OPTIMIZE YOUR HEALTH

The Science of Sleep & Your Genes

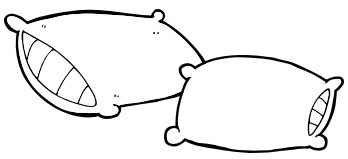
INSOMNIA:

Everyone at some point knows the pain of a sleepless night -- and the grogginess and irritability the follows the next day! For some, this is an all too frequent occurrence.

Insomnia can be either a problem with initially falling asleep or with waking up in the early morning hours and not being able to fall back to sleep. The National Sleep Foundation explains that insomnia can increase daytime fatigue, disturb concentration, and increase mood disorders. Chronic insomnia is defined as disrupted sleep at least three times a week that lasts for more than three months.

A few quick facts:

- 10% of adults (and 22% of the elderly) have an insomnia disorder.
- Heritability estimates from twin studies show that insomnia is around 50% genetic. Genes lend a susceptibility to insomnia that combines with lifestyle and environmental factors to cause sleepless nights.
- Another study found that the genetic influence is mainly for the type of insomnia where people have a hard time staying asleep, rather than with difficulty falling asleep.
- Depression and insomnia go hand-in-hand: 80-90% of people with major depression experience insomnia to some degree and about half of them experience severe insomnia.
- Most of the genes involved in the hereditary aspects of insomnia are part of your core circadian clock.



O sleep! O gentle sleep!
Nature's soft nurse, how have I frighted thee,
That thou no more wilt weigh my eyelids down
And steep my senses in forgetfulness?
2 Henry IV ~ William Shakespeare

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INSOMNIA:

GSK3B Gene:
The GSK3B (glycogen synthase kinase 3 beta) gene codes for an enzyme that is involved in both glucose metabolism and circadian gene function. Within the suprachiasmatic nucleus in the brain, GSK3B acts in a circadian manner on all of the core circadian genes (BMAL1, CLOCK, PER2, CRY2, and REVERBα). So variants of GSK3B can not only affect metabolism, but they also can affect circadian rhythm, which in turn increases the risk for mood disorders and sleep disorders. Interestingly, one of the ways that lithium chloride works for bipolar disorder patients is through inhibiting GSK3B, thus shifting their circadian rhythm.

A variant of GSK3B, rs334558 (G allele), has been associated in a recent study with an almost doubled risk of severe insomnia in depressed patients. These patients also had a greater response to antidepressant therapy for improving their insomnia.

rs334558	Studies show:
GG	**increased risk for severe insomnia in depression**
AG	**increased risk for severe insomnia in depression**
AA	**normal**

My genotype:

_____'s genotype:

_____'s genotype:

_____'s genotype: