

## Premenstrual Syndrome in Adolescents and Body Composition

Editorial

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Adolescence is a time of initiation of various physical and psychological maturation for young women when endocrinological, metabolic, somatic and psychological changes occur in girls. During this phase, maturation of the endocrinological system involved in hypothalamus, pituitary and ovary axis occur. Normal reproductive function indicate the health of components of the axis [1, 2]. Serious gynecological disease is rare in this age group, but menstrual disturbances are not uncommon. The most common menstrual abnormalities are polymenorrhea, oligomenorrhea and dysmenorrhea [3, 4]. Menstrual disorders are more frequent in younger girls, becoming less common during 3–5 years after menarche [5]. Premenstrual symptoms (PMS) are one of the frequent problems in adolescent girls. Various epidemiologic studies have indicated that premenstrual disorders begin during the teenage years. At least 20 % of adolescents experience moderate-to-severe premenstrual symptoms associated with functional impairment. Premenstrual syndrome (PMS) consists of physical and/or psychological premenstrual symptoms that interfere with usual life performance. Symptoms increase by ovulation and reduce within the first few days of menses. In adolescents, the frequency of premenstrual dysphoric disorder, a severe form of PMS accompanied by affective symptoms, is likely equal to or higher than in adults [6]. Current treatment recommendations include lifestyle change, exercise and various drugs or supplements that suppress the rise and fall of ovarian steroids or augment serotonin [7]. Some drugs can cause acute or chronic side effects.

It seems that lifestyle, physical activity and dietary pattern affect PMS. Body mass index (BMI) (as an index of indicating body composition) is also a factor that is probably related to PMS. It has been demonstrated that women who are suffering from PMS have higher BMI values [8].

Plasma levels of sex hormones may be impaired in women who have PMS symptoms [9]. Adipose tissue and steroid hormones have a direct relationship and sex steroid hormones are involved in metabolism, storage and distribution of fat tissues [10]. 17 beta-

estradiol may also affect the number of fat cells in the abdominal subcutaneous [11].

Regarding the role of ovarian steroids in the development of PMS, it seems that abdominal fat and obesity are important factors that are associated with PMS. For example, it has been observed that PMS symptoms were higher in obese women [12]. However, another study revealed that there was no significant difference in the amount of body fat between healthy women and women who are suffering from PMS [11].

So discrepancies in findings regarding the relationship between different body composition indices and PMS and even not finding significant relationship among some body composition indices [12], assumed the hypothesis that obesity-associated complications such as PMS symptoms are not associated with fat mass per se, but the pattern of fat distribution.

The positive influence of exercise on PMS has been indicated in many studies [13, 14, 15], but the mediatory mechanism for this effect is not clear yet. In a recent study it has been indicated that regular exercise, habitual activity, cardiorespiratory fitness are related to PMS [16] and each of mentioned indices as well as nutrition probably influence body composition. Regarding the relationship between adolescent obesity and various gastrointestinal, neuropsychological, pulmonary and renal disease [17], especially intra-abdominal visceral fat correlation with metabolic abnormalities that increase the risk of cardiovascular diseases [18], considering the obesity and pattern of body composition effects on PMS as a possible mediator is recommended for future research.

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