National FinHealth 2017 Study

Information for researchers interested in using stored samples and data

Introduction

National FinHealth 2017 Study is a nationally representative health examination survey of the Finnish adult population. The study combines the traditions of the previous Health 2000/2011 and FINRISK Surveys. The purpose of the study is to obtain current information on health, health behavior, functional capacity and well-being of adults residing in Finland. The study covers many topics, such as perceived health, quality of life, lifestyle, need for care and assistance, use of health services and prevalence and risk factors for public health problems.

The FinHealth 2017 study was conducted at 50 localities in Finland in 2017. The sampling design was based on the Health 2000 Survey sampling design in which the target population were individuals aged 18 years or older and living in mainland Finland. The sample covered both the non-institutionalised population and those living in institutions.

The data were collected by self-completed questionnaires and physical examinations. The participants also performed tests on physical and cognitive functioning and visual acuity, and blood and urine (subset) samples were taken. Further data were collected from subsamples, such as a dietary interview, objective data on physical activity and an additional questionnaire for those aged 70 and over.

More detailed information about the study methods is available in FinHealth 2017 Study–Methods –report.

Ethical considerations

The Coordinating Ethical Committee of the Helsinki and Uusimaa Hospital Region approved the National FinHealth 2017 study on 22 March 2016. All participants of the FinHealth 2017 study signed an informed consent that permits the use of collected samples and data in medical and public health research. In addition, most participants signed an informed consent for THL Biobank, which allows the use of their samples and data also in biobank research.

FinHealth 2017 study samples and omics data available for biobank research

The following sample types are available from more than 6 600 sample donors, who gave an informed consent for THL Biobank:

- DNA
- Serum (processed within 60 min after sampling)
- Plasma (EDTA-plasma processed within 60 min after sampling)
- Urine (subset)

Sample collection and processing details:
The study nurses were trained to follow similar standards in drawing and processing blood samples. Participants were asked to fast for at least four hours and the fasting time was documented. Additionally, possible use of antibiotics within the last 14 days was documented. Blood samples were collected by

venipuncture for DNA extraction (K2EDTA 5/4 ml, BD) and for serum (Vacutainer STII 10/8 ml gel, BD) and plasma (Vacutainer EDTA K2 10/10 ml, BD) samples. Vacuette fluoride-citrate tubes were used for collecting plasma fo glucose determination. Serum and plasma were let to settle for 30 min and then centrifuged (2200 G, 11 minutes), aliquoted (Fluid X tubes, fluoride-citrate plasma pipetted to a polypropylene tube) and immediately frozen (-20^{0}C) on site, normally within 45-60 mins but no later than 120 mins after sampling. Serum, plasma and whole blood samples were shipped in dry ice within two weeks for long term storage.

FinHealth 2017 phenotype and omics data available for biobank research

Baseline data

- Age
- Gender
- Regional area

Data collected by questionnaires

- Sociodemographic characteristics
  - ✓ Economy
  - ✓ Education
  - ✓ Household
  - ✓ Marital status
  - ✓ Social environment
  - ✓ Work
- Health status
  - ✓ Allergies
  - ✓ Heart and cardiovascular diseases
  - ✓ Medication
  - ✓ Mental health
  - ✓ Nutritional and metabolic diseases
  - ✓ Oral health
  - ✓ Respiratory diseases
  - ✓ Reproductive health
- Functional capacity
  - ✓ Activities of daily living
  - ✓ Cognitive functioning
  - ✓ Environmental factors restricting/facilitating functioning
  - ✓ Hearing
  - ✓ Physical functioning
  - ✓ Psychological functioning
  - ✓ Social functioning
  - ✓ Visual acuity
- Use of health services
- Family history of disease
- Lifestyle
  - ✓ Alcohol use
  - ✓ Physical activity
  - ✓ Sleep
  - ✓ Smoking
  - ✓ Nutrition
  - ✓ Lifestyle changes

- Quality of life
- Other topics, see the FinHealth 2017 Study–Methods –report

Physical examination data

- Weight, height, BMI, waist and hip circumference
- Bioimpedance
- Blood pressure, pulse
- Functional capacity

Biological test results

- Blood lipid values (total cholesterol, HDL cholesterol, triglycerides, apolipoproteins A-1 and B)
- Blood sugar value (glucose, HbA1c, i.e. glycated haemoglobin)
- Liver function (GGT, ALT, AST, glutamyltransferase)
- Inflammation level (CRP)
- Kidney function (urates and creatinine)
- Albumin
- Calcium

The basic laboratory measurements were performed at the biochemistry laboratory of the Genomics and Biomarker Unit at THL, Helsinki. The laboratory measurements were carried out for alanine aminotransferase, albumin, apolipoproteins A-I and B, aspartate aminotransferase, calcium, cholesterol, creatinine, glutamyltransferase, HDL-cholesterol, high sensitive CRP, triglycerides and uric acid measurements from serum samples, glucose measurements from fluoride citrate plasma samples and glycated haemoglobin A1c measurements from EDTA blood samples. LDL cholesterol was calculated using the Friedewald formula (Friedewald et al. Clin Chem 1972;18:499–502.). All measurements were performed on a clinical chemistry analyser Architect ci8200 (Abbott Laboratories, Abbott Park, IL, USA). The biochemistry laboratory (T077) is accredited by the Finnish Accreditation Service, FINAS and it fulfils the requirements of the standard SFS-EN ISO/IEC 17025:2005. The scope of accreditation covers all analyses except albumin, aspartate aminotransferase and uric acid. The determinations were carried out on frozen samples within one month after sampling.

Omics data available for biobank research

- NMR metabolomics data including over 220 blood metabolites analyzed by Nightingale Health
- Genome-wide chip data
- Genotype data imputed to a population-specific reference panel

For availability of genome-wide genotypes and sequencing data, see more information in the 'THL Biobank Omics data availability table' at the THL Biobank sample collection page.

Registry data

Information from the Finnish national health registries, such as Care Register for Health Care (HILMO), Cancer Register, Cause-of-Death Register and Drug Imbursement Registers etc., can be linked to sample donors by separate application process.

Research group

Principal Investigator

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Key references

Borodulin K, Sääksjärvi K, eds. FinHealth 2017 Study – Methods. National Institute for Health and Welfare (THL), Report 17/2019.

Koponen P, Borodulin K, Lundqvist A, Sääksjärvi K, Koskinen S, eds. Health, functional capacity and welfare in Finland – FinHealth 2017 study. National Institute for Health and Welfare (THL), Report 4/2018.