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News Release

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Diseases that run in families not all down to genes, study shows

Family history of disease may be as much the result of shared lifestyle and surroundings as inherited genes, research has shown.

Factors that are common to the family environment – such as shared living space and common eating habits – can make a major contribution to a person's risk of disease, the study found.

A study of common diseases in families across the UK has highlighted the importance of such factors in estimating a person's risk for diseases such as high blood pressure, heart disease and depression.

Previous studies have identified genes that are linked to numerous medical conditions, yet these only account for part of a person's likelihood of developing disease.

Researchers led by the University of Edinburgh's Roslin Institute and MRC Human Genetics Unit examined the medical histories of more than 500,000 people and their families – including both blood and adoptive relatives.

They looked at incidences of 12 common diseases including high blood pressure, heart disease, and several cancers and neurological diseases.

By not accounting for shared environmental factors, scientists may overestimate the importance of genetic variation by an average of 47 per cent, the study found.

Experts say their findings will help to provide realistic expectations of the value of genetic testing for identifying people at risk of disease.

The research also underlines the need to identify environmental factors that contribute to diseases and how to modify them to reduce disease risk.

The study published in *Nature Genetics*, used data from the UK Biobank, a UK database of volunteers' health.

Professor Chris Haley, of the University's MRC Human Genetics Unit, said: "The huge UK Biobank study allowed us to obtain very precise estimates of the role of genetics in these important diseases. It also identified those diseases where the shared family environment is

important, such as heart disease, hypertension and depression, and also equally interestingly those where family environment is of limited or no apparent importance, such as dementia, stroke and Parkinson's disease."

The study was supported by the Biotechnology and Biological Sciences Research Council and the Medical Research Council, which provide strategic funding to The Roslin Institute and the Human Genetics Unit, respectively.

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