

IHDI

Twin Research

Seminar Series

2024年1月26日(金)

17:00-18:00

大阪大学医学部 保健学科
第1講義室

※本セミナーは医療科学ゼミナールの対象
になります。

※参加費無料

Title :

**Pleiotropy in body morphology and functioning
in the light of twin research**

Speaker :

Prof. Karri Silventoinen
(University of Helsinki)



Pleiotropy (the effect of a single gene on two or more traits) is very common in the animal kingdom including humans. Pleiotropy can give insight into biological processes, but it has also practical importance. For example, pleiotropy violates the basic assumptions of Mendelian randomization and, if ignored, can lead to wrong conclusions about causality. Twin design has been utilized already decades to analyze pleiotropy. Cholesky decomposition allows estimating genetic correlations and thus the proportion of shared genetic background. However, new data collection and developments in methodology have remarkably increased opportunities to analyze pleiotropy. This presentation will demonstrate how automatized computational routines and new ways of visualization help to analyze shared genetic background of multiple traits without need to make assumptions on the underlying genetic architecture. Several recent applications of this method to analyze growth, body morphology and physical functioning will be presented. This method offers new possibilities extending also to psychological and behavioral traits. Collecting a large number of traits in twins is important since their mutual correlations can give important information on the underlying genetics and biological processes. Pleiotropy can also be analyzed in genome-wide-association studies. However, genome-wide-association studies and twin study design make different assumptions and thus complement each other. This demonstrates the continuous value of genetic twin studies.