

Flat Feet

POWERED BY 23ANDME RESEARCH



play+447e13165a, based on your genetics and other factors, you are **less likely than average** to have flat feet.

The average 23andMe research participant has a 26% chance of reporting that they have flat feet. Based on your genetics and other factors, specifically age and sex, you have a **23.5% chance** of having flat feet.

What are flat feet?

Flat feet are characterized by a low arch on the inside of the foot. Sometimes, people with flat feet roll their feet inward when walking, called over-pronation. Having flat feet may also be associated with the misalignment of certain bones in the feet or legs, which can cause pain.

Medial arches falling down

Flat feet occur when the raised structure on the inside of the foot, called the medial arch, is especially low. This is very common in children when the medial arch is still developing. By adolescence it is more fully formed, and most cases of flat feet resolve on their own. But for some, the medial arch never fully develops or may collapse later in life. Studies have shown that injury, obesity, and certain health conditions may be associated with flat feet. Additionally, scientists at 23andMe discovered that genetic variation may make some people more predisposed than others. What a feat!

Factors associated with flat feet



The next step

If you have concerns about flat feet, talk to a healthcare professional about what next steps are right for you. Many cases are asymptomatic and don't require treatment. But for those with mild pain, common treatments include physical therapy or wearing specialized footwear like insoles. Certain people with severe cases of flat feet may benefit from surgery.*

Common treatments for flat feet



How we got your result ^

For this analysis, more than 460,000 23andMe research participants of European descent contributed their genetic data and survey responses on flat feet. From these data, we identified 414 genetic markers associated with flat feet. We used these genetic markers together with non-genetic factors, specifically age and sex, to create a statistical model that predicts the chances of having flat feet. The model was further recalibrated to be more accurate when applied to people of European or Hispanic/Latino descent using data from more than 530,000 23andMe research participants. The statistical model for people of European descent has an AUC value of 0.57.

We used the statistical model to predict each person's chances of having flat feet. The possible results predicted by the model fall between 13% and 44%. The age, sex, and ancestry we used for your result are based on the information you provided in your account settings. For people of mixed ancestry or ancestries for which we do not yet have enough research participants, we determined this result based on data from people of European descent since that is the group for which we have the largest sample size. 26% of 23andMe research participants reported that they have flat feet.

Read more:

Carr JB 2nd et al. (2016). "Pediatric Pes Planus: A State-of-the-Art Review." *Pediatrics*. 137(3):e20151230.*

Furlotte NA et al. (2015). "23andMe White Paper 23-12: Estimating complex phenotype prevalence using predictive models." 23andMe White Paper 23-12.*

Lee MS et al. (2005). "Diagnosis and treatment of adult flatfoot." *J Foot Ankle Surg*. 44(2):78-113.*

Mayo Clinic. "Flatfeet." Retrieved April 22, 2019, from <https://www.mayoclinic.org/diseases-conditions/flatfeet/symptoms-causes/syc-20372604>.*

Ozan F et al. (2015). "Symptomatic flexible flatfoot in adults: subtalar arthroereisis." *Ther Clin Risk Manag*. 11:1597-602.*

Touillec E. (2015). "Adult flatfoot." *Orthop Traumatol Surg Res*. 101(1 Suppl):S11-7.*

Change log:

- May 2019. Flat Feet report created.

*Keep in mind that these results, powered by 23andMe research, are preliminary and meant for informational purposes only. This report does not provide medical advice. Consult with a healthcare professional before making any major lifestyle changes.

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The average 23andMe research participant has a 26% chance of reporting that they have flat feet. Based on your genetics and other factors, specifically age and sex, you have a **30.9% chance** of having flat feet.

What are flat feet?

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