

☆ Ebbinghaus illusion overestimation (Zhu, 2020)

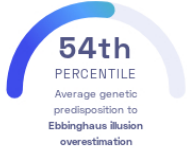
Zijian Zhu, et al.
The Journal of Human Genetics

Brain Mind

STUDY SUMMARY

Identification of 70 genetics variants associated with Ebbinghaus illusion overestimation.

YOUR RESULT



STUDY DESCRIPTION

Our brain and eyes work together to process visual information about our surroundings. Information, such as the size of faraway objects, is interpreted by the brain by analyzing other visual cues such as the sizes of known objects next to it. However, sometimes the brain's interpretation may be incorrect which can result in optical illusions. One such optical illusion is known as the Ebbinghaus illusion. When a circle is surrounded by other circles, it may appear larger or smaller than its real size depending on the sizes of the surrounding circles. Individual people are affected by the Ebbinghaus illusion to a varying degree. To identify the impact of genetics on a person's perception of the Ebbinghaus illusion, this study examined the genomes of nearly 3,000 individuals of Asian ancestry and found 70 variants that are associated with overestimating of the size of the central circle. Previous studies have shown that individuals affected by various mental disorders tend to perceive the Ebbinghaus illusion to a lesser degree.



Most people perceive the orange circle on the right as bigger than the orange circle on the left. They are actually the same size.

DID YOU KNOW?

It appears that individuals affected by schizophrenia may be more "resistant" to optical illusions. Schizophrenia can cause hallucinations and reduce the ability to concentrate which affects how the brain processes and interprets information.

YOUR DETAILED RESULTS

To calculate your genetic predisposition to Ebbinghaus illusion overestimation we summed up the effects of genetic variants that were linked to Ebbinghaus illusion overestimation in the study that this report is based on. These variants can be found in the table below. The variants highlighted in green have **positive effect sizes** and increase your genetic predisposition to Ebbinghaus illusion overestimation. The variants highlighted in blue have **negative effect sizes** and decrease your genetic predisposition to Ebbinghaus illusion overestimation. Variants that are not highlighted are not found in your genome and do not affect your genetic predisposition to Ebbinghaus illusion overestimation. By adding up the effect sizes of the highlighted variants we calculated your polygenic score for Ebbinghaus illusion overestimation to be **0.68**. To determine whether your score is high or low, we compared it to the scores of 5,000 other Nebula Genomics users. We found that your polygenic score for Ebbinghaus illusion overestimation is in the **54th percentile**. This means that it is higher than the polygenic scores 54% of people. We consider this to be an **average genetic predisposition to Ebbinghaus illusion overestimation**. However, please note that genetic predispositions do not account for important non-genetic factors like lifestyle. Furthermore, the genetics of most traits has not been fully understood yet and many associations between traits and genetic variants remain unknown. For additional explanations, click on the column titles in the table below and visit our [Nebula Library tutorial](#).

VARIANT [Ⓞ]	YOUR GENOTYPE [Ⓞ]	EFFECT SIZE [Ⓞ]	VARIANT FREQUENCY [Ⓞ]	SIGNIFICANCE [Ⓞ]
rs77523206_T	A / A	0.65 (-)	18%	1.20 x 10 ⁻⁹³
rs9260679_G	A / A	0.67 (-)	20%	8.76 x 10 ⁻⁹⁰
rs2571377_T	G / T	0.44 (↑)	43%	2.00 x 10 ⁻⁷³
rs116770642_A	/	-0.63 (-)	16%	2.20 x 10 ⁻⁶⁰
rs2905741_A	G / G	0.47 (-)	17%	2.73 x 10 ⁻⁵³
rs60732244_T	G / G	-0.67 (-)	10%	1.05 x 10 ⁻⁴⁸
rs24272788_T	A / A	-0.43 (-)	18%	9.68 x 10 ⁻⁴⁶
rs1934073_G	T / G	0.44 (↑)	17%	4.28 x 10 ⁻⁴²
rs12661394_G	C / C	0.39 (-)	20%	3.85 x 10 ⁻³⁸
rs35936082_C	/	0.43 (-)	17%	3.38 x 10 ⁻³⁷
rs76473868_G	/	0.36 (-)	40%	6.39 x 10 ⁻³⁴
rs6796799_A	T / A	-0.38 (↓)	19%	7.62 x 10 ⁻³²
rs12865469_G	A / G	-0.50 (↓)	10%	7.68 x 10 ⁻³²
rs2523808_C	T / T	-0.41 (-)	11%	1.97 x 10 ⁻²⁹
rs61096853_A	C / C	-0.44 (-)	13%	1.32 x 10 ⁻²⁸
rs11264578_C	C / C	0.33 (↑)	21%	2.68 x 10 ⁻²⁶
rs9744401_G	G / T	-0.36 (↓)	16%	3.23 x 10 ⁻²⁵
rs10134550_G	A / A	0.39 (-)	18%	1.06 x 10 ⁻²⁴
rs1056385_A	G / G	0.32 (-)	21%	1.17 x 10 ⁻²⁴
rs11957895_A	G / G	0.37 (-)	16%	1.61 x 10 ⁻²⁴
rs2139376_C	T / C	-0.37 (↓)	17%	2.63 x 10 ⁻²⁴
rs11732191_G	A / G	-0.30 (↓)	26%	8.28 x 10 ⁻²⁴
rs6464052_G	G / G	0.38 (↑)	17%	3.47 x 10 ⁻²³
rs719423_C	G / G	0.30 (-)	23%	7.42 x 10 ⁻²³
rs4565109_G	G / G	-0.33 (↓)	17%	1.05 x 10 ⁻²²
rs6033075_A	T / A	-0.38 (↓)	11%	1.10 x 10 ⁻²²
rs13336140_C	G / C	-0.42 (↓)	11%	5.34 x 10 ⁻²²
rs147964822_A	G / G	0.43 (-)	10%	2.16 x 10 ⁻²¹
rs2179241_G	A / A	-0.24 (-)	42%	2.94 x 10 ⁻²⁰
rs11612804_C	T / T	0.39 (-)	13%	1.43 x 10 ⁻¹⁹
rs201729575_G	T / T	-0.34 (-)	12%	1.79 x 10 ⁻¹⁹
rs2516677_C	A / C	-0.24 (↓)	32%	2.20 x 10 ⁻¹⁹
rs2072501_A	G / G	0.30 (-)	21%	7.69 x 10 ⁻¹⁹
rs3093994_A	G / A	-0.28 (↓)	17%	6.29 x 10 ⁻¹⁸
rs1010754_C	A / T	-0.26 (-)	25%	7.16 x 10 ⁻¹⁸
rs744680_A	G / A	0.36 (↑)	12%	8.12 x 10 ⁻¹⁸

rs16944003_T	C / C	-0.28 (-)	26%	3.80×10^{-17}
rs2276800_A	G / A	-0.32 (↓)	16%	6.48×10^{-17}
rs6807284_T	C / T	0.25 (↑)	29%	1.08×10^{-16}
rs2913115_T	C / T	0.28 (↑)	16%	2.07×10^{-16}
rs4959070_C	G / C	0.32 (↑)	12%	2.89×10^{-16}
rs5025314_C	T / T	-0.22 (-)	36%	4.13×10^{-16}
rs11864325_G	A / A	0.23 (-)	30%	4.20×10^{-16}
rs10947055_C	T / T	0.31 (-)	12%	3.01×10^{-16}
rs7308197_T	C / C	0.28 (-)	18%	5.67×10^{-16}
rs11647829_C	G / C	-0.21 (↓)	32%	2.12×10^{-14}
rs3933566_A	C / A	0.23 (↑)	21%	3.77×10^{-14}
rs34636308_T	C / C	0.32 (-)	12%	5.19×10^{-14}
rs10225026_C	C / C	0.24 (↑)	23%	8.40×10^{-14}
rs3758773_T	G / T	0.25 (↑)	21%	1.19×10^{-13}
rs73261495_A	G / G	0.20 (-)	28%	3.74×10^{-13}
rs558059_A	C / C	0.23 (-)	33%	5.04×10^{-13}
rs11168980_C	T / C	0.29 (↑)	14%	7.45×10^{-13}
rs205367_A	G / G	-0.30 (-)	13%	8.36×10^{-13}
rs2275558_A	G / G	0.20 (-)	30%	1.62×10^{-12}
rs10093037_A	C / C	0.34 (-)	10%	2.10×10^{-12}
rs133277_A	G / G	-0.18 (-)	45%	5.35×10^{-12}
rs28716006_A	G / G	-0.27 (-)	11%	9.08×10^{-12}
rs1889039_T	C / C	0.29 (-)	14%	1.43×10^{-11}
rs79895937_C	T / T	0.28 (-)	10%	3.21×10^{-11}
rs28712825_A	G / A	0.19 (↑)	38%	3.38×10^{-11}
rs11032612_C	A / A	-0.30 (-)	12%	3.64×10^{-11}
rs8106886_A	A / A	0.22 (↑)	33%	1.88×10^{-10}
rs2524070_A	G / G	-0.23 (-)	17%	2.64×10^{-10}
rs2391677_T	G / T	0.20 (↑)	32%	2.94×10^{-10}
rs7998699_C	A / A	0.31 (-)	12%	6.08×10^{-10}
rs3130431_G	A / A	-0.17 (-)	39%	7.48×10^{-9}
rs7257950_A	A / A	-0.25 (↓)	13%	3.44×10^{-8}
rs4714901_G	T / T	0.26 (-)	14%	4.65×10^{-8}