

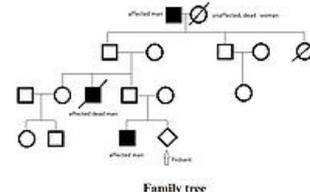
Family Studies, Pedigree Analysis

Family studies have been used in the genetics since its beginning. Mendelian ratios were based on a research about relationship between sweet peas. The offsprings get their genetic information from the parents. So they can't have different genes than them. That is a principle of family studies. **Pedigree** (also called family tree) is a graphic parallel to family relationships.

Family studies can be used only for the **monogenetic diseases**, usually inborn metabolic diseases (e.g. *cystic fibrosis*, *Huntington disease*). We don't examine the common diseases (e.g. coronary diseases), because there are so many external influences, that the studies are very often misrepresented.

The Importance of Family Studies

Thanks to the studies of big families we can recognize the origin of hereditary diseases. Members of the family usually share not only genes, but also the **environment**. So if only one or more but not all members of the family is affected, we can exclude the external influences and there might be the genetic cause.



Family tree

The special case is a twin study - it is a perfect example of how the environment influences the origin of the disease. On the other hand there is also some disadvantages of family studies - the distance. Sometimes it is more expensive to create a pedigree of affected families than the unrelated people, because the relatives can live far away (it is especially the problem of USA or other bigger countries).

There are some typical diseases, which are connected with higher familiar occurrence: bipolar disorder, schizophrenia, suicides or eating disorders.

The Use of Family Studies

1. Genetic linkage.
2. Genetic mapping.
3. Finding the origin of disease.

Disadvantages of Family Studies

1. We can examine just a larger family unit.
2. Family members seem to be much the same - unrelated individuals have the more variable genomes.
3. Distances between family members - if they have to travel for the examination.

Links

Related articles

- Twins and Twin Studies
- Genetic Linkage
- Genetic Linkage Analysis
- Genetic Mapping

External links

- Genetic and Genomic Discovery Using Family Studies (<http://circ.ahajournals.org/content/118/10/1057.full>)
- Hereditary versus Environmental (<http://www.personalityresearch.org/papers/haimowitz.html>)