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Title: Metabolic and clinical characteristics of women with self-reported symptoms of polycystic ovary syndrome

#### Abstract

Oligomenorrhea (menstrual disturbances) and hirsutism (excessive growth of body hair) are typical symptoms of polycystic ovary syndrome, a common endocrine disorder with long-term health risks among fertile-age women.

Associations between body size development and polycystic ovary syndrome symptoms in a cohort design (528 symptomatic and 1479 asymptomatic women) and endocrine, metabolic and clinical characteristics of women with self-reported symptoms of oligomenorrhea or hirsutism in a nested case-control design (518 cases and 1036 controls) were investigated in this general population-based study. Gynecologic ultrasonographic examinations were performed in 196 cases and 67 controls to assess the morphology of the ovaries and its relationship to biochemical and clinical parameters. The study population was derived from the Northern Finland Birth Cohort 1966, which included all births with expected birth dates in 1966 in Northern Finland and is well representative of the general female population.

Polycystic ovary syndrome symptoms in adulthood were associated with obesity, particularly abdominal obesity, in adolescence and in adulthood, but not with birth weight or being small for gestational age. Hormonal changes typical of polycystic ovary syndrome, i.e. higher circulating concentrations of testosterone, luteinizing hormone (LH) and insulin and lower levels of sex hormone-binding globulin (SHBG), were detected in women with self-reported symptoms of oligomenorrhea and/or hirsutism compared with the controls. Less favorable metabolic cardiovascular disease risk factor profiles, higher body mass index (BMI), waist-hip ratio (WHR), and triglyceride and C-reactive protein (CRP) concentrations and lower high density lipoprotein cholesterol (HDL-C) levels, were detected in women with symptoms, being the most severe among women who reported both hirsutism and oligomenorrhea. Unfavorable characteristics were pronounced

in the presence of overweight or obesity. Women with symptoms more often had polycystic ovarian morphology associated with an endocrine and clinical profile reflecting polycystic ovary syndrome.

This study shows that questioning in regard to symptoms of oligomenorrhea and hirsutism is useful in detecting women at risk of polycystic ovary syndrome and associated health risks. Avoidance of being overweight is important among young women to prevent the development of insulin resistance. Systematic follow-up of women with symptoms of oligomenorrhea and hirsutism is justified for prevention and early detection of long-term health risks.

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