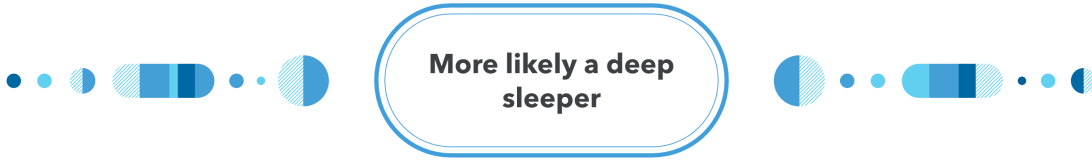


# Deep Sleep

In the deepest part of the sleep cycle, the brain produces a pattern of electrical activity called delta waves. The strength of these waves reflects how deeply a person sleeps as well as the need for sleep that builds up during the day. Deep sleepers are people with naturally stronger delta waves.

[Result](#) [About Test](#) [Stories](#) [Inheritance](#) [What You Can Do](#)

John, people with your genetic result tend to sleep more deeply.



## How To Use This Test

This test does not diagnose any health conditions or provide medical advice. Consult with a healthcare professional before making any major lifestyle changes or if you have any other concerns about your results.

[Review the Wellness tutorial](#)  
[See Scientific Details](#)

## + Intended Uses

- Tests for the rs73598374 variant in the ADA gene.
- Identifies if a person has a variant associated with deeper sleep.

## - Limitations

- Does not test for all possible variants related to deep sleep.
- Does not account for lifestyle or other factors that may affect sleep.

## 🌐 Important Ethnicities

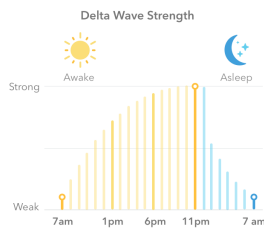
- The variant in this report has been studied the most in people of European and Latino descent.

## About Deep Sleep

Sleep depth, also known as sleep intensity, refers to both the need for sleep that builds up while you're awake as well as how deeply you sleep. People naturally vary in their sleep intensity, and part of this may be due to genetic differences.

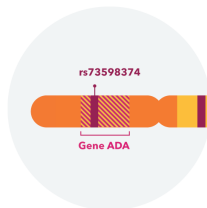
### 📊 Delta Waves

Sleep intensity is measured by delta wave strength – electrical activity in your brain that gets stronger when you're tired and weaker the longer you sleep.



### 🧬 Genetics

This report tests for a genetic variant in a gene called ADA, which is involved in processing adenosine. Adenosine is known to cause sleepiness and its levels increase with time spent awake.



### 📊 Other Effects of Delta Waves

Learn more about delta waves and sleep.

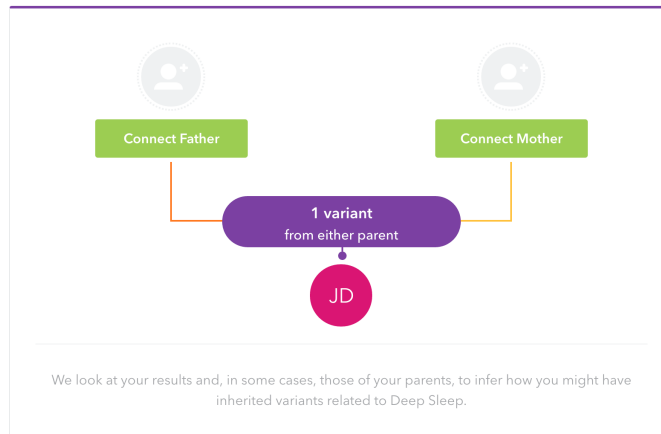
 [Alcohol and Caffeine](#) >

 [Sleep Deprivation](#) >

 [Ability to Wake](#) >

## You inherited one variant from one of your parents.

We could not determine which parent you inherited the variant from.



## Keep exploring your Wellness results.



If you have concerns about your sleep quality, you should talk to a healthcare professional.

[Print report](#)



Learn more about sleep.

[Learn more](#)



Compare your results to your family and friends.

[Compare](#)

# Scientific Details

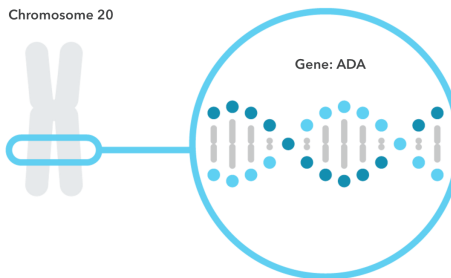
In the deepest part of the sleep cycle, the brain produces a pattern of electrical activity called delta waves. The strength of these waves reflects how deeply a person sleeps as well as the need for sleep that builds up during the day. Deep sleepers are people with naturally stronger delta waves.

[Gene Overview](#)   [Your Genotype](#)   [About Inheritance](#)   [References](#)   [Change Log](#)


## Sleep intensity is influenced by a variant in the ADA gene.

### ADA

The Adenosine Deaminase (ADA) gene produces an enzyme called adenosine deaminase. This enzyme converts a chemical called adenosine into another chemical called inosine. Adenosine is important for regulating sleep, and its levels increase the longer a person stays awake.



## You have one variant included in this report.

Variants Detected		View All Tested Markers	
1		1	
Marker Tested	Your Genotype*	Additional Information	
<b>rs73598374</b> Gene: ADA Marker: <a href="#">rs73598374</a>	<b>C</b> Typical copy from one of your parents	 <b>T</b> Variant copy from your other parent	<ul style="list-style-type: none"><li>&gt; <b>Biological explanation</b></li><li>&gt; <b>Typical vs. variant DNA sequence(s)</b></li><li>&gt; <b>Percent of 23andMe customers with variant</b></li><li>&gt; <b>References [ 2, 5, 7 ]</b></li></ul>

\*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.

# We estimate how you inherited your variants using basic principles of genetics.

We look at your results and, in some cases, those of your parents, to infer how you might have inherited these [variants](#).

## A. If you have one copy of a variant, and:

### • You don't have any parents connected:

1. There is not enough information to determine which parent you inherited the variant from. You might have inherited the variant from either parent.

### • You have one parent connected, and if your connected parent:

1. Doesn't have the trait variant: You likely inherited the variant from your other parent.
2. Has one copy of the trait variant: There is not enough information to determine which parent you inherited the variant from. You might have inherited the variant from either parent.
3. Has two copies of the trait variant: You likely inherited the variant from your connected parent.

### • You have both parents connected, and:

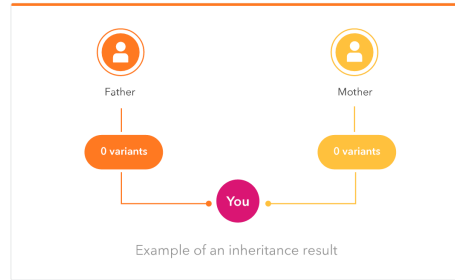
1. Only one parent has the trait variant: You likely inherited the variant from this parent.
2. Both parents have one copy of the trait variant: There is not enough information to determine which parent you inherited the variant from. You might have inherited the variant from either parent.
3. One parent has two copies of the variant: You likely inherited the variant from this parent.

## B. If you have two copies of a trait variant:

- You likely received one copy of the variant from each parent.

## C. If you do not have any copies of a trait variant:

- You didn't inherit any copies of this variant from either parent. However, this does not mean that they didn't have any variants to pass on to you.



## References

1. Akerstedt, T., et al. (2009) Sleep homeostasis during repeated sleep restriction and recovery: support from EEG dynamics. *Sleep* 32(2):217-22. [\[ \]](#)
2. Bachmann, V., et al. (2012) Functional ADA polymorphism increases sleep depth and reduces vigilant attention in humans. *Cereb Cortex* 22(4):962-70. [\[ \]](#)
3. Brown, R.E., et al. (2012) Control of sleep and wakefulness. *Physiol Rev* 92(3):1087-187. [\[ \]](#)
4. Ermis, U., et al. (2010) Arousal thresholds during human tonic and phasic REM sleep. *J Sleep Res* 19(3):400-6. [\[ \]](#)
5. Mazzotti, D.R., et al. (2012) Adenosine deaminase polymorphism affects sleep EEG spectral power in a large epidemiological sample. *PLoS One* 7(8):e44154. [\[ \]](#)
6. Necklemann, D., et al. (1993) Sleep stages and EEG power spectrum in relation to acoustical stimulus arousal threshold in the rat. *J Clin Invest* 16(5):467-77. [\[ \]](#)
7. Retey, J.V., et al. (2005) A functional genetic variation of adenosine deaminase affects the duration and intensity of deep sleep in humans. *Proc Natl Acad Sci U S A* 102(43):15676-81. [\[ \]](#)

## Change Log

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

Date	Change
March 30, 2016	Deep Sleep report created.