GemVCare
Your Genes • Your Gem • Your Health

FH9

FAMILIAL HYPERCHOLESTEROLEMIA TEST

01 EFFECTS OF FAMILIAL HYPERCHOLESTEROLEMIA (FH)

- **20 times** more likely to have **sudden heart attacks** and develop **coronary arterial disease** **20 years earlier** [1] [2]
- Your children have a **50% chance** inheriting the same condition
- **1** in **200 people** has FH [2]

General High Cholesterol	VS	Familial Hypercholesterolaemia
Cause of disease...		
Acquired Factors (E.g. Unhealthy lifestyle)	?	**Congenital gene mutation** (Born with high cholesterol levels)
Life expectancy...		
Reduced by 10-15 years [3] (If there are additional risks such as smoking and high blood pressure)		**Reduced by 20-30 years** [4] (Even without additional risks)
Risk of heart disease...		
Between ages 35-55, risk increases by 40% every 10 years [5]		**20 times higher** than a healthy person [6]
How is the disease controlled...		
For some patients, it can be controlled by diet and exercise		Most patients need **medication**

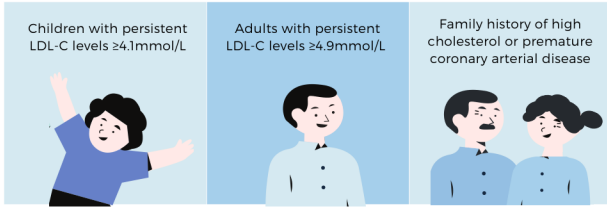
Sources:

1. What Are the Risks with FH?" March 27, 2020. https://thefhfoundation.org/familial-hypercholesterolemia/what-are-the-risks-with-fh.
2. Familial Hypercholesterolemia (FH). (n.d.). Retrieved from https://www.heart.org/en/health-topics/cholesterol/causes-of-high-cholesterol/familial-hypercholesterolemia-fh
3. Clarke, R., Emberson, J., Fletcher, A., Breeze, E., Marmot, M., & Shipley, M. J. (2009). Life expectancy in relation to cardiovascular risk factors: 38 year follow-up of 19 000 men in the Whitehall study. Bmj, 339(Sep16 3)
4. Mortensen, G. L., Madsen, I. B., Kruse, C., & Bundgaard, H. (2016). Familial hypercholesterolaemia reduces the quality of life of patients not reaching treatment targets. Danish medical journal, 63(5), A5224.
5. Ann Marie Navar-Boggan, Eric D. Peterson, Ralph B. D'agostino, Benjamin Neely, Allan D. Sniderman, and Michael J. Pencina. Hyperlipidemia in Early Adulthood Increases Long-Term Risk of Coronary Heart Disease. Circulation, January 2015 DOI: 10.1161/CIRCULATIONAHA.114.012477
6. Kim, Y. R., & Han, K. H. (2013). Familial hypercholesterolemia and the atherosclerotic disease. Korean circulation journal, 43(6), 363-367. https://doi.org/10.4070/kcj.2013.43.6.36

At present, the **traditional diagnosis of FH** is based on testing blood lipid levels, observing physical symptoms and checking the family history. However, this method **may not be accurate**, and can lead to **misdiagnosis**. **80%** of affected individuals only learn that they have FH after experiencing a serious cardiac event. [1]

02 GENETIC TESTING CAN DETERMINE WHETHER YOU HAVE FH

Please pay attention if you meet the following criteria:



Early detection and treatment can reduce cholesterol and risk of cardiovascular disease. The new generation **inclisiran** small interfering RNA (Si-RNA) drug **can reduce LDL-C levels by ~50%**[2], and the **PCSK9** (Proprotein convertase subtilisin/kexin type 9) **inhibitor can reduce cardiovascular disease by up to 60%** compared with traditional drugs. [3]

Sources:

1. Brumit, M. L. (2013, January 21). Familial Hypercholesterolemia Often Misdiagnosed. Retrieved from https://thefhfoundation.org/familial-hypercholesterolemia-is-often-misdiagnosed-by-physicians-unaware-of-family-medical-histories
2. Raal FJ, Kallend D, Ray KK, Turner T, Koenig W, Wright RS, Wijngaard PLJ, Curcio D, Jaros MJ, Leiter LA, Kastelein JJP; ORION-9 Investigators. Inclisiran for the Treatment of Heterozygous Familial Hypercholesterolemia. N Engl J Med. 2020 Apr 16;382(16):1520-1530. doi: 10.1056/NEJMoa1913805. Epub 2020 Mar 18. PMID: 32197277.
3. PCSK9 Inhibitors. (2020, June 02). Retrieved from https://thefhfoundation.org/fh-treatments/pcsk9-inhibitors-for-familial-hypercholesterolemia

03 GEMVCARE GENETIC TESTING

Test 9 up-to-date genes related to FH
(APOB, APOE, LDLR, LDLRAP1, PCSK9, ABCG5, ABCG8, STAP1, LIPA)

Comprehensive detection of disease-causing genes:
Mutations in genetic sequences and major LDLR gene copy-number variations

Double verification of results

Technical Accuracy - confirmed by a local university

Quality Assurance-GemVCare is a participant of the EMQN* programme

If a disease-causing mutation is found, your family members can undergo genetic testing at a special rate to confirm whether they carry the same mutation^

* EMQN: The European Molecular Genetics Quality Network

^ Terms and conditions:

1. This test only includes the specific likely pathogenic genetic mutation of the first patient, must be confirmed and referred by a doctor, and does not include other fees (e.g. doctor consultation fee).
2. The patient must provide a copy of the first patient's report and a doctor's referral letter to verify the need for testing.
3. All family members receiving the test must be referred by the same clinic or hospital as the first patient.
4. The company reserves the right to make the final decision on the offer and any disputes and can change the terms and conditions of this offer without prior notice.

04 SERVICE FLOW

STEP 1

A specimen of 3ml EDTA anticoagulant blood or saliva is collected*

STEP 2

The specimen will be delivered directly to our testing centre for genetic testing

STEP 3

Your health report will be completed in 22 working days

STEP 4

If a disease-causing mutation is found, your family members can undergo genetic testing at a special rate to confirm whether they carry the same mutation^

*Please check with your doctor or our service provider for sampling arrangements

^Please refer to the terms and conditions on page 3

05 ABOUT US

GemVCare - commited to helping the public prevent chronic diseases and improving the health of patients.

With professional genetic testing technology for chronic diseases, medical professionals can customize precise treatments and management models according to your personal genetic profile and health conditions so that you can live your best life.

OUR PARTNERS

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