

EFFECTS OF THE *APOE* ϵ 4 GENOTYPE INFORMATION AND HEALTH MESSAGES ON THE FULFILLMENT OF LIFESTYLE CHANGES – APOEMOT-STUDY

EXPERIMENTAL SET-UP

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INTRODUCTION

There is an increasing need for motivating the population to change their lifestyle to increase healthy life years. In addition to information of healthy lifestyle, one potential method for this can be disclosing genetic risk information: In this study, the *APOE* genotype. Several studies have shown that the *APOE* ϵ 4 allele increases the risk for higher cholesterol, cardiovascular diseases (CVD) and Alzheimer's disease (AD). However, the risk is clearly increased only when combined with other lifestyle risk factors. On the other hand, the *APOE* ϵ 4 allele carriers respond more readily to lifestyle changes.

PARTICIPANTS

199 healthy, ethnically Finnish, 40-60-year-old volunteers were recruited in the Hospital District of South Ostrobothnia, in Finland.

The volunteers were randomised into two groups differing in the time of the *APOE* genotype information disclosure (at the beginning – end of the study).

In addition, we re-recruited 70 volunteers from our previous intervention study (Hietaranta-Luoma) to examine the long-term effect (5.5-6.5 years) of receiving personal genetic risk information.

OBJECTIVES

- To discover ethically sustainable ways to achieve permanent lifestyle changes using personal genetic information for the prevention of CVD and AD
- To investigate the effects of repeated health messages and self-monitoring on adopting healthy dietary and exercise habits
- To study the effect of personal genetic risk information on the health and taste attitudes
- To study the effects of the intervention on clinical and nutritional biomarkers
- To observe the long-term effects of a known genetic risk combined with a 1.5-years intervention on the permanence of the adopted lifestyle change

STUDY DESIGN

A compulsory genetics lecture and an opportunity for genetic counselling were arranged for the volunteers before consenting to the study.

During the intervention, monthly health information messages are provided to all participants. The video lectures are based on the Finnish nutrition recommendations.

Measurements performed at the baseline, and after 1 year and 1.5 years of intervention:

Clinical measurements

- General clinical and nutritional biomarkers, the *APOE* and *BDNF* genotype, the *APOE* and *BDNF* proteins

Physiological measurements

- Body mass index, waist circumference, body composition, blood pressure

Questionnaires

- Ethical and psychological aspects
- Physical activity and alcohol consumption
- Daily food choices: dietary fat quality, consumption of vegetables, consumption of foods containing excessive fat and sugar
- Attitudes and values: Food Choice Questionnaire, Health and Taste Attitude Scale, Three Factor Eating Questionnaire -18, Food Involvement Scale
- Taste preferences and food frequencies: Food picture questionnaire

Self-monitoring

- Food and exercise diaries (4 d)

References

Hietaranta-Luoma H-L. (2016) Doctoral thesis available from: <https://www.utupub.fi/handle/10024/123350>