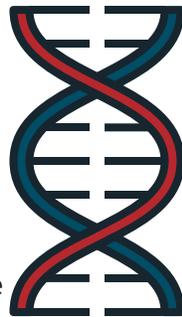


Understanding Disease Risk and Disease Predisposition

Learning about disease risk and disease predisposition (pre dis-po zih-shun) can help patients and their doctors prepare for the health conditions a person might develop. Learning this information supports decisions about your medical care, including identifying screening and treatment options. An inherited risk to develop a disease could come from a genetic **variant**, meaning a specific combination of letters passed down in your DNA. Lifestyle factors such as diet, smoking, and workplace exposures can all affect the timing and severity of symptoms. There are two ways of looking at your chance of having a disease: risk to inherit the variant (your disease risk) and risk of developing the disease linked with the variant (your disease predisposition).

Disease Risk

Results from genetic testing may show that a specific part of a person's genetic code is linked with disease. Scientists classify these variants based on the way they are passed down from parents to children. A person's likelihood, or risk, of developing a genetic disease is influenced by this inheritance pattern. Your actions and lifestyle choices can also reduce or increase disease risk.



Disease Predisposition

This term means that your medical team believes you have a greater than average chance to develop a disease. This may be because your family history has multiple affected family members or because you have a disease-linked variant. A predisposition is not a guarantee; there are other things that can impact your chance to develop the disease. Some of these things we know and some we do not.



How Does Inheritance Impact Disease Risk?

Knowing whether a person developed a new disease-linked variant, or if it was passed down from one or both parents can help predict the risk to your health. The most common inheritance patterns are:



• **Recessive Inheritance:** This health condition only happens when a person has two disease-linked variants. Usually this means that both the mother and father have passed on a similar disease-linked DNA variant to their child.



• **Dominant Inheritance:** This health condition happens when a person has only one disease-causing version of a gene. Usually the disease-causing variant is inherited from one parent. The harmful DNA variant dominates the instructions given to the affected person's cells.



• **New Variant:** All babies are born with new genetic variants that were not present in either of the parents. In rare cases, one or more of these DNA changes leads to a health condition.

If you would like to learn more, you can talk with your doctor at Sanford about genetic testing for disease risks or meet with a genetic counselor to talk about your family history and possible predispositions. Learning more about the DNA code behind your health helps prepare you to shape your lifestyle around a strong foundation of healthy habits and hobbies.