

# Neuropsychological Functioning of Women with Prophylactic Oophorectomy

<https://www.neurodegenerationresearch.eu/survey/neuropsychological-functioning-of-women-with-prophylactic-oophorectomy/>

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### Country

Canada

## Title of project or programme

Neuropsychological Functioning of Women with Prophylactic Oophorectomy

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CIHR

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## Keywords

### Research Abstract

Women with bilateral salpingo-oophorectomy (BSO) prior to natural menopause (estimated at 300,000 per year in the U.S. alone) have a higher incidence of all causes of death including, Alzheimer's dementia (AD). Healthy women who carry the breast cancer gene mutations, BRCA1 and 2 are routinely counseled to have their ovaries removed in order to reduce the risk of ovarian cancer. Since one effect of BSO is to remove the body's major source of 17-B-estradiol (E2, one of three naturally occurring estrogens), these data suggest that E2 prior to natural menopause may be critical for cognition. It has been demonstrated that at up to 6 months post-BSO verbal recall declined without E2 replacement, but with replacement did not.

The objectives of the present study are to determine: (1) the domains in which cognition and memory change; (2) the timeline of these changes out to 10 years; (3) whether cognitive changes correlate with the apolipoprotein-E gene (APOE) that is a risk factor for AD (APOE4); (4) whether cognitive changes correlate with levels of estrogens and progestagens, and (5) whether there are observable BSO-correlated brain changes. We will study verbal, spatial, and attentional memory using a suite of neuropsychological tests of frontal, hippocampal and parietal cortex. Performance on these neuropsychological tests will be correlated with time since BSO and APOE4. The volume, thickness and integrity of select brain regions pre- and post-BSO will be determined. The results of this study will contribute to our understanding of an important outcome of an increasingly common elective surgery undertaken in healthy women, as well as to our understanding of estrogen's role in young women's cognition and memory. It will also provide important information for women with BRCA mutations – information particularly important for those who carry the AD risk factor variant of the APOE gene. Only with this knowledge will women be able to make fully informed decisions about BSO.

**Further information available at:**

**Types:**

Investments < €500k

**Member States:**

Canada

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