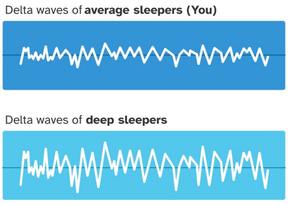
Deep Sleep

In the deepest part of the sleep cycle, your brain produces slow waves of electrical activity called delta waves. Deep sleepers have naturally stronger delta waves than lighter sleepers, which reflects increased sleep pressure that accumulates during the day.

Overview Scientific Details

Jamie, based on your genetics, you are **not likely** to be an especially deep sleeper.

Several studies have linked a genetic variant in the ADA gene to differences in a certain type of brain activity that characterizes deep sleep, called delta waves. People with your genetic result have delta waves that are about as strong as average, and also tend to feel less sleepy than deep sleepers after a night of missed sleep.



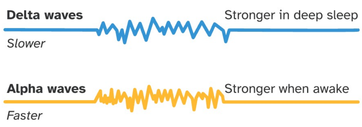
What you can do

If you're concerned about your sleep, experts recommend simple habits like daytime exercise, a consistent sleep schedule, and avoiding caffeine. You can also consider talking to a healthcare professional.

Genetics and Deep Sleep

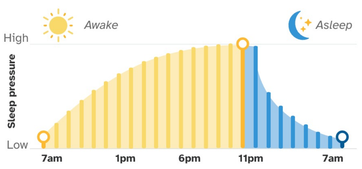
What is deep sleep?

Deep sleep is the phase of sleep when it's hardest to wake up. When you enter deep sleep, your brain cells communicate with each other in a specific pattern that produces slow waves of electrical activity called delta waves. This pattern of activity is very different from when you're awake, when brain activity is mostly composed of faster waves called alpha waves. Scientists think that the brain uses deep sleep to transfer memories of the day's events from temporary to longer-term storage.



The biology of sleep pressure

The longer we stay awake, the sleepier we get. This accumulating need for sleep is sometimes called "sleep pressure." A molecule called adenosine builds up in the brain the longer we stay awake, increasing sleep pressure and causing us to feel sleepy. Mid-day naps can help us feel more alert because they reduce adenosine levels and relieve the sleep pressure that has built up during the day.



Genetics

The genetic marker in this report is in the ADA gene, which contains instructions for an enzyme that helps control adenosine levels. Scientists think that adenosine builds up more quickly in people with one or two copies of the T variant at this marker. This extra adenosine increases sleepiness, leading to stronger delta waves. Because of this stronger sleep pressure, people with the T variant also report feeling sleepier than other people after a night of missed sleep. However, one study found that taking naps eliminated this difference in sleepiness.

	Genetic result	What it means
	TT	Likely to be an especially deep sleeper
	CT	Likely to be an especially deep sleeper
You	CC	**Not likely to be an especially deep sleeper**

See the percentage of customers with these results

A caffeine connection?

Caffeine works by interfering with adenosine, the same sleep-promoting molecule influenced by the genetic marker in this report. In one study, scientists found that people with the T variant had an easier time falling asleep after drinking coffee, compared to people without the T variant. But another study found no effect. No matter which version of the ADA genetic marker you have, it's probably a good idea to avoid caffeine late in the day to help you get a good night's sleep.

Keep exploring your Wellness results.

Contribute

Contribute to new discoveries by participating in research.

Compare

Compare your results to your family and friends.

Did you find this interesting? Yes No

Deep Sleep

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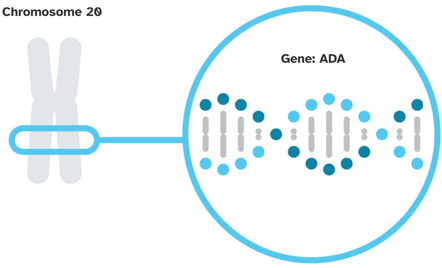
Overview | Scientific Details

How deeply we sleep is influenced by a genetic marker in the ADA gene.

ADA

The ADA gene produces an enzyme called adenosine deaminase. This enzyme helps break down a molecule in our bodies called adenosine. Adenosine is important for regulating sleep, and the levels of adenosine in the brain increase the longer a person stays awake.



You have two copies of the C variant.

Variants Detected | View All Tested Markers

Marker Tested	Your Genotype*		Additional Information
rs73598374 **Gene:** ADA **Marker:** rs73598374	**C** Typical copy from one of your parents	**C** Typical copy from your other parent	**Biological explanation** **Typical vs. variant DNA sequence(s)** **Percent of 23andMe customers with variant** **References [1, 8, 9, 11, 12]**

*This test cannot distinguish which copy you received from which parent. This test also cannot determine whether multiple variants, if detected, were inherited from only one parent or from both parents. This may impact how these variants are passed down.

23andMe always reports genotypes based on the 'positive' strand of the human genome reference sequence (build 37). Other sources sometimes report genotypes using the opposite strand.

References

1. Bachmann V et al. (2012). "Functional ADA polymorphism increases sleep depth and reduces vigilant attention in humans." Cereb Cortex. 22(4):962-70.
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9. Reichert CF et al. (2014). "Insights into behavioral vulnerability to differential sleep pressure and circadian phase from a functional ADA polymorphism." J Biol Rhythms. 29(2):119-30.
10. Reichert CF et al. (2016). "Sleep-Wake Regulation and Its Impact on Working Memory Performance: The Role of Adenosine." Biology (Basel). 5(1).

See all references

Change Log

Your report may occasionally be updated based on new information. This Change Log describes updates and revisions to this report.

Date	Change
Aug. 24, 2017	As part of regular report review and improvements in data analysis, some customers may see an updated result.
May 4, 2017	Deep Sleep report updated with revised content and design.
March 30, 2016	Deep Sleep report created.