

# Familial genetic testing assignment

[Science](#), [Biology](#)



Familial genetic testing assignment: Type diabetes Diabetes is a chronic condition that induces high levels of blood sugar. It results from abnormality in body function as beta cells fail to secrete insulin, a chemical that regulate the quantity of glucose that is released into the blood system. The insulin deficiency has two effects in the body, it reduces the body's ability utilize glucose to generate energy and reduces the body's ability to control the level of glucose in the blood system. This report aims at creating awareness of the disease in our family and it focuses on genetic and environmental determinants of the disease.

Genetic and environmental factors are responsible for occurrence of type 1 diabetes. Even though the exact causes are not yet known, many factors that relates to biological body structure or to a person's external environment have been associated with risks of type 1 diabetes. Genetic factors to type 1 diabetes relates to HLA genes in the body. The genes form complexes among themselves and help the body's immune system to distinguish between body's proteins and foreign proteins to the body. The immune system then destroys foreign proteins. Certain complexes of these genes however fail to distinguish the proteins and leads to destruction of insulin. The percentage of type 1 diabetes incidences that result from the genetic factor is however low because only five percent of people with the gene complexes suffers from the complication (Genetic Home Reference 1). Probability of suffering from the complication, based on genes also supports the theory of genetic cause. This is because a person whose close relative suffers from type 1 diabetes has a six percent chance of being a victim while a person who does not have a close relative suffering from the complication

has as low as 0.05 percent of being a victim (National Health Services 1).

Other factors such as “viral infections, nutritional exposures, perinatal factors, childhood growth” among other environmental factors have been associated with the disease as moderators (Eisenbarth 267).

Major symptoms of the type 1 diabetes are a feeling of itchiness around genital areas, impaired vision, muscle pain, and skin infection. Based on the role of genes and environmental factors, genetic factors account for a significant percentage of the symptoms than environmental factors. This is because of the secondary scope of environmental factors to the symptoms. Urine test and blood test exist for confirming diagnosis based on observed symptoms. There is no curative treatment for type 1 diabetes but management measures aim at helping patients to maintain their blood sugar level. Examples of these measures are awareness among patients, development of a care plan, and treatment of associated complications (National Health Services 1). The disease has an overall prevalence rate of between 0.0001 and 0.0002 percent but is higher among youths who are about 18 years old. The incidence rate is also similar across the globe with exception of Asia and South America that has lower incidence rates. Type 1 diabetes is also less common compared to type 2 diabetes (Genetic Home Reference 1).

This information is important to understanding risk factor and measures for reducing chances and significance of the disease in an individual. If DNA test were available for the disease then I would be willing to know the result. The test can however not be accurate because only a percentage of people with the genetic characteristics suffer from the condition and this means that a

DNA diagnosis may be positive in a person who is not yet suffering from the condition.

Works cited

Eisenbarth, George. Immunoendocrinology: Scientific and clinical aspects. New York, NY: Springer.

Genetic Home Reference. " Type 1 diabetes." National Library of Medicine. March, 2013. Web. November 22, 2013. .

National Health Services. " Type 1 diabetes." National Health Services. N. d. Web. November 22, 2013. .