

4/2020

★ Neck or shoulder pain (Meng, 2020)

Weihua Meng, et al.
Human Molecular Genetics

Joints Muscles

STUDY SUMMARY

Identification of 4 genetic regions associated with neck or shoulder pain.

YOUR RESULT



STUDY DESCRIPTION

Pain in the neck and shoulder area is incredibly common, particularly among older adults. Because injury in the neck can lead to shoulder pain and vice versa, neck and shoulder pain are typically discussed together. This study aimed to discover the genetic basis of neck or shoulder pain. Using the genomes of ~200,000 individuals of European descent, the study identified 4 genetic regions significantly associated with neck or shoulder pain. Together, these variants explain ~11% of the heritability of neck or shoulder pain. Some of these genetic variants are linked to the FOXP2 gene, which is involved in speech and language development and the LINC01582 gene, which is involved in *polycystic ovary syndrome*. Moreover, neck or shoulder pain was found to be correlated with other traits, such as back pain, depression, and insomnia.

DID YOU KNOW?

Working at a desk can cause neck or shoulder pain. This is because most individuals have difficulty maintaining good posture while sitting and working at a computer. Poor posture puts strain in the neck, shoulders, and back. Changing up your desk setup and regularly getting up to take a walk can help.

YOUR DETAILED RESULTS

To calculate your genetic predisposition to neck or shoulder pain we summed up the effects of genetic variants that were linked to neck or shoulder pain 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 neck or shoulder pain. The variants highlighted in blue have **negative effect sizes** and decrease your genetic predisposition to neck or shoulder pain. Variants that are not highlighted are not found in your genome and do not affect your genetic predisposition to neck or shoulder pain. By adding up the effect sizes of the highlighted variants we calculated your polygenic score for neck or shoulder pain to be 0.00. 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 neck or shoulder pain is in the **53rd percentile**. This means that it is higher than the polygenic scores 53% of people. We consider this to be an **average genetic predisposition to neck or shoulder pain**. 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 [Ⓞ]
rs12453010_T	C / T	0.02 (↑)	39%	2.20 x 10 ⁻¹²
rs2049604_T	C / T	-0.02 (↓)	36%	3.19 x 10 ⁻⁹
rs62053992_G	A / G	0.00 (↑)	18%	4.36 x 10 ⁻⁹



Neck and shoulder pain are very common and have a significant heritable component.