7/2020

Corneal hysteresis (Simcoe, 2020)

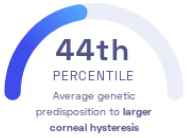
Mark Simcoe, et al.
Human Molecular Genetics

Eyes

STUDY SUMMARY

Identification of 203 generic variants associated with corneal hysteresis, a measure of the "shock-absorbing" ability of the cornea.

YOUR RESULT



STUDY DESCRIPTION

The cornea is a dome-shaped "window" covering the front part of the eye. It serves to both protect the eye and focus light to help us see. Damage to the cornea can be detrimental to eyesight, so doctors commonly use a number of metrics to measure the cornea's health. One metric is corneal hysteresis, which is a measure of the "shock-absorbing" ability of the cornea. Decreased corneal hysteresis has previously been connected to glaucoma and other disorders of the eye. This genome-wide association study of over 100,000 individuals of European ancestry sought to identify variants associated with corneal hysteresis. The study found 203 genetic variants nearly all of which are newly-discovered. Some of the identified variants are near genes that play a role in the production of collagen, a substance that provides structure to the eyes and many other tissues in the body.

DID YOU KNOW?

Corneal transplants are the most common type of transplant surgeries, with nearly 50,000 performed each year.

YOUR DETAILED RESULTS

To calculate your genetic predisposition to larger corneal hysteresis we summed up the effects of genetic variants that were linked to larger corneal hysteresis 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 larger corneal hysteresis. The variants highlighted in blue have **negative effects sizes** and decrease your genetic predisposition to larger corneal hysteresis. Variants that are not highlighted are not found in your genome and do not affect your genetic predisposition to larger corneal hysteresis. By adding up the effect sizes of the highlighted variants **we calculated your polygenic score for larger corneal hysteresis to be 0.75**. 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 larger corneal hysteresis is in the **44th percentile**. This means that it is higher than the polygenic scores 44% of people. We consider this to be an **average genetic predisposition to larger corneal hysteresis**. 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
rs1044864_G	G / G	-0.24 (↓)	77%	5.90×10^{-206}
rs142493024_G	G / G	0.59 (↑)	99%	7.50×10^{-98}
rs28526212_G	G / A	-0.14 (↓)	35%	2.00×10^{-92}
rs7635832_T	T / T	0.17 (↑)	81%	6.70×10^{-91}
rs34944131_G	G / T	0.17 (↑)	82%	3.90×10^{-86}
rs11659764_T	T / T	0.28 (↑)	95%	2.00×10^{-77}
rs2755238_T	T / C	0.20 (↑)	90%	7.10×10^{-75}
rs77542162_A	A / A	-0.40 (↓)	98%	6.70×10^{-66}
rs150202082_C	C / C	0.39 (↑)	98%	7.00×10^{-66}
rs27323_G	A / A	0.11 (–)	39%	5.20×10^{-60}
rs121908120_T	T / T	0.33 (↑)	97%	4.00×10^{-59}
rs72755233_G	G / G	-0.17 (↓)	89%	5.60×10^{-58}
rs1200105_T	T / C	-0.11 (↓)	35%	2.90×10^{-54}
rs139498917_G	G / G	-1.04 (↓)	> 99%	1.90×10^{-53}
rs12493217_G	G / G	-0.12 (↓)	77%	3.00×10^{-50}
rs6792542_A	A / C	0.11 (↑)	74%	1.60×10^{-48}
rs72620820_G	G / G	0.10 (↑)	78%	1.00×10^{-38}
rs6415788_G	T / T	0.08 (–)	40%	6.10×10^{-38}
rs238237_G	A / A	0.10 (–)	20%	7.20×10^{-36}
rs8070232_A	G / G	0.12 (–)	15%	7.10×10^{-35}
rs7019538_T	C / C	0.08 (–)	47%	1.40×10^{-32}
rs7863424_G	G / G	-0.08 (↓)	62%	2.00×10^{-31}
rs2645773_A	A / G	-0.10 (↓)	78%	6.60×10^{-31}
rs56009602_C	C / C	-0.18 (↓)	95%	6.10×10^{-30}
rs12913547_T	T / C	-0.10 (↓)	79%	1.30×10^{-29}
rs11786592_G	G / A	0.08 (↑)	65%	1.70×10^{-29}
rs12476069_T	C / C	-0.10 (–)	17%	2.00×10^{-29}
rs2393728_G	A / A	0.07 (–)	58%	5.20×10^{-29}
rs9853115_T	T / T	-0.07 (↓)	50%	1.10×10^{-28}
rs62014490_T	T / T	-0.11 (↓)	88%	1.40×10^{-28}
rs7618099_C	T / T	-0.11 (–)	13%	3.20×10^{-28}
rs2879813_A	A / G	-0.07 (↓)	47%	4.70×10^{-28}
rs1042917_G	G / A	0.07 (↑)	50%	9.70×10^{-28}
rs4656744_T	T / T	-0.08 (↓)	67%	1.50×10^{-26}
rs17512836_T	T / T	0.22 (↑)	97%	1.80×10^{-26}
rs55923934_C	C / G	-0.08 (↓)	74%	1.90×10^{-25}
rs2745951_A	A / G	-0.07 (↓)	61%	5.50×10^{-25}

rs9038_T	T / C	0.07 (↑)	61%	1.70×10^{-24}
rs2980046_A	A / A	-0.07 (↓)	76%	4.40×10^{-24}
rs11917483_T	T / C	-0.07 (↓)	66%	2.40×10^{-23}
rs11712833_G	G / A	-0.08 (↓)	76%	5.80×10^{-23}
rs7025044_T	T / A	-0.10 (↓)	11%	6.50×10^{-23}
rs13108668_G	C / C	-0.07 (–)	32%	1.80×10^{-22}
rs11594610_G	G / G	-0.08 (↓)	80%	3.70×10^{-22}
rs717605_G	G / T	-0.07 (↓)	39%	4.40×10^{-22}
rs34552401_A	A / G	-0.07 (↓)	70%	1.40×10^{-21}
rs256869_T	T / T	0.11 (↑)	92%	1.40×10^{-21}
rs13167730_G	G / G	0.11 (↑)	91%	6.30×10^{-21}
rs1344672_C	G / G	-0.06 (–)	55%	1.70×10^{-20}
rs4641686_G	T / T	0.06 (–)	47%	1.10×10^{-19}
rs187977459_T	T / T	0.46 (↑)	> 99%	1.20×10^{-19}
rs1746486_C	C / A	0.06 (↑)	38%	4.60×10^{-19}
rs2875238_T	T / C	-0.06 (↓)	36%	6.20×10^{-19}
rs9510275_T	A / A	0.06 (–)	31%	1.60×10^{-18}
rs2109019_A	C / C	-0.07 (–)	21%	1.60×10^{-18}
rs12939159_C	C / C	0.09 (↑)	89%	1.70×10^{-18}
rs17665178_C	C / C	0.07 (↑)	70%	2.60×10^{-18}
rs11077857_G	A / A	0.08 (–)	17%	5.20×10^{-18}
rs11869086_A	A / A	0.10 (↑)	92%	7.20×10^{-18}
rs8079290_T	T / C	0.06 (↑)	61%	1.10×10^{-17}
rs10742752_T	T / C	-0.06 (↓)	39%	1.60×10^{-17}
rs12594979_C	C / C	0.08 (↑)	83%	1.60×10^{-17}
rs28667150_G	G / A	-0.06 (↓)	63%	2.30×10^{-17}
rs786914_C	C / C	0.06 (↑)	38%	2.90×10^{-17}
rs66560819_G	G / G	0.11 (↑)	94%	3.90×10^{-17}
rs4363451_C	C / C	0.06 (↑)	70%	7.80×10^{-17}
rs3118519_A	A / A	0.06 (↑)	62%	9.00×10^{-17}
rs7952095_C	A / A	0.06 (–)	49%	9.10×10^{-17}
rs6816503_G	G / G	0.10 (↑)	93%	1.30×10^{-16}
rs4008768_A	T / T	0.06 (–)	30%	1.90×10^{-16}
rs10788639_C	G / G	0.06 (–)	28%	2.70×10^{-16}
rs2468506_G	A / A	-0.07 (–)	20%	5.30×10^{-16}
rs34372952_C	C / C	0.07 (↑)	84%	6.50×10^{-16}
rs6567331_G	A / A	-0.06 (–)	27%	1.00×10^{-15}
rs7919525_A	A / A	-0.06 (↓)	79%	1.10×10^{-15}
rs12498681_G	G / A	-0.08 (↓)	88%	1.30×10^{-15}
rs4561781_A	A / G	0.06 (↑)	70%	1.70×10^{-15}
rs10139614_C	C / T	0.08 (↑)	87%	2.00×10^{-15}
rs12526513_T	C / C	-0.06 (–)	45%	2.80×10^{-15}
rs11142375_C	C / C	-0.10 (↓)	93%	5.90×10^{-15}
rs663044_G	G / T	-0.06 (↓)	28%	7.90×10^{-15}
rs2950790_G	G / G	-0.06 (↓)	25%	9.10×10^{-15}
rs7585194_C	C / A	0.06 (↑)	71%	1.60×10^{-14}
rs6874844_T	T / C	0.06 (↑)	75%	2.70×10^{-14}
rs6137178_A	A / A	0.06 (↑)	77%	3.20×10^{-14}
rs1544557_A	G / G	-0.05 (–)	32%	9.40×10^{-14}
rs34869_G	C / C	-0.05 (–)	58%	1.00×10^{-13}
rs11923081_A	A / A	-0.08 (↓)	89%	1.30×10^{-13}
rs144596877_G	G / G	0.24 (↑)	99%	1.50×10^{-13}
rs7651617_C	C / T	0.05 (↑)	61%	1.60×10^{-13}
rs60581858_T	T / T	0.07 (↑)	82%	2.70×10^{-13}
rs4643535_G	G / A	-0.05 (↓)	33%	3.20×10^{-13}
rs61814077_C	C / C	-0.06 (↓)	81%	3.50×10^{-13}
rs144403225_C	C / C	0.06 (↑)	76%	4.20×10^{-13}
rs11156962_C	C / T	-0.05 (↓)	30%	4.90×10^{-13}

rs78036526_C	C / C	0.08 (↑)	90%	1.10×10^{-12}
rs1755056_C	C / C	-0.05 (↓)	65%	1.10×10^{-12}
rs12193050_C	C / C	-0.10 (↓)	92%	1.40×10^{-12}
rs4938174_G	G / G	-0.05 (↓)	71%	1.40×10^{-12}
rs4374230_C	T / T	0.07 (-)	14%	1.40×10^{-12}
rs6709656_A	A / A	0.05 (↑)	60%	1.70×10^{-12}
rs1772570_G	G / C	0.05 (↑)	67%	2.10×10^{-12}
rs141621919_A	A / A	-0.12 (↓)	96%	2.30×10^{-12}
rs7301793_C	C / C	0.05 (↑)	74%	2.70×10^{-12}
rs2035835_G	G / C	-0.05 (↓)	32%	2.70×10^{-12}
rs56042419_A	A / A	-0.09 (↓)	92%	3.60×10^{-12}
rs2286936_A	A / A	-0.07 (↓)	84%	3.70×10^{-12}
rs3890958_G	A / A	-0.05 (-)	65%	4.40×10^{-12}
rs12760453_T	C / C	-0.05 (-)	50%	4.60×10^{-12}
rs72828345_C	C / T	0.06 (↑)	82%	6.20×10^{-12}
rs75529319_C	C / C	-0.21 (↓)	99%	7.30×10^{-12}
rs78625510_C	C / C	-0.09 (↓)	92%	7.90×10^{-12}
rs10838709_C	C / C	0.05 (↑)	61%	9.90×10^{-12}
rs116072427_G	G / G	-0.09 (↓)	93%	1.50×10^{-11}
rs4948546_G	G / A	-0.05 (↓)	23%	1.50×10^{-11}
rs10151339_G	G / T	0.05 (↑)	70%	1.50×10^{-11}
rs236940_T	T / C	0.05 (↑)	38%	1.70×10^{-11}
rs58671886_G	G / G	0.08 (↑)	90%	2.00×10^{-11}
rs12196123_C	C / T	-0.05 (↓)	44%	2.40×10^{-11}
rs1360485_C	T / T	-0.05 (-)	30%	2.40×10^{-11}
rs851615_G	G / G	-0.10 (↓)	95%	2.40×10^{-11}
rs10758441_T	T / C	0.04 (↑)	34%	2.80×10^{-11}
rs4848406_G	G / A	0.05 (↑)	53%	3.20×10^{-11}
rs573455_A	G / G	-0.04 (-)	47%	3.20×10^{-11}
rs3782473_T	T / C	-0.05 (↓)	76%	3.60×10^{-11}
rs1573019_C	T / T	0.05 (-)	24%	4.30×10^{-11}
rs3004212_C	C / C	0.05 (↑)	72%	4.50×10^{-11}
rs3819504_C	C / C	-0.06 (↓)	79%	4.80×10^{-11}
rs712097_C	C / C	-0.05 (↓)	67%	4.80×10^{-11}
rs1931656_A	A / A	0.04 (↑)	46%	5.40×10^{-11}
rs3904683_T	T / T	0.05 (↑)	65%	5.50×10^{-11}
rs10233003_C	C / A	0.05 (↑)	73%	5.70×10^{-11}
rs11126989_T	T / T	0.05 (↑)	55%	6.00×10^{-11}
rs9747201_A	A / C	-0.05 (↓)	33%	7.90×10^{-11}
rs6072289_A	A / A	-0.06 (↓)	84%	8.10×10^{-11}
rs11974887_C	C / C	0.04 (↑)	42%	8.30×10^{-11}
rs6456173_G	G / G	-0.04 (↓)	60%	1.10×10^{-10}
rs7084736_A	A / A	0.05 (↑)	55%	1.20×10^{-10}
rs1366689_T	T / T	-0.06 (↓)	84%	1.40×10^{-10}
rs77583146_G	G / G	0.19 (↑)	99%	1.70×10^{-10}
rs9364323_G	G / G	-0.06 (↓)	84%	1.70×10^{-10}
rs11024110_T	T / T	0.04 (↑)	67%	1.70×10^{-10}
rs13089362_A	G / G	-0.04 (-)	44%	2.00×10^{-10}
rs869219_G	A / A	0.05 (-)	31%	2.00×10^{-10}
rs56921221_G	G / G	0.06 (↑)	85%	2.30×10^{-10}
rs2910770_C	T / T	-0.04 (-)	39%	2.90×10^{-10}
rs4889619_C	T / T	0.04 (-)	64%	3.60×10^{-10}
rs2605134_T	C / C	0.04 (-)	61%	3.70×10^{-10}
rs226456_A	A / A	0.05 (↑)	74%	3.90×10^{-10}
rs7904473_T	T / T	0.06 (↑)	87%	5.20×10^{-10}
rs987237_A	A / A	0.06 (↑)	82%	6.10×10^{-10}
rs78253835_T	T / T	0.11 (↑)	96%	6.20×10^{-10}
rs62475463_T	T / T	0.12 (↑)	97%	7.50×10^{-10}
rs2014377_G	C / C	-0.06 (-)	18%	8.20×10^{-10}

rs67239293_G	G / G	-0.05 (↓)	83%	8.30×10^{-10}
rs11743712_A	A / T	-0.05 (↓)	75%	8.80×10^{-10}
rs75327292_G	G / G	-0.08 (↓)	93%	9.50×10^{-10}
rs7624274_T	A / A	0.04 (–)	56%	1.10×10^{-9}
rs149879035_G	G / G	-0.19 (↓)	99%	1.30×10^{-9}
rs6557679_G	G / T	-0.05 (↓)	74%	1.40×10^{-9}
rs7443175_T	C / C	0.05 (–)	23%	1.90×10^{-9}
rs16893327_T	C / C	0.05 (–)	74%	2.30×10^{-9}
rs764567_A	A / A	-0.04 (↓)	73%	2.40×10^{-9}
rs11245342_C	C / C	-0.04 (↓)	74%	2.90×10^{-9}
rs6527987_T	T / T	0.03 (↑)	74%	3.00×10^{-9}
rs388738_C	C / T	0.05 (↑)	77%	3.50×10^{-9}
rs8074740_G	A / A	0.04 (–)	68%	4.30×10^{-9}
rs16843274_G	G / G	0.06 (↑)	85%	4.80×10^{-9}
rs7613548_G	G / G	0.04 (↑)	77%	4.80×10^{-9}
rs1905339_T	T / T	-0.04 (↓)	66%	5.00×10^{-9}
rs35973557_G	T / T	-0.04 (–)	55%	5.20×10^{-9}
rs1888344_C	T / T	0.06 (–)	14%	5.20×10^{-9}
rs249768_G	T / T	0.05 (–)	79%	5.40×10^{-9}
rs35624781_G	A / A	0.05 (–)	74%	5.40×10^{-9}
rs1952491_C	C / T	0.06 (↑)	87%	6.80×10^{-9}
rs11882077_C	C / C	-0.05 (↓)	78%	7.10×10^{-9}
rs7973611_G	G / G	-0.08 (↓)	94%	7.30×10^{-9}
rs73080552_G	G / G	-0.06 (↓)	89%	7.90×10^{-9}
rs448265_G	G / C	-0.04 (↓)	29%	8.00×10^{-9}
rs1776953_C	C / C	-0.11 (↓)	97%	8.00×10^{-9}
rs4537621_G	G / A	-0.04 (↓)	60%	1.20×10^{-8}
rs13138854_G	G / T	-0.04 (↓)	50%	1.20×10^{-8}
rs11645503_T	T / C	0.04 (↑)	69%	1.30×10^{-8}
rs77016659_T	T / C	-0.09 (↓)	95%	1.40×10^{-8}
rs74454622_C	C / C	-0.07 (↓)	92%	1.50×10^{-8}
rs10510110_T	T / C	0.04 (↑)	53%	1.50×10^{-8}
rs79177013_G	G / G	-0.08 (↓)	94%	1.50×10^{-8}
rs2246912_T	G / G	-0.06 (–)	15%	1.60×10^{-8}
rs715299_T	T / T	-0.04 (↓)	67%	1.80×10^{-8}
rs6971448_G	G / C	-0.04 (↓)	79%	1.80×10^{-8}
rs12483377_G	G / G	-0.07 (↓)	91%	2.00×10^{-8}
rs7593009_G	G / G	0.04 (↑)	64%	2.10×10^{-8}
rs7586187_C	C / C	-0.04 (↓)	39%	2.30×10^{-8}
rs12448432_G	G / A	0.05 (↑)	79%	2.50×10^{-8}
rs6437582_A	C / C	-0.04 (–)	40%	2.80×10^{-8}
rs2301742_T	T / G	-0.04 (↓)	49%	3.20×10^{-8}
rs185413393_T	A / A	0.03 (–)	76%	3.40×10^{-8}
rs998335_C	C / C	-0.06 (↓)	87%	3.70×10^{-8}
rs145217118_C	C / C	0.46 (↑)	> 99%	3.90×10^{-8}
rs140869992_G	G / G	0.18 (↑)	99%	4.10×10^{-8}
rs2237421_T	T / C	-0.04 (↓)	51%	4.30×10^{-8}
rs4834706_T	T / T	-0.04 (↓)	62%	4.70×10^{-8}