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**Title of project:** Effects of Exercise versus Estrogen on Visceral Fat Mass after Prophylactic Bilateral Oophorectomy – A Randomized Controlled Trial

## ABSTRACT

AIM
To investigate if exercise and estrogen therapy are (equally) efficient strategies to prevent visceral fat accumulation following bilateral oophorectomy.
BACKGROUND
Loss of ovarian function leads to an increased risk of metabolic disease. The pathophysiological mechanisms are still to be discovered but are believed to be related to visceral fat accumulation. Oophorectomized rodents experience a severe decline in spontaneous physical activity, and exercise might serve as a potent strategy to prevent metabolic disease with loss of ovarian function.
METHODS
Randomized, controlled trial including healthy premenopausal women undergoing prophylactic bilateral oophorectomy due to familial predisposition to cancer.
Three months intervention.
Randomization into one of four study arms: 1) Placebo % Exercise, 2) Placebo + Exercise, 3) Estrogen
% Exercise, and 4) Estrogen + Exercise.
The primary end-point is changes in visceral fat mass.
Secondary end points are related to mechanistic studies aiming to understand how loss of ovarian function leads to adipose tissue redistribution and to understand the specific roles of estrogen and physical activity in relation to this.
SIGNIFICANCE
As life expectancy is extending over the years, time after menopause is prolonged in the individual woman, making metabolic disease related to menopause an increasing societal concern. The study will contribute substantially to the understanding of the development of metabolic disease following loss of ovarian function