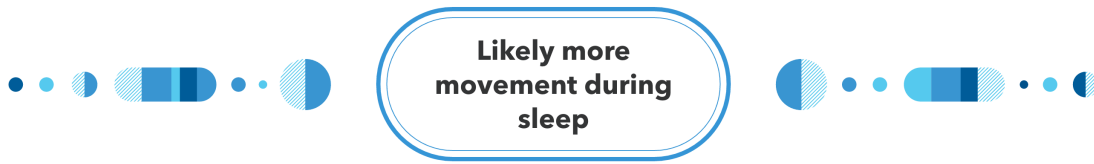


Sleep Movement

Occasional movement of the arms and legs during sleep is normal, but more frequent movement can be disruptive to sleep. Genetic factors appear to influence how much people move while sleeping.

John, people with your genetic result tend to have more than 10 limb movements per hour of sleep.



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 rs3923809 [variant](#) in the BTBD9 [gene](#).
- Identifies if a person has a variant associated with greater sleep movement.

- Limitations

- Does not test for all possible variants related to limb movement while sleeping.
- 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 descent.

About Sleep Movement

Involuntary muscle contractions that occur during sleep can result in small movements of the arms and legs. Genetic factors appear to influence how often these movements occur.

zzz Periodic Limb Movements

Most people have about 10 periodic limb movements (PLMs) per hour of sleep, but some don't move at all and others move more. One study measured someone at more than 200 PLMs per hour. Excessive PLMs may affect sleep quality.



🧬 Genetics

In one study, people with no copies of the "A" variant at rs3923809 had about 7 PLMs per hour of sleep, while people with one or two "A" copies had about 10 and 13 movements per hour, respectively.



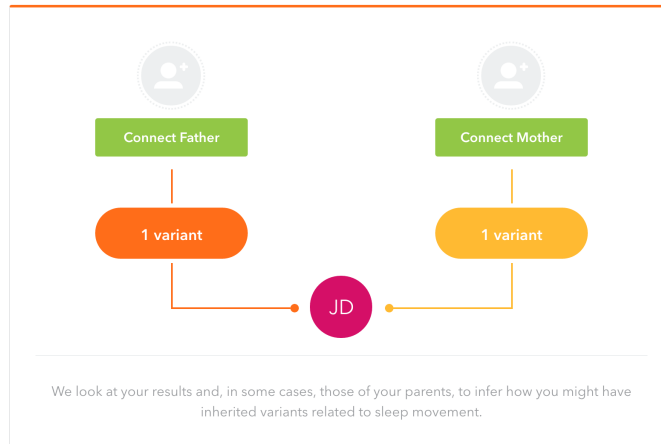
📊 Other Factors

Non-genetic factors can also affect sleep movement.



You inherited two variants from your parents.

Because you have two copies of the variant that we tested, you almost certainly inherited one from each of your parents.



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](#)



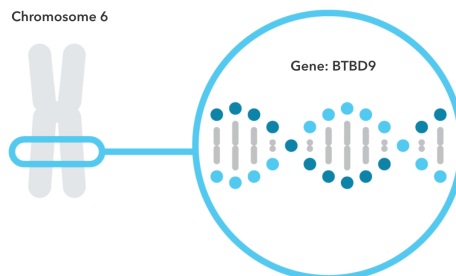
Compare your results to your family and friends.

[Compare](#)


Sleep movement is influenced by a variant in the BTBD9 gene.

BTBD9

The BTBD9 [gene](#) contains instructions for making a [protein](#) called BTB domain containing 9. Not much is known about the function of this protein, but it does appear to be important for a variety of processes including sleep, movement, our sense of touch, and iron [metabolism](#).



You have two variants included in this report.

Marker Tested	Your Genotype*	Additional Information
rs3923809 Gene: BTBD9 Marker: rs3923809	A Variant copy from one of your parents	A Variant copy from your other parent
		<ul style="list-style-type: none">> Biological explanation> Typical vs. variant DNA sequence(s)> Percent of 23andMe customers with variant> References [2, 4, 6]

*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:

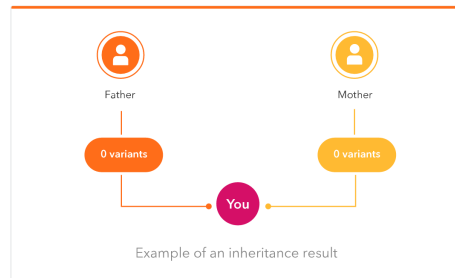
1. Only one parent has the trait variant: You likely inherited the variant from this parent.
2. Both parents have one copy of the trait variant: There is not enough information to determine which parent you inherited the variant from. You might have inherited the variant from either parent.
3. One parent 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. Coleman, R.M., et al. (1980) Periodic movements in sleep (nocturnal myoclonus): relation to sleep disorders. *Ann Neurol* 8(4):416-21. [↗](#)
2. Kripke, D.F., et al. (2015) Genetic variants associated with sleep disorders. *Sleep Med* 16(2):217-24. [↗](#)
3. Li, J., et al. (2015) Association of low ferritin with PLM in the Wisconsin Sleep Cohort. *Sleep Med* 16(11):1413-8. [↗](#)
4. Moore, H, 4th., et al. (2014) Periodic leg movements during sleep are associated with polymorphisms in BTBD9, TOX3/BC034767, MEIS1, MAP2K5/SKOR1, and PTPRD. *Sleep* 37(9):1535-42. [↗](#)
5. Scofield, H., et al. (2008) Periodic Limb Movements During Sleep: Population Prevalence, Clinical Correlates, and Racial Differences. *Sleep* 31(9): 1221-1227. [↗](#)
6. Stefansson, H., et al. (2007) A genetic risk factor for periodic limb movements in sleep. *N Engl J Med* 357(7):639-47. [↗](#)