cause:

- Lifestyle modifications: Reducing evening fluid intake, especially of caffeine and alcohol, can help.
- Medication adjustments: If medications are contributing to nocturia, adjusting the dosage or timing can be effective.
- Managing chronic conditions: Proper management of conditions like diabetes, heart failure, or prostate issues can reduce symptoms of nocturia.
- Medications for nocturia: Medications that reduce urine production at night or improve bladder capacity might be prescribed.
- Behavioral therapies: Bladder training and pelvic floor exercises can help improve bladder control.

Preventive measures for nocturia focus mainly on lifestyle modifications and managing underlying health conditions:

- Limit evening fluid intake: Avoid drinking large amounts of fluids in the hours leading up to bedtime, especially beverages that are diuretics like coffee and alcohol.
- Elevate legs: If swelling in the legs is a problem, elevating them in the evening can help reduce fluid build-up that could contribute to nocturia.
- Manage sleep habits: Maintaining a regular sleep schedule and creating a comfortable sleep environment can help improve sleep quality and potentially reduce the frequency of nighttime awakenings.
- Timely treatment of conditions: Addressing and managing conditions such as urinary tract infections, prostate enlargement, or diabetes promptly can prevent nocturia from developing or worsening.
- Physical activity: Regular exercise can improve overall body function. However, avoid exercising right before bedtime as it can stimulate the body and increase fluid metabolism.

If nocturia persists despite these measures, it's important to consult with a healthcare provider for further evaluation and management to ensure it isn't a symptom of a more serious underlying condition.



TYPICAL LIKELIHOOD

Typical likelihood of nocturia based on 1,674 genetic variants we looked at



Sleep Apnea

Key Takeaways:

- About 10-40% of differences in people's chances of developing sleep apnea may be due to genetics.
- Other important risk factors include being male, older, overweight, nasal congestion issues, a smoker, and drinking alcohol.
- If you are at high genetic risk, be aware of symptoms indicating sleep apnea, and take action on those risk factors you can control.
- Click the **next steps** tab for relevant labs.

Sleep apnea is a disorder that interrupts your breathing while you sleep. A person with sleep apnea might wake up dozens of times to restore normal breathing, leading to daytime sleepiness. Left untreated, sleep apnea can affect your health, quality of life, and driving safety [\[R, R\]](#).

About 10-40% of differences in people's chances of developing sleep apnea may be due to genetics. Genes involved in sleep apnea may influence [\[R, R, R, R\]](#):

- **Weight**
- Upper airway structure
- Sleep duration and quality

However, keep in mind that genetics is just one of many risk factors, along with [\[R\]](#):

- Male sex
- Older age
- Excess weight
- Nasal congestion
- Smoking
- Drinking alcohol



LESS LIKELY

Less likely to have sleep apnea based on 1,220,310 genetic variants we looked at

5th

PERCENTILE



Your risk is greater than 5% of the population and lower than 95% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FOXP2	rs1006437246	GG
LMX1A	rs140743827	GG
GPR83	rs116791765	TT
LAX1	rs116133558	CC
NRG1	rs10097555	AG
ARRB1	rs35329661	CC
RGMA	rs148024591	CC
/	rs11610782	GG
FTO	rs11075985	CC
RGS18	rs11588454	CT
LRATD1	rs2033354	TT
UBE3A	rs72699765	GG
PLCB1	rs2743173	CT
SLC35F3	rs75108997	GG
YIPF5	rs111942351	AA
CAMK1D	rs185932673	CC
SLC35F3	rs75108997	GG
SERTAD2	rs999944	GG
/	rs11074782	CC
TDRD15	rs11897825	GG
TDRD15	rs11897825	GG

GENE	SNP	GENOTYPE
NEDD1	rs10507084	CC
FTO	rs9937053	GG
TSPAN18	rs74472562	CC
INSIG2	rs4849682	CC

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

Daytime Sleepiness

Daytime sleepiness is the feeling of excessive sleepiness during the day. People with excessive daytime sleepiness often complain of not feeling well-rested, having difficulty waking up, or accidentally falling asleep during the day, among others [R, R, R].

Daytime sleepiness is usually a consequence of poor sleep duration or quality. Other risk factors include [R]:

- Shift work [R]
- Sleep disorders (obstructive sleep apnea, narcolepsy) [R, R]
- Mood disorders (depression, bipolar disorder) [R]
- Allergies (asthma, hay fever) [R, R]
- GERD [R]
- Parkinson’s disease [R]
- Epilepsy [R]
- Obesity [R]
- **Genetics**

Up to 40% of differences in people’s chances of experiencing daytime sleepiness may be due to genetics. Genes involved may influence the sleep/wake cycle and sleep duration or quality [R, R, R, R].

Interventions aimed at improving sleep duration and quality may also reduce daytime sleepiness. These include [R, R, R, R]:

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



LESS LIKELY

Less likely to experience daytime sleepiness based on 993,458 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ASB3	rs76645968	GG
PATJ	rs12140153	GG
/	rs920065	CC
AP3B2	rs17507216	AG
TMEM144	rs115320831	AG
FGGY	rs371398972	AA
AR	rs73536079	G
/	rs573716401	GG
/	rs553962214	TT
SLC24A3	rs565444861	GG
PTPRM	rs558006880	GG
LBP	rs6099524	CC
SLC2A9	rs543431433	TT
TENT5A	rs189689339	CC
FGGY	rs192315283	TT
TMEM132B	rs142261172	GG
/	rs182765975	GG

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

Narcolepsy

Key Takeaways:

- There is currently no heritability percentage for narcolepsy.
- Genes involved may affect the immune response.
- Other risk factors include young age, hormonal changes, and major stress.
- Symptoms include sudden urges to sleep during the day, sleep paralysis, and hallucinations.
- Narcolepsy is a rare (**less than 1%**) condition, so even if your genetic risk is high, the overall risk is low.

Genetics plays a role in narcolepsy development, but scientists are not sure to which extent. Involved genes, such as *HLA* genes, affect the immune response. Other risk factors include [R](#), [R](#), [R](#):

- Younger age (10-30)
- Family history (having a first degree relative with the condition)
- Major stressful events
- Hormonal changes
- Swine flu or a particular vaccine that was used against it (Pandemrix)

Narcolepsy can significantly impair daily functioning and quality of life. It is a chronic condition that requires ongoing management, which may include **medications, lifestyle changes, and other therapies.**



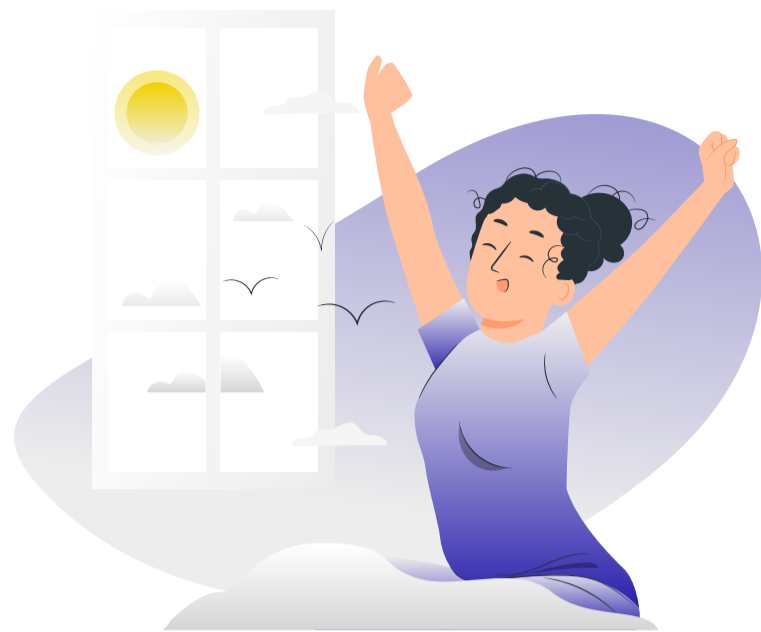
LESS LIKELY

Less likely to have narcolepsy based on 410,273 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ASAH2B	rs4290173	CC
HLA-DQA2	rs2858884	AA
CCR2	rs3181077	TT
DAD1	rs1154155	TT
H4C3	rs198811	TT
RBMXL1	rs306336	AG
CPT1B	rs5770917	TT
ADO	rs10995245	GG
LMCD1	rs1027327	AA
TNFSF18	rs7553711	TT
GJB4	rs10915020	TT

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



Sleep-Related Behaviors

Some of us are early birds while others are night owls. Some of us nap while others don't. We are all unique when it comes to sleep!

In this section, we analyze how your genes affect sleep-related behaviors.



LESS LIKELY

Napping

Less likely to take naps



EARLY BIRD

Early Bird or Night Owl?

More likely to be an early bird

Napping

A nap is a short rest taken during the day that can reduce fatigue and improve our alertness and mood [R, R, R].

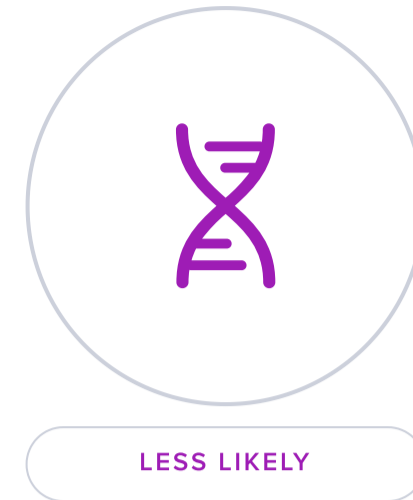
Over **60%** of the differences in our tendencies to nap may be **due to genetics**. Genes linked to napping influence nerve signals that keep us awake [R, R].

Other factors that may increase the need to nap include [R, R]:

- Poor sleep quality during nighttime rest
- Having to wake up early in the morning
- Age
- Certain health conditions

We can sometimes feel groggy or more tired after a nap. Naps can also make it more difficult to fall asleep at night. The following tips may help avoid these negative effects while optimizing the benefits of naps [R]:

- Avoid naps in the late afternoon
- Nap in a quiet, dark room with few distractions
- Limit naps to about 20 minutes
- Give yourself some time to fully wake up before resuming activities



Less likely to take naps based on 7,136,774 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SCAF8	rs140506252	AA
PATJ	rs12140153	GG
PLEKHM1	rs385199	AA
PIAS2	rs9965170	GG
PRPF18	rs11258652	CC
TAL2	rs971415	AA
ZSCAN9	rs11967137	AA
NUDT2	rs62560863	TT
STK32A	rs10875622	AA
FNDC5	rs2786547	CC
NOS1	rs11615756	CT
ZKSCAN5	rs10257273	AA
FEZF2	rs76824303	AA
HCRTR2	rs2653349	GA
/	rs11125776	TT
ALG10B	rs35011311	GG
TLE4	rs13284688	CT
/	rs2431108	TC
ZNF521	rs962247	GG
CCDC190	rs12031519	AA
TRPC6	rs11224896	CT
/	rs2861805	GA
SLC4A10	rs62189006	AG
WSCD2	rs60222088	AC
KLHL29	rs13033444	AG
PNPLA1	rs34262487	AC
FOXG1	rs10149986	GT
MTNR1B	rs271057	TC
FAM155A	rs2769916	GA

GENE	SNP	GENOTYPE
BMP2K	rs9998136	GC
ZHX3	rs17265513	TC
MDGA1	rs6919087	TG
ADO	rs224111	GA
AP3B2	rs17158413	AG
GNAO1	rs1592544	TC
PAM	rs2195272	GT
FOXG1	rs4983329	CA
RND3	rs12614085	TT
SHISA4	rs2250377	GG
PRRC2C	rs35039375	AA
FIGN	rs80163246	TT
/	rs350785	CC
C17ORF78	rs12451365	TT
ZNF660	rs936944	AA
FADS2	rs174541	TT
ECE2	rs1001817	TT
NOL4	rs34728579	TT
BAIAP2	rs3935190	GG
YIPF5	rs10875606	AA

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

Early Bird Or Night Owl?

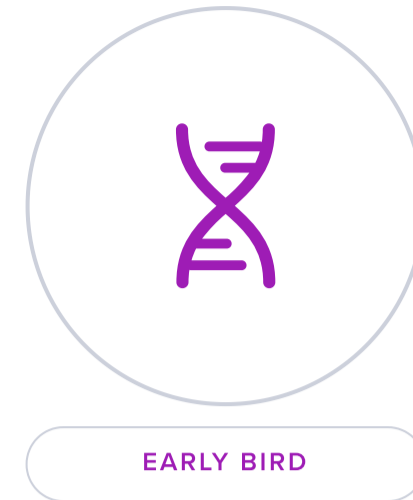
Are you an "early bird" or a "night owl"? If you often struggle to stay awake late at night and tend to wake up early, you are probably an early bird. If you don't feel tired until late at night and have trouble waking up early in the morning, you are probably a night owl. We call this your **chronotype**.

About **50%** of differences in our chronotype are **due to genetics**. Many of the genes that influence our morning or evening preference **affect our body's internal clock**. However, gender, age and the environment also play an important role [R, R, R].

If you are not a morning person but you need to wake up early, it is possible to train your internal clock. Tips to shift your sleep/wake time earlier include [R, R, R, R, R]:

- Getting more sunlight during the day
- Sticking to a regular sleep schedule
- Maintaining a sleep area that's cool, dark, and quiet
- Limiting screen time at night
- Avoiding hunger or large meals before bed

Be patient with this process. Small shifts (about 15 minutes) in bedtime may make the transition easier [R].



More likely to be an early bird based on 7,159,884 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PER3	rs150812083	CC
VIP	rs9479402	TT
NPL	rs509476	CC
POLR2J3	rs17474942	CC
PER2	rs77942338	TT
POLR2J	rs148266530	CC
PRDX6	rs148137538	AA
HCRTR2	rs144870624	TT
PIGK	rs11162296	GG
LRPPRC	rs62135536	CC
RABGAP1L	rs75650221	CC
CTC1	rs2518022	CC
FBXO3	rs11032362	GG
ZSCAN9	rs139757732	TT
RBM6	rs62263597	GG
MTCH2	rs11605681	GG
MTRF1L	rs62436127	GG
TRIM27	rs9295795	TT
NRXN1	rs1520524	CC
FAM185A	rs112613078	AA
INO80D	rs184033703	GA
HCRTR2	rs2653349	GA
VAMP3	rs61773390	GT
TOX3	rs12927162	AG
ZMAT1	rs6621219	G
GPR6	rs4557564	AG
MAST4	rs542867945	AA
MYCBP2	rs61963491	AA
CLN5	rs9565309	TT

GENE	SNP	GENOTYPE
PER2	rs35333999	CC
TRAF3IP1	rs11900963	AA
/	rs77598468	CC
ANKFN1	rs9898091	TT
FBXL13	rs79055896	AA
ZCCHC7	rs78146603	TT
EXD3	rs28458909	CC
PER3	rs228654	GG
SOAT1	rs13306728	AA
MEIS1	rs113851554	GG
PATJ	rs12140153	GG
ALG10B	rs7313852	GG
DLX6	rs2922966	AA
RASD1	rs2232839	CC


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




Sleep Genes

A good night's sleep is vital for overall health, yet many people struggle with sleep-related issues. Your sleep patterns, including how easily you fall asleep, how deeply you rest, and how your body responds to the natural sleep-wake cycle, are influenced by your genetic makeup. Specific genes play a key role in regulating circadian rhythms, sleep quality, and the body's response to sleep-related hormones.


This section explores important sleep genes such as **CLOCK**, **ADA**, or **MTNR1A**, which influence your body's internal clock, the regulation of neurotransmitters, and your ability to enter restorative sleep stages. By understanding your genetic predispositions, you can develop personalized strategies to improve your sleep habits and overall well-being.

 **WORSE GENETICS**
BTBD9 (Restless Legs)

Likely worse BTBD9 genetics

 **WORSE GENETICS**
NPAS2 (Mood/ Sleep Schedule)


Likely worse NPAS2 genetics

 **TYPICAL ACTIVITY**
CLOCK (Sleep & Weight)

Likely typical CLOCK activity

 **TYPICAL ACTIVITY**
GRIA3 (Sleep/Mood)

Likely typical GRIA3 activity

 **DEEP**
Deep Sleep (ADA)

Likely a deep sleeper

 **HIGHER ACTIVITY**
MTNR1A (Melatonin)

Likely higher MTNR1A activity

BTBD9 (Restless Legs)

Studies identified [BTBD9](#) as a crucial gene influencing limb movements during sleep and iron metabolism.

Key findings from one such study [\[R\]](#):

- The variant [rs3923809](#) in BTBD9 showed a strong association with periodic limb movements during sleep
- Each copy of the **risk allele (A)** corresponded to:
 - Almost twice as many limb movements during sleep in homozygous carriers
 - 13% lower serum ferritin levels, indicating reduced iron stores (a potential contributor to RLS)

Other studies confirmed the link between this variant and RLS and, not surprisingly, insomnia [\[R, R\]](#).

Other *BTBD9* variants linked to higher odds of RLS include [\[R, R, R\]](#):

- [rs9357271-T](#)
- [rs61192259-A](#)
- [rs9296249-T](#)



WORSE GENETICS

Likely worse BTBD9 genetics based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GLO1	rs9357271	TT
GLO1	rs3923809	GA
GLO1	rs9296249	TT
GLO1	rs61192259	CA

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

NPAS2 (Mood/ Sleep Schedule)

The main *NPAS2* variant, [rs2305160](#), is often studied in relation to cancer. A 2015 meta-analysis confirmed the link between the **A allele and lower odds of cancer, especially breast cancer** [\[R\]](#).

Another *NPAS2* variant, [rs11123857](#), may also be linked to slightly higher odds of breast cancer. It may also correlate with **depression**, according to one study. People with the **G allele** had 1.5x higher odds of depression [\[R\]](#), [\[R\]](#).

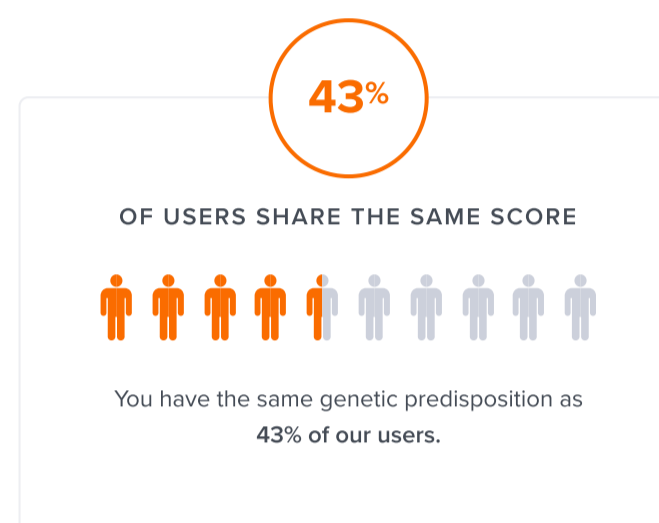
NPAS2 helps determine when we sleep and when we eat. The above associations are not surprising, given the key role of our internal clock in mood and cellular health.

More precisely, **eating late and having small fasting windows** may contribute to inflammatory changes linked to breast cancer. Disrupted circadian rhythm also has an established role in depression and other mood disorders [\[R\]](#), [\[R\]](#).



WORSE GENETICS

Likely worse NPAS2 genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NPAS2	rs2305160	GG
NPAS2	rs11123857	AA

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

CLOCK (Sleep & Weight)

The [rs1801260](#) polymorphism is the most studied SNP in the *CLOCK* gene. Its minor 'G' allele increases *CLOCK* activity and has been associated with many sleep-related traits, such as [\[R\]](#):

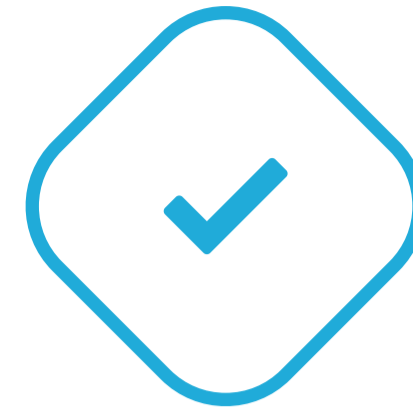
- Abnormal and less stable circadian rhythms [\[R, R\]](#)
- Shorter sleep duration (≤ 6 h per day) [\[R, R, R\]](#)
- Being an evening person [\[R, R, R\]](#)
- Less activity overall, being active later in the day, and being sleepier during the morning [\[R, R\]](#)

This variant has also been linked to:

- Higher prevalence of obesity (mixed findings) [\[R, R\]](#)
- Higher ghrelin (hunger hormone) levels and lower satiety [\[R, R\]](#)
- Higher insulin and insulin resistance [\[R\]](#)
- Low compliance with dietary programs, such as the Mediterranean diet [\[R\]](#)
- More difficulty losing weight from diets or bariatric surgery [\[R, R, R\]](#)

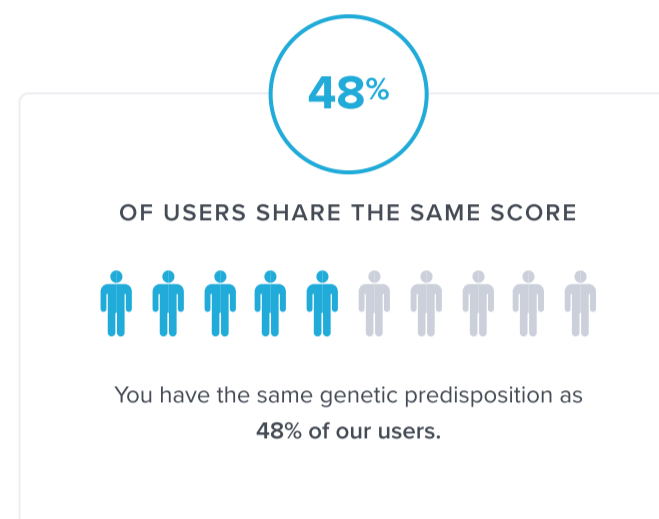
There is a link between how the *CLOCK* gene affects circadian rhythms and sleep on one hand, and metabolic balance and eating behavior on the other [\[R, R\]](#).

Studies have found that sleep deprivation disrupts metabolism by increasing the levels of the stress hormone cortisol and decreasing insulin sensitivity. Furthermore, a lack of sleep increases the levels of the hunger hormone ghrelin, which increases hunger and appetite -- thereby increasing the risk of obesity [\[R, R, R, R, R, R\]](#).



TYPICAL ACTIVITY

Likely typical *CLOCK* activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CLOCK	rs1801260	AG

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

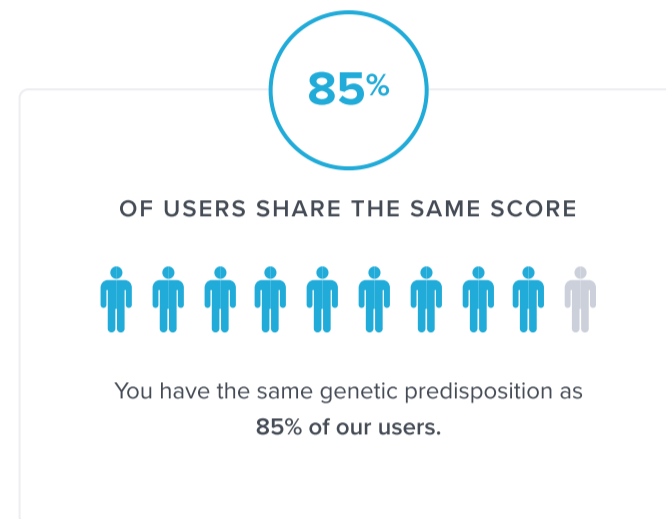
GRIA3 (Sleep/Mood)

The minor 'A' allele of the [rs687577](#) polymorphism has been associated with a decreased risk of depression in women and with longer sleep duration. Given the role of glutamate as an excitatory neurotransmitter, this variant may reduce GRIA3 activity by either decreasing the number of active receptors or attenuating the excitatory effects upon glutamate binding [R, R].



TYPICAL ACTIVITY

Likely typical GRIA3 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GRIA3	rs687577	C

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

Deep Sleep (ADA)

Deep sleep is one of the stages of non-REM sleep. It is also called *slow-wave sleep* or *delta-wave sleep* because the brain emits slow (delta) waves during this stage [R, R, R].

A compound called [adenosine](#) builds up in the brain while we are awake and peaks at bedtime, causing us to feel sleepy. The longer we stay awake, the sleepier we get. Adenosine decreases while we sleep, so we feel rested when we wake up [R].

The [ADA](#) gene helps make an enzyme that breaks down adenosine. Scientists suggest that one variant in this gene reduces the enzyme's activity. This variant is linked to a faster buildup of adenosine [R].

People with at least one copy of this variant tend to [R, R, R]:

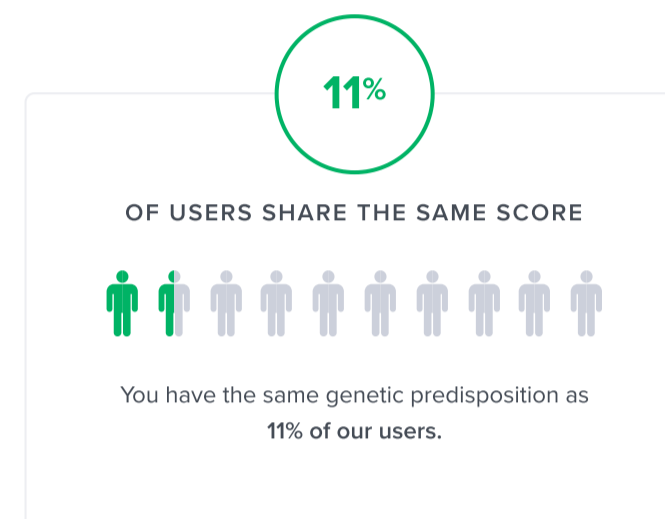
- Be sleepier
- Awaken less often during the night
- Have longer deep sleep
- Have stronger slow (delta) waves

[Caffeine](#) can promote wakefulness and interrupt sleep by reducing adenosine activity. However, it's still not clear if the effects of caffeine on sleep depend on this gene variant [R].



DEEP

Likely a deep sleeper based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADA	rs73598374	TC

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

MTNR1A (Melatonin)

The most well-researched *MTNR1A* allele is [rs2119882](#). Its 'C' allele may prevent the binding of proteins that activate gene expression, resulting in a lower number of MT1 receptors. This variant has been associated with an increased risk and severity of:

- PCOS [\[R\]](#)
- Gestational diabetes [\[R\]](#)
- Liver cancer metastasis [\[R\]](#)

However, this allele has also been associated with a decreased risk of:

- Breast cancer in shift workers [\[R\]](#)
- Graves' disease [\[R\]](#)

The 'A' allele of [rs12506228](#) reduces the number of MT1 melatonin receptors in the brain. This variant as been associated with:

- Job-related exhaustion in shift workers [\[R\]](#)
- Alzheimer's disease in old age [\[R\]](#)
- Slower cognitive development in infants [\[R\]](#)

Another allele believed to prevent the binding of proteins that activate *MTNR1A* expression is 'A' at [rs13140012](#). This allele has been associated with

- Oral cancer and worse prognostic in betel quid chewers [\[R\]](#)
- Kidney stones [\[R\]](#)

The 'G' allele of [rs6553010](#) may also affect *MTNR1A* expression and has been associated with an increased risk of

- Aggressive urothelial cell carcinoma [\[R\]](#)
- Pain after root canal treatment [\[R\]](#)

However, this allele may also reduce the risk of kidney stones [\[R\]](#).

Finally, a study associated the 'GG' genotype of [rs7665392](#) with an increased risk of breast cancer in premenopausal women. The authors speculated that this variant impairs the function of the MT1 receptor, resulting in an activation of estradiol-induced genes linked to breast cancer [\[R\]](#).



HIGHER ACTIVITY

Likely higher MTNR1A activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTNR1A	rs13140012	AA
MTNR1A	rs6553010	GA
MTNR1A	rs2119882	TT
MTNR1A	rs12506228	CC
MTNR1A	rs7665392	TT

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

Recommendations Details

1

Airflow Devices

Use an airflow device, such as a continuous positive airway pressure (CPAP) machine, every night during sleep. Ensure the device is properly fitted and calibrated according to the instructions provided by a healthcare professional. Regular maintenance, including cleaning and replacing filters as recommended by the manufacturer, is essential for effectiveness.

Helps with these DNA Risks:

 Snoring

2

Continuous Positive Airway Pressure (CPAP)

Use the CPAP machine every night while sleeping, making sure the mask fits comfortably but securely over your nose, mouth, or both, depending on the mask type. The machine should be turned on before you go to sleep and only turned off upon waking. Continuous use throughout the night, every night, is essential for the therapy to be effective in treating conditions such as sleep apnea.

Helps with these Symptoms & Conditions:

High Blood Pressure

Helps with these DNA Risks:

 Snoring

3

Maintain a Healthy Weight

Engage in at least 150 minutes of moderate aerobic exercise or 75 minutes of vigorous exercise weekly, along with strength training exercises for all major muscle groups on 2 or more days a week. Follow a balanced diet, rich in vegetables, fruits, whole grains, and lean proteins while controlling calorie intake to prevent excessive weight gain. Regularly monitor body fat percentage through methods like bioelectrical impedance analysis (BIA) scales, skinfold measurements, or DEXA scans to ensure it remains below 25%.

TYPICAL STARTING DOSE

30 minutes

Helps with these Symptoms & Conditions:

Allergies

High Blood Pressure

Migraines

Helps with these Goals:

Immunity

Helps with these DNA Risks: Snoring

4

**Airway Muscle Training**

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**Helps with these Symptoms & Conditions:**

High Blood Pressure

Helps with these DNA Risks: Snoring

5

**Avoid Sleeping on Your Back**

Start by choosing a sleep position on your side or stomach rather than your back. Consider using a body or side pillow to maintain the position throughout the night. Try to make this a consistent habit every night to get accustomed to the new sleeping position.

Helps with these DNA Risks: Snoring

6



Mandibular Advancement Devices (MADs)

Wear a mandibular advancement device (MAD) during sleep every night. Start by having a dentist or sleep specialist customize the device to fit your mouth accurately. It may take a few weeks to adjust to the sensation of the device, but consistent nightly use is crucial for effectiveness in treating conditions like sleep apnea.

Helps with these DNA Risks:

⚠ Snoring

7



Bed Head Elevation

Elevate the head of your bed by 6 to 8 inches using blocks or wedges under the bedposts or a foam wedge under the mattress. Maintain this setup continuously every night during sleep to mitigate symptoms related to GERD or acid reflux.

Helps with these DNA Risks:

⚠ Snoring

8



Acupuncture

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

Helps with these Symptoms & Conditions:

Allergies

High Blood Pressure

Migraines

Helps with these Goals:

Energy

Mood

9



Hyperbaric Oxygen Therapy

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

Helps with these Symptoms & Conditions:

Migraines

Helps with these Goals:

Mood

10



Aerobic Exercise (Cardio)

Engage in at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity activity each week. Distribute this time over at least 3 days per week, avoiding consecutive days of vigorous exercise to allow for recovery.

TYPICAL STARTING DOSE

1 hour

Helps with these Symptoms & Conditions:

Allergies

Anxiety

High Blood Pressure

Migraines

Helps with these Goals:

Energy

Immunity

Mood

11



Maintain Optimal Vitamin D Levels

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


Helps with these Symptoms & Conditions:

- Allergies
- Anxiety
- High Blood Pressure
- Migraines

Helps with these Goals:

- Energy
- Immunity
- Mood
- Muscle Growth

12



Yoga

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


Helps with these Symptoms & Conditions:

- Anxiety
- High Blood Pressure
- Migraines

Helps with these Goals:

- Energy
- Exercise Recovery
- Immunity
- Mood
- Muscle Growth

13



Progressive Muscle Relaxation

Set aside at least 10-15 minutes daily in a quiet, comfortable spot where you won't be disturbed. Start by tensing the muscles in your feet for 5 seconds, then relax for 30 seconds, and progressively work your way up through the major muscle groups of your body, tensing then relaxing each for 5 and 30 seconds respectively.

TYPICAL STARTING DOSE
10 minutes

Helps with these Symptoms & Conditions:

- Anxiety
- High Blood Pressure
- Migraines

Helps with these Goals:

- Energy
- Exercise Recovery
- Mood

14



Avoid Meals 3-4 Hours Before Bedtime

Finish your last meal of the day at least 3 to 4 hours before you go to sleep. For example, if you usually go to bed at 10 pm, aim to have dinner no later than 6 pm to 7 pm.

Helps with these Goals:

Energy

15



Transcutaneous Electrical Nerve Stimulation (TENS)

Apply TENS unit electrode pads around the area in pain; begin with the device set to a low setting and gradually increase intensity to a comfortable level. Use the device for 15-30 minutes per session for pain relief, and it can be used multiple times a day as needed.

TYPICAL STARTING DOSE

30 minutes

Helps with these Symptoms & Conditions:

Migraines