Health > Health Predisposition

Print

Age-Related Macular Degeneration

Age-related macular degeneration (AMD) is the most common cause of irreversible vision loss among older adults. The disease results in damage to the central part of the retina (the macula), impairing vision needed for reading, driving, or even recognizing faces. This test includes the two most common variants associated with an increased risk of developing the condition.

Overview

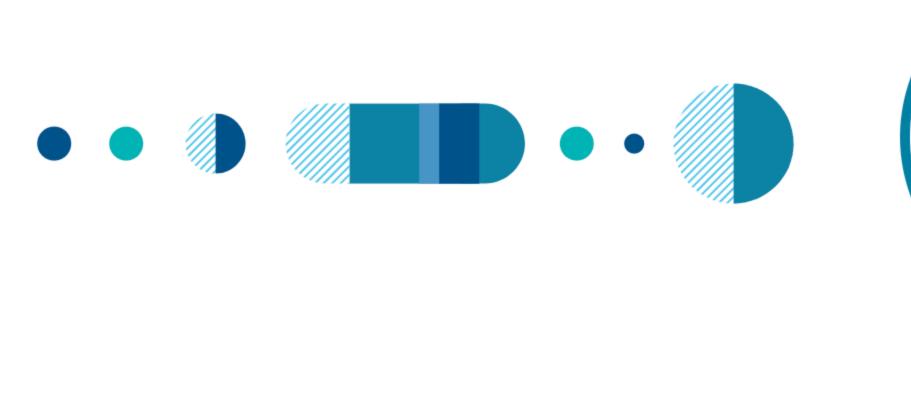
Scientific Details

Frequently Asked Questions

People with this result have an increased risk of developing AMD. Lifestyle and other factors can also affect

Jamie, you have both of the genetic variants we tested.

your risk.



Variants detected



Intended Uses How To Use This Test

Two copies of a variant detected in the CFH gene and one copy of a variant detected in the ARMS2 gene.

This test does not diagnose AMD or any other

health conditions.

See Scientific Details

Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about

your results. **Review the Genetic Health Risk tutorial**

See Frequently Asked Questions

Tests for the Y402H variant in the CFH gene and the A69S variant in the ARMS2 gene associated with an increased risk of developing AMD.

Limitations

• Does **not** test for all possible variants associated with an increased risk of developing AMD.

- Does **not** test for variants in other genes associated with an increased risk of developing AMD.
- **Important Ethnicities**

• The variants included in this test are common in many ethnicities, but are best

studied in people of **European** descent.

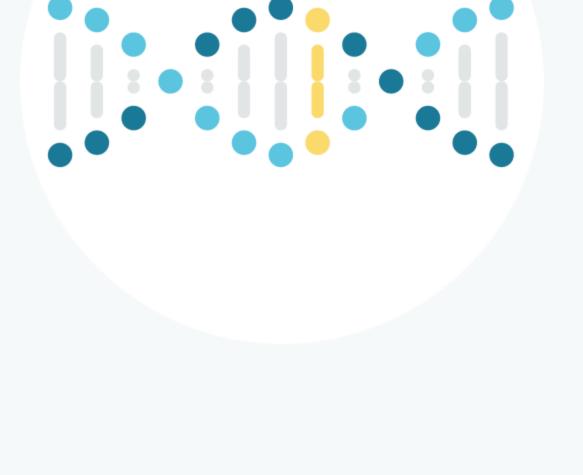
You have an increased risk of developing AMD based on your

genetic result.

It is important to discuss this result with a healthcare professional.

ARMS2 gene.

See Scientific Details



We detected two copies of the Y402H variant in the

CFH gene and one copy of the A69S variant in the

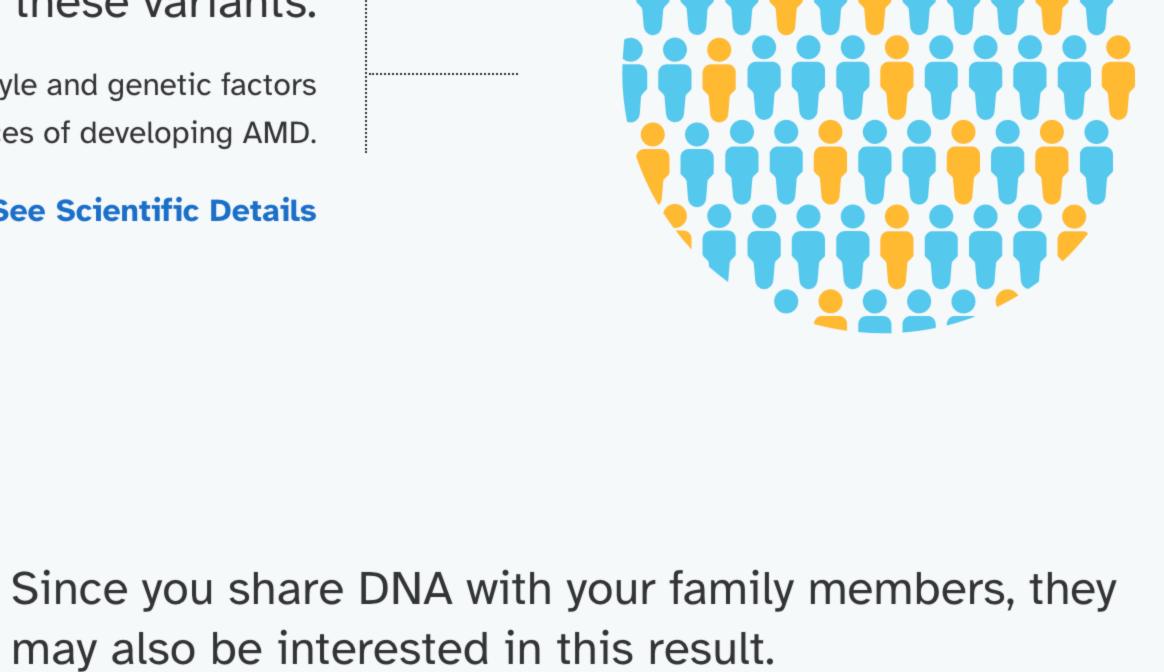


not covered by this test can also affect your chances of developing AMD.

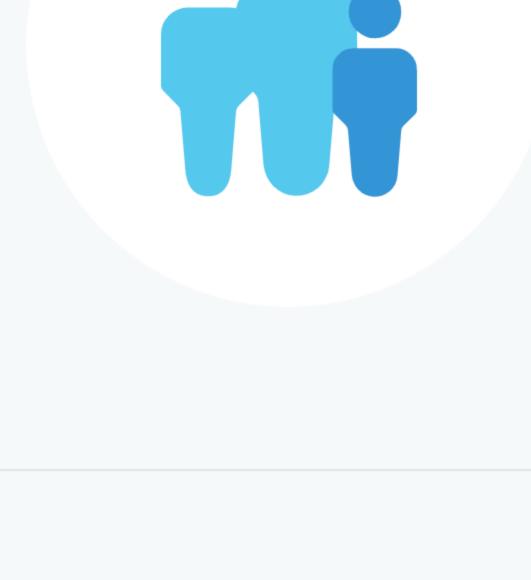
People with these variants are more likely to develop

This doesn't mean you will definitely develop AMD. Lifestyle and genetic factors

AMD than people without these variants.



Age



Both of your parents and each of your children likely have at least one of these

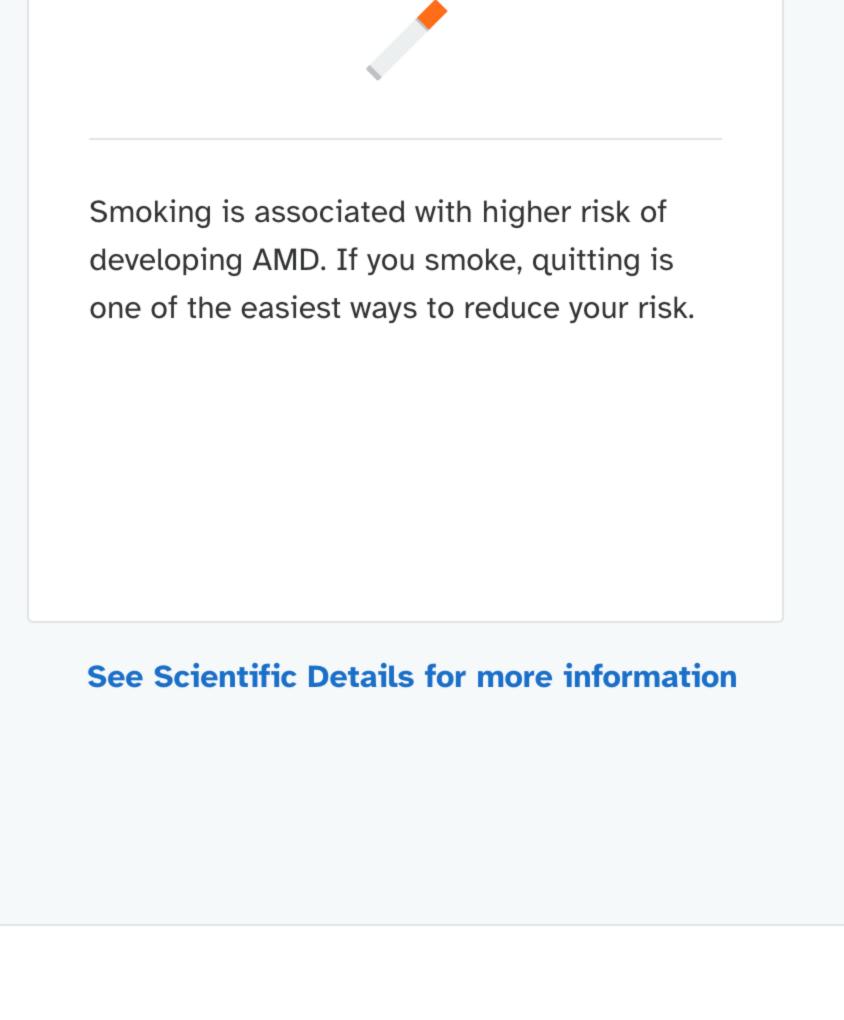
variants. Your siblings may also have at least one of these variants.

Smoking

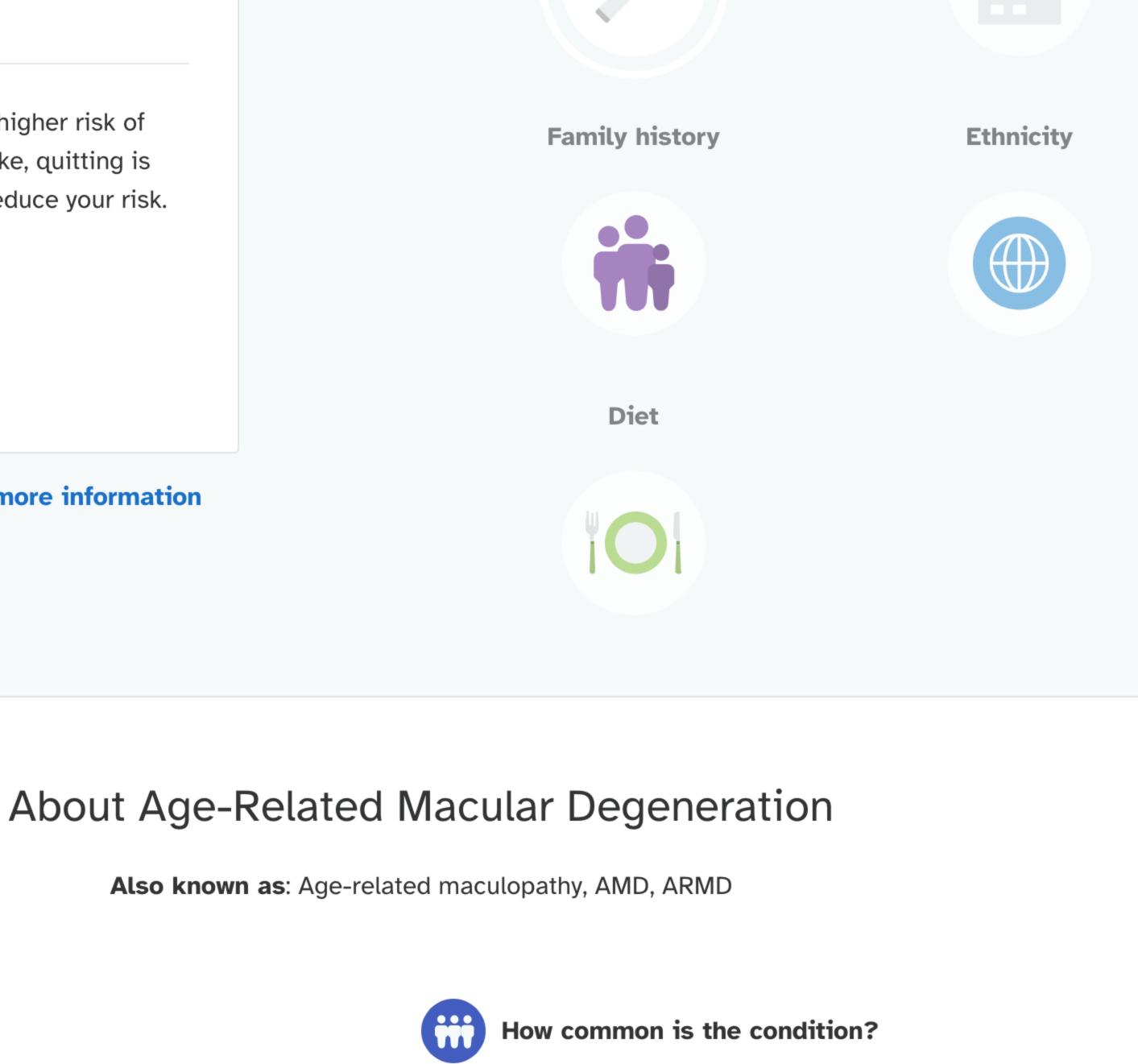
Lifestyle and other factors can also influence the chances of

developing AMD.

Consult with a healthcare professional before making any major lifestyle changes.

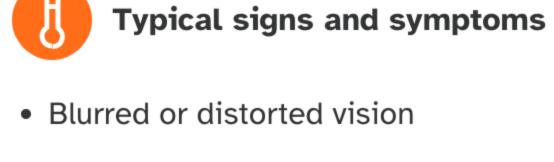


Smoking



AMD is rarely diagnosed in people under the age of 50. Vision In the U.S., about 2% of people over the age of 50 have AMD. loss related to AMD usually becomes noticeable in a person's Approximately 2 million Americans are currently living with 60s or 70s and tends to worsen over time.

AMD.



Vision loss

Blood or fluid leakage in the retina

Yellow fatty deposits in the retina called "drusen"

When it develops

- There is currently no known prevention or cure for AMD. Having regular eye exams can help detect early signs of the condition. Certain treatments, medications, and supplements may slow the progression of AMD.
- Read more at: National Eye Institute NCBI: Age-Related Macular Degeneration Cleveland Clinic MedlinePlus

How it's treated

family, a genetic counselor may be able to help.

with a healthcare professional.

Print report

It is important to discuss this result with a healthcare

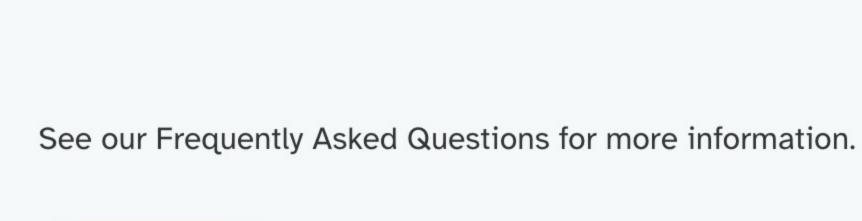
professional.



Learn more

If you have questions about your results or how they might affect you or your

If you have a family history of this condition or think you have symptoms, consult



FAQs



Don't just learn about your results. Take action with your personalized Health Action Plan.

Start taking action →



Refer friends, earn

Get reward

rewards.

Give the gift of DNA

ff Gift a kit

discovery.

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Overview

Frequently Asked Questions

Print

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Age-Related Macular Degeneration

Age-related macular degeneration (AMD) is the most common cause of irreversible vision loss among older adults. The disease results in damage to the central part of the retina (the macula), impairing vision needed for reading, driving, or even recognizing faces. This test includes the two most common variants associated with an increased risk of developing the condition.

AMD is associated with variants in many genes.

Scientific Details

This report includes one variant in the CFH gene and one variant in the ARMS2 gene. This test does not cover variants in other genes associated with AMD.

CFH ARMS2

Chromosome 1 The CFH gene provides instructions for making a protein called complement factor H. This protein is part of the immune system that helps the body fight foreign invaders such as bacteria and viruses. It is important for the body to

regulate this system so that healthy cells are not destroyed unnecessarily. Complement factor H, together with other related proteins, helps regulate this system by turning it off when it is not needed. Read more at MedlinePlus

Variants Detected

Marker Tested

Health Risk Estimates

a health condition.

Risk estimates are based on clinical studies that

identify an association between a genotype and

This is not a complete list of other factors.

of developing AMD.

Indications for Use

Special Considerations

Clinical Performance

AMD in older adults.

of AMD in older adults.

Analytical Performance

2017:6469138.

Test Performance Summary

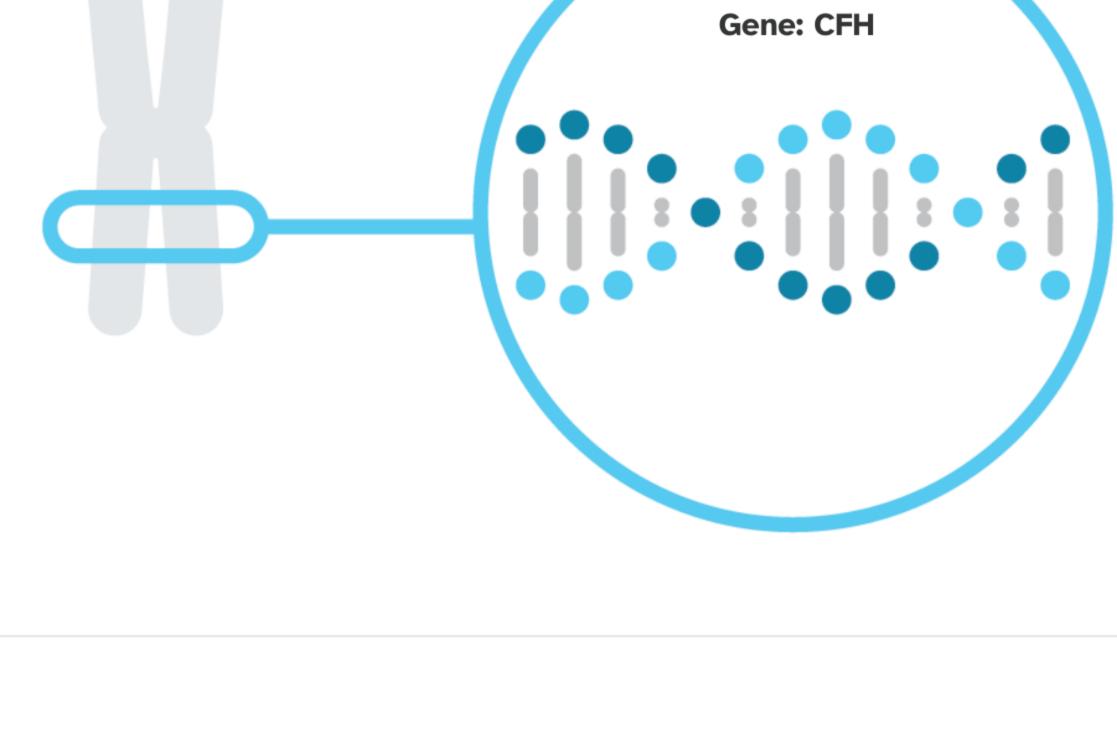
descent.

People with several risk factors, including having

multiple genetic variants, may have a higher risk

Consult with a healthcare professional before

making any major lifestyle changes.



View All Tested Markers

Odds ratios

Likelihood ratio

95% confidence interval

References

[**21**]

[21]

[23]

[13, 14, 29]

[**1**, **8**, **28**, **30**]

Additional Information Genotype*

You have two copies of one genetic variant and one copy of the

other genetic variant we tested.

Y402H **Biological explanation** C Gene: CFH Variant copy from one Variant copy from your Typical vs. variant DNA sequence(s) Marker: rs1061170 of your parents other parent Percent of 23andMe customers with variant References [4, 6, 10, 15, 24, 25, 26, 32, 33] | ClinVar **A69S Biological explanation** G Gene: ARMS2 Typical copy from one Variant copy from your ∨ Typical vs. variant DNA sequence(s) Marker: rs10490924 of your parents other parent Percent of 23andMe customers with variant References [4, 10, 11, 20, 24, 25, 26] | ClinVar *This test cannot distinguish which copy you received from which parent. This test also cannot determine whether multiple variants, if detected, were inherited from only one parent or from both parents. This may impact how these variants are passed down. 23andMe always reports genotypes based on the 'positive' strand of the human genome reference sequence (build 37). Other sources sometimes report genotypes using the opposite strand.

Test Interpretation

This report provides risk estimates for people of European descent. Estimates for other ethnicities are not

currently available.

Likelihood ratios

A "likelihood ratio" estimates how the test result affects the chances of a condition, compared to the

These values are calculated by 23andMe using data from Rivera et al. (2005).

chances of the condition prior to testing. In the table below, values greater than 1 mean that the chances of developing AMD are higher based on the test result. Values less than 1 mean that the chances are lower

based on the test result. Values close to 1 mean that the chances of developing AMD have not changed significantly. Consider talking to a healthcare professional if you have any concerns about your results.

Genotype

No variants detected 0.23 0.17 - 0.30 References [24] One copy of Y402H variant 0.50 0.42 - 0.59 One copy of A69S variant 0.67 0.51 - 0.88 Two copies of Y402H variant 1.64 1.25 - 2.14 Two copies of A69S variant 1.99 1.18 - 3.38 One copy of Y402H and one copy of A69S variant 1.24 1.03 - 1.50 One copy of Y402H and two copies of A69S variant 2.60 - 6.53 4.12 Two copies of Y402H and one copy of A69S variant 3.18 - 6.33 4.49 Two copies of Y402H and two copies of A69S variant 6.87 - 68.50 21.70 Other Factors

The risk of developing AMD increases greatly as a person ages. About 1% of the general U.S. population between the ages of 55 and 70 have AMD. Over

In general, smoking increases the risk of developing AMD. For people who

Professional guidelines recommend quitting smoking to reduce AMD risk.

have multiple risk variants, smoking might further increase their risk.

the age of 80, 2-14% of people have AMD, depending on ethnicity.

First-degree relatives of a person with AMD have a higher chance of

factors, but could also be related to family members sharing a similar

developing AMD themselves. This may primarily be explained by genetic

People of European descent are more likely to develop AMD than people of

other ethnicities. In the US, 2.5% of people of European descent over age

Other factors besides the variants included in this test can influence your chances of developing AMD.

Other Factors

Smoking

Age

lifestyle.

Ethnicity

Family history

50 have AMD. By comparison, less than 1% of people of African American, Hispanic, and Asian descent over age 50 have the condition. Diet [3, 5, 8, 12] Understanding the effects of diet on the risk of AMD is an active area of research. The American Academy of Ophthalmology advises individuals to eat healthy foods that have also been shown to benefit eye health. A healthy diet for the eyes emphasizes the consumption of dark green leafy vegetables, citrus fruits, nuts, and whole grains. Consuming healthy fats — found in fish, nuts, and olive oil — and minimizing saturated and trans fats are also important. Evidence suggests that following a Mediterranean diet may reduce AMD progression. **Sunlight exposure** [7, 22, 27, 31] The effect of sunlight exposure on the risk for AMD is still an active area of

Test Details

[9, 28]

research. However, for general eye health, professional organizations

harmful exposure to the sun.

Other genes

recommend wearing sunglasses when outdoors to protect the eyes from

There are other genes and variants that have been linked to AMD. However,

many of these variants may have only a small effect on risk on their own.

• The Y402H variant in the CFH gene is expected to be responsible for approximately 43% of all cases of

Accuracy was determined by comparing results from this test with results from sequencing. Greater than 99% of test results were correct. While unlikely, this test may provide false positive or false negative results. For more details on the analytical performance of this test, refer to the package insert.

• The A69S variant in the ARMS2 gene is expected to be responsible for approximately 36% of all cases

The 23andMe PGS Genetic Health Risk Report for Age-Related Macular Degeneration (AMD) is indicated

for reporting of the Y402H variant in the CFH gene and the A69S variant in the ARMS2 gene. This report

describe a person's overall risk of developing AMD. This report is most relevant for people of European

• Genetic testing for AMD is not currently recommended by any healthcare professional organizations.

describes if a person's genetic result is associated with an increased risk of developing AMD, but does not

Warnings and Limitations

This test does not diagnose any health

professional for any medical purposes.

• If you are concerned about your results,

consult with a healthcare professional.

See the **Package Insert** for more details on use

* Variants not included in this test may be very rare,

may not be available on our genotyping platform, or

Share results with your healthcare

and performance of this test.

may not pass our testing standards.

cause this condition.*

conditions.

This test does not cover all variants that could

prevention/diet-nutrition \ 4. Bergeron-Sawitzke J et al. (2009). "Multilocus analysis of age-related macular degeneration." Eur J Hum Genet. 17(9):1190-9.

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6. Clark SJ et al. (2010). "Impaired binding of the age-related macular degeneration-associated complement factor H 402H allotype to Bruch's membrane in human retina." J Biol Chem. 285(39):30192-202.

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- Change Log Your report may occasionally be updated based on new information. This Change Log describes updates and revisions to this report.

Change

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See all references >

Age-Related Macular Degeneration report created.

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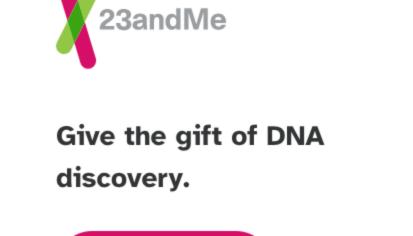
Scientific Details

Frequently Asked Questions

Age-Related Macular Degeneration

I read that there are two types of AMD, the "dry" type and the "wet" type. Do the risks associated with these variants apply to both types of AMD?	~
What does this test do?	~
What does this test not do?	~
The report says the variants included in this test are best studied in people of European descent. What if I'm not of European descent?	~
Where can I learn more about AMD, support groups, and other resources?	~
My report says variants were detected. What does this mean?	~
My report says variants were detected. What are some things I could do?	~
What does increased risk mean?	~
How could my result affect my family?	~

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