

**ORIGINAL RESEARCH****Impact of Physical Resistance Training on the Sexual Function of Women with Polycystic Ovary Syndrome**

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**ABSTRACT**

**Introduction.** There is a need for specific measures to address overall care in women with polycystic ovary syndrome (PCOS). Physical resistance training (PRT) has been shown to improve certain body parameters. However, the effect of PRT on the sexual function of PCOS women has not been evaluated.

**Aim.** The study aimed to assess sexual function and emotional status of PCOS women after 16 weeks of PRT.

**Methods.** This case-control study involved 43 women with PCOS and 51 control ovulatory women, aged 18–37 years. All women were subjected to a supervised PRT protocol for 16 weeks and evaluated at the end of the program. Sexual function was assessed at baseline and after PRT protocol.

**Main Outcome Measures.** The main outcome measure used was the Female Sexual Function Index (FSFI).

**Results.** Of the 43 women with PCOS, 30 (69.70%) had a basal total FSFI score  $\leq 26.55$  and 24 of them (58.54%) had a score  $\leq 26.55$  after PRT ( $P = 0.08$ ). Of the 51 control women, 32 (62.7%) and 27 (52.9%) had FSFI scores  $< 26.55$  at baseline and after PRT, respectively ( $P = 0.06$ ). Control women experienced a significant improvement in pain domain score after PRT ( $P < 0.03$ ). PCOS women experienced significant increases in total score and in the desire, excitement and lubrication domains after PRT ( $P < 0.01$  each). After PRT, there was a significant difference between the PCOS and control groups in the sexual desire domain ( $4.09 \pm 1.29$  vs.  $3.75 \pm 1.42$ ,  $P = 0.04$ ). Significantly fewer women in the PCOS group were at risk of depression ( $P < 0.01$ ) and anxiety ( $P < 0.02$ ) after than before PRT, whereas the differences in the control group were not significant. Mean depression and anxiety scores were reduced significantly in both the PCOS ( $P < 0.01$  each) and control ( $P < 0.01$ ) groups.

**Conclusions.** PRT significantly enhanced total score and the desire, excitement, and lubrication domains of the FSFI in PCOS women. PRT reduced pain, and total depression and anxiety scores in both groups. **Lara LAS, Ramos FKP, Kogure GS, Silva Costa, Silva de Sá MF, Ferriani RA, and dos Reis, RM. Impact of physical resistance training on the sexual function of women with polycystic ovary syndrome. J Sex Med 2015;12:1584–1590.**

**Key Words.** Polycystic Ovary Syndrome; Quality of Life; Physical Resistance Training; Sexuality

**Introduction**

Polycystic ovary syndrome (PCOS) affects 5–10% of the female population of fertile age [1]. PCOS is characterized by changes in female biotype, including hirsutism, acne, seborrhea, alopecia, obesity, and an android distribution of body fat [2,3], conferring a virilized appearance on

affected women. These phenotypes cause a worsening of self-image and reduced self-esteem in women with PCOS [4], negatively affecting their quality of life [5]. Overweight/obesity is observed in many women with PCOS and is regarded as the major cause of psychologic morbidity [6] and may compromise sexual function [7], masking the positive effects of androgens sex drive [8]. The rates of

depression and other affective disorders are higher in these women [9] and contribute to reductions in sexual function [10].

Self-image in slim women with PCOS was found to be unaffected by hirsutism, even of a moderate level [11], suggesting that obesity is the factor having the greatest negative impact on the self-esteem of women with PCOS. In addition, obese women have poorer vascularization of the clitoris, lower frequencies of sexual intercourse and orgasms, a greater impairment of self-image, a higher risk for depression and lower Female Sexual Function Index (FSFI) scores than slim or overweight women [12]. Although women with PCOS have lower total FSFI scores and lower scores on the excitation, lubrication, satisfaction, and pain domains of the FSFI, their body weight did not compromise their sexual function per se, but rather affected their quality of life [10].

These findings suggest a need for specific measures to address overall care in women with PCOS. Different modalities of physical exercise may be effective, although some results are unclear. Physical resistance training (PRT) has been shown to improve certain body parameters, such as waist/hip ratio in women with PCOS [7], as well as physical strength, social functioning, self-perception of appearance and health, interpersonal relations, and sexuality in women with other clinical conditions [13]. However, the effect of PRT on the sexual function of women with PCOS has not been evaluated. This study therefore assessed the impact of PRT on the sexual function of women with PCOS.

## Methods

As part of a project investigating muscle strength, metabolic parameters, body composition [14], and quality of life in women with PCOS, this case-control study recruited women aged 18–37 years with PCOS and control women at the Endocrine Gynecology Outpatient Clinic of the Department of Gynecology and Obstetrics, University Hospital, Ribeirão Preto Medical School, University of São Paulo (HCFMRP-USP) from December 2010 to December 2013. All women were sedentary, were not taking hormones, and had a body mass index (BMI) of 18–39.9 kg/m<sup>2</sup>. Exclusion criteria were use of hormonal contraceptives, smoking, pregnancy, and diseases such as congenital adrenal hyperplasia, thyroid disease, and Cushing disease. Of the 94 participants, 43

had PCOS and 51 had regular menstrual cycles and no clinical signs of hyperandrogenism (control group).

All women were administered the Physical Activity Readiness Questionnaire to screen for diseases limiting physical activity. Sexual function was assessed using the validated FSFI [15], which consists of 19 questions about physical activity during the previous 4 weeks and contains six subscales for the assessment of desire, excitement, lubrication, orgasm, satisfaction, and coital pain. The scores on the subscales were corrected and summed, with final scores ranging from 2 to 36, and scores  $\leq 26.55$  indicating a risk that the patient was at risk for sexual dysfunction [16]. Risks of anxiety and depression were evaluated using the Hospital Anxiety and Depression (HAD) scale, which contains 14 multiple choice questions, seven evaluating the risk of anxiety and seven the risk of depression. The overall score for each subscale ranges from 0 to 21. Scores of  $\geq 8$  and  $\geq 9$  were established as cut-off points for the risks of anxiety and depression, respectively [17,18]. The FSFI and the HAD were applied before the intervention (week 0) and at the end of the PRT protocol (week 16).

Before the PRT, the women were taught the resistance exercises, consisting of 10 repetitions of each exercise for a period of 2 weeks. The six adaptation sessions of 50 minutes each included: (i) guidance about the technical moves used in each exercise; (ii) correct posture; (iii) appropriate breathing; and (iv) sequence of exercises.

The training load for each patient was determined after the adaptation period using the one-repetition maximum (1-RM) test to assess maximum strength [19]. This test consisted of four exercises per day for 2 days, 48 hours apart. The exercises consisted of leg extensor bench, bench press, and biceps curl. The overload was doubled arbitrarily after the performance of three series of 10 repetitions. Stretching exercises were first performed, followed by a series of eight repetitions of the exercise with the load used during adaptation, followed by three repetitions with a 10% increase in overload performed at 1-minute intervals. The test for each exercise was started by gradually increasing the overload to a maximum of 10%, until the subject was able to perform a repetition with the maximum possible weight. The rest interval between each 1-RM was 3 minutes, with a maximum of three attempts allowed [19]. The training load for each woman was determined after the last day of the 1-RM test.

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