



## Selección de Resúmenes de Menopausia

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### The effect of tibolone treatment on fasting blood sugar, insulin, insulin resistance and endothelial function in postmenopausal women: A meta-analysis of randomized controlled trials

Yinghong Zhu, Yingbin Zhu, Yan Chen, Qingxin Ya, Saeed Baradwan, Mihnea-Alexandru Găman, et al.

Background and aim: The menopause is associated in females with the presence of dysglycemia, insulin resistance and with the development of endothelial dysfunction. Tibolone (TIB) is a synthetic steroid compound with selective oestrogenic and, to a lesser extent, progestogenic and androgenic properties prescribed to postmenopausal women to alleviate the symptoms of the climacterium and to prevent the development of osteoporosis. However, the impact of TIB on fasting blood sugar (FBS), insulin, Homeostatic Model Assessment-Insulin Resistance (HOMA-IR) index and flow-mediated dilation (FMD) in women has not been evaluated so far. Thus, to investigate this research question, we conducted the present systematic review and meta-analysis. Methods: Two independent reviewers searched the Scopus, Web of Science, PubMed/Medline and Embase databases up to 20 December 2020. The weighted mean differences (WMDs) and the 95% confidence intervals (CI) were calculated using the DerSimonian and Laird random effects models between the TIB and control groups and included in the forest plot. Results: The overall findings were generated from 12 eligible randomized controlled trials. As compared to controls, TIB administration resulted in a significant reduction of FBS (WMD: -3.06 mg/dL, 95% CI: -5.30 to -0.82,  $P = 0.007$ ), and of the HOMA-IR index (WMD: -0.61, 95% CI: -1.11 to -0.11,  $P = 0.01$ ). However, treatment with TIB did not lead to significant changes of the FMD (WMD: 0.78%, 95% CI: -0.20 to 1.77,  $P = 0.12$ ) or of insulin levels (WMD: -0.10 mIU/L, 95% CI: -2.04 to 1.83,  $P = 0.91$ ). Conclusion: TIB administration can decrease FBS and the HOMA-IR index in postmenopausal women. However, the use of TIB does not influence insulin levels or FMD.

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### Effects of Circuit Resistance Training on Body Composition, Strength, and Cardiorespiratory Fitness in Middle-Aged and Older Women: A Systematic Review and Meta-Analysis

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A systematic review with meta-analysis was conducted to evaluate the effects of circuit resistance training (CRT) on cardiorespiratory fitness, strength, and body composition in middle-aged and older women. Sixteen studies were included in the meta-analysis. The CRT interventions led to a significant decrease in weight, body mass index, and fat mass along with an increase in muscle mass. Significant differences were found in the fat mass and a trend to develop muscle mass when compared with the control group. CRT led to a significant increase in VO<sub>2</sub>max, walking endurance, and time to exhaustion; likewise, significant differences were observed when compared with the control group. CRT had a moderate and large favorable effect on arm, trunk, and lower limb strength. Furthermore, the increases in strength observed in the CRT were significantly greater than the changes observed in the control group. In middle-aged and older women, CRT improved cardiorespiratory fitness and strength and optimized body composition.

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### Associations between body composition and vertebral fracture risk in postmenopausal women

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Introduction: Osteoporosis is a metabolic bone disease with low bone mineral density (BMD) and high incidence of vertebral fractures (VFs). Postmenopausal women with osteoporosis have decreased total fat and lean mass. This study aimed to investigate the associations between body composition and VF risk and explore the potential predictor of VF risk in postmenopausal women. Methods: Enrolled 731 postmenopausal women were referred by various departments

and outpatient clinics to assess vertebral status between October 2016 and November 2017. The main measures were total body lean mass, fat mass, and BMD. Patients were divided into osteopenia, osteoporosis, and normal groups based on T-scores. Logistic regression analyses were performed to evaluate associations between body composition parameters and VF. Results: VF was significantly associated with increased age, lower height, and lighter weight in all participants, and higher BMI was observed in VF participants. Participants in the osteoporosis group were older and had lower height, weight, and BMD than those in normal and osteopenia groups. Femoral and total hip T-scores as well as T-scores for lumbar spine were significantly lower in participants with VF than in non-VF participants. Percentage of bone mass was also significantly lower in VF participants compared to that of non-VF participants. Women with increased BMD and lower bone mass had reduced odds for VF occurrence. Bone mass was significantly able to identify VF occurrence. Conclusions: Body composition analysis discerns differences in the bone status of postmenopausal women with and without VF. The cutoff value of the bone mass might be used effectively as an indicator of risk for VF occurrence.

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### **Efficacy of CO 2 laser treatment in postmenopausal women with vulvovaginal atrophy: a meta-analysis**

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Objective: Vulvovaginal atrophy (VVA) is a disorder that occurs in postmenopausal women. This study was to explore the efficacy of CO<sub>2</sub> laser treatment in postmenopausal VVA women. Method: PubMed, Embase, Cochrane Library and Web of Science were searched to June 9th, 2020. Prospective studies on the efficacy of CO<sub>2</sub> laser treatment were included. Two researchers independently reviewed articles and extracted data. Heterogeneity test was conducted for each outcome indicator. Sensitivity analysis was performed in all models. Results: Twelve literatures including 459 participants were enrolled. Compared to baseline, VHIs were significantly higher at 1-, 3-, 6-, and 12-month follow-ups (P<0.001). For VVA severity, VAS scores in vaginal dryness at 1-, 3-, 6-, and 12-month follow-ups (P<0.050), in vaginal burning, itching and dysuria at 1-month follow-up (P<0.001), and in dyspareunia at 1-, 3-, 6-, and 12-month follow-ups (P<0.001) were all significantly lower. For FSFI, total scores at 1-, 3-, 6-, and 12-month follow-ups (P<0.001), and the scores in desire, arousal, lubrication, orgasm, satisfaction, and pain at 1-month follow-up (P<0.050) were all significantly higher. For QoL, PCS12 and MCS12 scores were all significantly higher (P<0.050) at 1-month follow-up. Conclusion: CO<sub>2</sub> laser treatment may be effective for post-menopausal women with VVA symptoms in improving QoL and sexual function.

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### **Obesity, metabolic syndrome, and cancer: pathophysiological and therapeutic associations**

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Overweight, obesity, and metabolic syndrome (MetS) have become epidemic conditions affecting 39%, 13%, and 20% of the population respectively. The aim of this article is to review the literature on the association of obesity and MetS with the risk of cancer. We also explore the effect of lifestyle modifications, such as diet, physical activity, and antidiabetic medications, on cancer incidence. Increased body mass index (BMI) has been associated with a multitude of site-specific cancers, reaching relative risk (RR) 1.54 [95% confidence interval (CI) 1.47-1.61] per 5 unit increase for endometrial cancer, as well as with overall cancer risk (RR 1.03, 95% CI 1.02-1.05). Central adiposity measured by waist circumference or waist-to-hip ratio has been suggested as a stronger predictor than BMI for several cancers, such as colorectal cancer. Metabolic Syndrome has been consistently and positively associated with the risk of very common cancers like colorectal (RR 1.34, 95% CI 1.24-1.44), endometrial (RR 1.62, 95% CI 1.26-2.07) and postmenopausal breast cancer (RR 2.01, 95% CI 1.55-2.60). Hyperglycemia and subsequently T2DM have been also shown to increase the risk of cancer. Nevertheless, these risk factors are modifiable and therefore implementing lifestyle modifications could prevent an important number of cancer cases. Adherence to cancer prevention guidelines, including maintaining a healthy weight, having regular physical exercise (RR 0.58-0.90 for different site specific cancers) and following a healthy dietary pattern (RR 0.74-0.94 for different site specific cancers) have a protective effect on the risk of cancer. The strength of this review is the presentation of the best evidence, as the data derive mainly from meta-analyses. Public health policies should focus on the modification of risk factors and future research

is needed to reveal the pathophysiological links between these risk factors and cancer to develop more efficient prevention and treatment strategies.

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### **The effect of different training frequency on bone mineral density in older adults. A comparative systematic review and meta-analysis**

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Exercise frequency is a key aspect of exercise protocols. In this systematic review and meta-analysis, we determined the effect of training frequency on (areal) bone mineral density (BMD) at lumbar spine (LS) and hip. Reviewing seven electronic databases up to April 2021, we conducted a systematic review of the literature according to the PRISMA statement. Inclusion criteria were (a) controlled exercise trials (b) with at least two study arms that compared low versus high exercise frequency, (c) an intervention  $\geq 6$  months and (d) BMD assessments at lumbar spine (LS) or hip. The analysis was conducted as a mixed-effect meta-analysis and used "type of exercise" and "study duration" as moderators in subgroup analyses. Standardized mean differences (SMD) for LS- and hip-BMD changes were defined as outcome measures. Seven studies with 17 exercise groups were included in the analysis. We observed significantly higher effects of high ( $\geq 2$  sessions/week) vs. low net training frequency (1- $< 2$  sessions/week) exercise on LS- (SMD 0.55, 95%-CI: 0.20-0.90) but not hip-BMD (0.19, -0.06 to 0.45). Study duration was found to be a significant moderator for the effect of training frequency at LS- but not hip-BMD. In parallel, the type of exercise moderately influences the effect of training frequency on LS- but not on hip-BMD. We observed a superior effect of higher net training frequency on BMD. Longer exercise exposition increases this effect. Considering e.g. holidays, indisposition or other temporary absence, exercise programs on osteoporosis should provide at least 3 sessions/week/year to allow a net training frequency of more than two sessions/week.

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### **The Effects of Diet and Exercise on Endogenous Estrogens and Subsequent Breast Cancer Risk in Postmenopausal Women**

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Endogenous estrogens have been associated with overall breast cancer risk, particularly for postmenopausal women, and ways to reduce these estrogens have served as a primary means to decrease overall risk. This narrative review of clinical studies details how various nutritional and exercise lifestyle interventions have been used to modify estrogen levels and metabolism to provide a protective impact against breast cancer incidence. We also summarized the evidence supporting the efficacy of interventions, outcomes of interest and identified emerging research themes. A systematic PubMed MEDLINE search identified scholarly articles or reviews published between 2000-2020 that contained either a cohort, cross-sectional, or interventional study design and focused on the relationships between diet and/or exercise and overall levels of different forms of estrogen and breast cancer risk and occurrence. Screening and data extraction was undertaken by two researchers. Data synthesis was narrative due to the heterogeneous nature of studies. A total of 1625 titles/abstracts were screened, 198 full texts reviewed; and 43 met eligibility criteria. Of the 43 studies, 28 were randomized controlled trials, and 15 were observational studies. Overall, studies that incorporated both diet and exercise interventions demonstrated better control of detrimental estrogen forms and levels and thus likely represent the best strategies for preventing breast cancer development for postmenopausal women. Some of the strongest associations included weight loss via diet and diet + exercise interventions, reducing alcohol consumption, and consuming a varied dietary pattern, similar to the Mediterranean diet. More research should be done on the effects of specific nutritional components on endogenous estrogen levels to understand the effect that the components have on their own and in combination within the diet.

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### **Prevalence of pre-sarcopenia among postmenopausal women younger than 65 years**

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Objective: Sarcopenia is associated with high morbidity and mortality in older women. Early detection and intervention during the postmenopausal period were hypothesized to help maintain muscle mass and performance. Although the

Asian Working Group has developed guidelines for sarcopenia management, the condition has not been sufficiently investigated in the middle-aged cohort of the Asian population. This study aimed to measure the prevalence of pre-sarcopenia and sarcopenia in middle-aged postmenopausal women and to determine the factors associated with low muscle mass. Methods: In this cross-sectional study conducted in the Menopause Clinic, King Chulalongkorn Memorial Hospital, we used the bioelectrical impedance analysis method to determine the appendicular muscle mass using a body composition analyzer (TANITA MC980 Plus). Appendicular muscle mass index, handgrip strength, and 6-m gait speed were measured in 340 women aged 45 to 65 years. Hormonal profiles, anthropometric data, and relevant history were recorded. Results: The mean age of the study participants and time since menopause were  $57.8 \pm 4.5$  years and  $9.4 \pm 5.5$  years, respectively. The proportion of pre-sarcopenic, sarcopenic, and nonsarcopenic women were 11.8%, 2.7%, and 85.6%, respectively. A body mass index  $\leq 20$  kg/m<sup>2</sup> had the strongest correlation with low muscle mass (odds ratio 7.1; 95% confidence interval 3.0-16.8,  $P < 0.001$ ). Conclusion: Nearly 12% of Thai middle-aged postmenopausal women were pre-sarcopenic. Early detection of symptoms of pre-sarcopenia and maintenance of a healthy body mass index may reduce the burden of this condition for middle-aged and older women.