

## Selección de Resúmenes de Menopausia

Semana del 12 a 18 de julio, 2023

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**J Orthop Surg Res. 2023 Jul 15;18(1):501. doi: 10.1186/s13018-023-03976-2.**

### **Association between physical activity and bone mineral density in postmenopausal women: a cross-sectional study from the NHANES 2007-2018**

Jiazhong Ji 1, Yue Hou 2, Zhaoyang Li 1, Ying Zhou 3, Huaming Xue 1, Tao Wen 1, Tao Yang, Long Xue, et al.

Background: Physical activity (PA) is generally encouraged for the treatment of osteoporosis. However, epidemiological statistics on the level of physical activity required for bone health are scarce. The purpose of this research was to analyze the association between PA and total spine bone mineral density (BMD) in postmenopausal women. Methods: The research study included postmenopausal women aged  $\geq 50$  from the National Health and Nutrition Examination Survey. The metabolic equivalent (MET), weekly frequency, and duration of each activity were used to calculate PA. Furthermore, the correlations between BMD and PA were investigated by multivariable weighted logistic regression. Results: Eventually, 1681 postmenopausal women were included, with a weighted mean age of  $62.27 \pm 8.18$  years. This study found that performing  $\geq 38$  MET-h/wk was linked to a lower risk of osteoporosis after controlling for several covariates. Furthermore, the subgroup analysis revealed that the connection between total spine BMD and moderate-to-vigorous PA was more obvious among postmenopausal women aged  $< 65$  years or individuals with normal BMI ( $< 25$  kg/m<sup>2</sup>). Conclusion: Physical activity ranging from moderate to vigorous was linked to higher total spine BMD in postmenopausal women.

**BMC Endocr Disord. 2023 Jul 14;23(1):151. doi: 10.1186/s12902-023-01380-9.**

### **Klotho reduces the risk of osteoporosis in postmenopausal women: a cross-sectional study of the National Health and Nutrition Examination Survey (NHANES)**

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Background: Osteoporosis (OP) is one of the diseases that endanger the health of the elderly population. Klotho protein is a hormone with anti-aging effects. A few studies have discussed the relationship between Klotho and OP. However, there is still a lack of research on larger populations. This study aims to evaluate the association between OP and Klotho in American postmenopausal women. Methods: This is a retrospective study. We searched the National Health and Nutrition Examination Survey (NHANES) database and collected data of 3 survey cycles, finally involving 871 postmenopausal women over 50 years old in the present study. All participants took dual-energy X-ray absorptiometry examination and serum Klotho testing at the time of investigation. After adjusting the possible confounding variables, a multivariate regression model was employed to estimate the relationship between OP and Klotho proteins. Besides, the P for trend and restricted cubic spline (RCS) were applied to examine the threshold effect and calculate the inflection point. Results: Factors influencing the occurrence of OP included age, ethnicity, body mass index and Klotho levels. Multivariate regression analysis indicated that the serum Klotho concentration was lower in OP patients than that in participants without OP (OR[log<sub>2</sub>Klotho] = 0.568, P = 0.027). The C-index of the prediction model built was 0.765, indicating good prediction performance. After adjusting the above-mentioned four variables, P values for trend showed significant differences between groups. RCSs revealed that when the Klotho concentration reached 824.09 pg/ml, the risk of OP decreased drastically. Conclusion: Based on the analysis of the data collected from the NHANES database, we propose a correlation between Klotho and postmenopausal OP. A higher serum Klotho level is related to a lower incidence of OP. The findings of the present study can provide guidance for research on diagnosis and risk assessment of OP.

**Neurourol Urodyn. 2023 Jul 14. doi: 10.1002/nau.25244. Online ahead of print.**

### **A randomized trial comparing vaginal laser therapy and pelvic floor physical therapy for treating women with stress urinary incontinence**

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**Objective:** To compare the use of laser therapy and pelvic floor (PF) physical therapy for treating postmenopausal women with SUI. **Methods:** This pilot study enrolled 40 women with a clinical and urodynamic diagnosis of SUI who were randomized into two groups: those who received erbium-doped yttrium-aluminum-garnet (Er:YAG) laser therapy implemented over three sessions with a 1-month interval ( $n = 20$ ) and those who received physical therapy with supervision twice a week for 3 months ( $n = 20$ ). In total, 16 women completed the treatment in each group. The patients were assessed for PF function using the modified Oxford scale and for pelvic organ prolapse using the Pelvic Organ Prolapse Quantification System. The 1-h pad test and quality of life questionnaires, King's Health Questionnaire (KHQ), and Incontinence Quality of Life (IQOL) were also administered. Patients were re-evaluated at 1, 3, 6, and 12 months after treatment. **Results:** The mean patient age was  $62.7 \pm 9.1$  and  $57.9 \pm 6.1$  years, median Oxford score at baseline was 3 (2-4.5) and 4 (3-4), mean IQOL score was  $79.8 \pm 17$  and  $74.6 \pm 18$  for physical therapy group (PTG) and laser group (LG), respectively. For the amount of urine leak in the 1-h pad test evaluation, we found significance for the interaction of group and time points only for the Laser intragroup. The cure rate, that is, the rate of reaching an insignificant score in the pad test, at 6 and 12 months was 43.75% and 50% in PTG and 62.5% and 56.25% in the LG, respectively ( $p > 0.05$ ). IQOL scores demonstrated considerable improvement in both groups ( $p > 0.05$ ). Upon comparing the initial and follow-up results, the LG showed an improvement at all consultations, whereas the PTG showed improvements at 1, 3, and 6 months but not at 12 months after treatment. KHQ analysis revealed a considerable improvement in the quality of life (QOL) of patients over time, with no substantial difference between the groups. QOL comparison before and after treatment revealed that the vaginal LG improved more consistently in some domains. Only the PTG showed a significant increase in the mean Oxford score from pretreatment to 1 and 3 months after treatment ( $p < 0.001$  and  $p = 0.002$ , respectively). However, no statistically significant difference was observed between the groups. **Conclusion:** Both treatments are safe and have a positive influence on the impact of UI on patients' QOL. The laser caused a greater reduction in the urinary loss, as measured using the weight of pad test, at 6-month and 12-month after treatment without difference with PTG at the end of the follow-up.

**J Clin Med. 2023 Jun 30;12(13):4435. doi: 10.3390/jcm12134435.**

## **Association between Menopause, Postmenopausal Hormone Therapy and Metabolic Syndrome**

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**Background:** We aimed to explore the associations between menopause, postmenopausal hormone therapy, and metabolic syndrome in a large community-based group of Asian women. **(2) Methods:** This is a cross-sectional study in which we enrolled women aged 30 to 70 years with sufficient information about menopausal status from the Taiwan Biobank. The definition for metabolic syndrome used in this study aligns with the Bureau of Health Promotion's (Taiwan) proposed definition. **(3) Results:** A total of 17,460 women were recruited. The postmenopausal group had a higher metabolic syndrome prevalence (30% vs. 14%) and 1.17 times higher odds ratio (OR) than the premenopausal group (95% confidence interval [CI] = 1.02 to 1.33). Regarding the types of menopause, surgical menopause was associated with metabolic syndrome (OR = 1.40; 95% CI = 1.20 to 1.63); however, natural menopause was not associated with metabolic syndrome. Interestingly, postmenopausal hormone therapy was associated with a lower risk of metabolic syndrome in the women with natural menopause (OR = 0.79; 95% CI = 0.70 to 0.89), but not in those with surgical menopause. **(4) Conclusions:** Our results suggest that menopause is associated with an increased prevalence of metabolic syndrome, while postmenopausal hormone therapy is associated with a lower prevalence of metabolic syndrome in women with natural menopause.

**J Womens Health (Larchmt). 2023 Jul 12. doi: 10.1089/jwh.2023.0189. Online ahead of print.**

## **Premature Menopause and All-Cause Mortality and Life Span Among Women Older Than 40 Years in the NHANES I Epidemiologic Follow-Up Study: Propensity Score Matching Analysis**

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**Objective:** Findings from studies of the long-term effect of premature menopause on risks of all-cause mortality in women are equivocal. We used the approach of propensity score matching to examine the causal association of premature menopause with all-cause mortality and life span among women older than 40 years. **Methods:** The data were from the National Health and Nutrition Examination Survey I Epidemiologic Follow-up Study. We calculated the propensity score of premature menopause using a logistic regression model, then matched premature menopause

with nonpremature menopause according to the score and the ratio of 1:1. We estimated mortality hazard ratios (HRs) and 95% confidence intervals (CIs) using Cox proportional hazard models. We also analyzed and plotted the relationship between age at menopause and reproductive life span with all-cause mortality and life span. Results: The mean age of 1,210 women was  $55.4 \pm 10.8$  years at baseline. The unadjusted and adjusted HRs of all-cause mortality for women with premature menopause were 1.46 (95% CI: 1.08-1.96) and 1.53 (95% CI: 1.13-2.08), respectively, compared to nonpremature menopause. Nonlinear associations were found between age at menopause, reproductive life span, all-cause mortality, and life span. Menopausal age <37.5 years of age or reproductive life span <24 years increased the risk of all-cause mortality. Women with menopausal age <39 years of age or reproductive life span <24 years had a lower mean life span than the overall average of 76 years. Conclusions: Premature menopause significantly increased all-cause mortality risk and shortened life span in women. As women's age at menopause or reproductive life span increases, their overall life span also tends to increase.

**Eur J Endocrinol. 2023 Jul 12;lvad077. doi: 10.1093/ejendo/lvad077. Online ahead of print.**

### **Women with PCOS have an increased risk for cardiovascular disease regardless of diagnostic criteria - a prospective population-based cohort study**

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Objective: Polycystic ovary syndrome (PCOS) is associated with many cardiovascular disease (CVD) risk factors, such as obesity, type 2 diabetes mellitus and hypertension. However, it remains debatable whether the presence of multiple CVD risk factors translates to increased CVD events. Design: A prospective, population-based Northern Finland Birth Cohort 1966. Methods: Individuals with an expected date of birth in 1966 in Northern Finland have been followed from birth. Women in the cohort were classified as having PCOS according to either the National Institute of Health (NIH) criteria (n=144) or the Rotterdam criteria (n=386) at age 31, and they were compared to women without any PCOS features. The study population was re-examined at age 46, and the incidence of major adverse cardiovascular events (MACE), including myocardial infarction (MI), stroke, heart failure and cardiovascular mortality, was recorded up to age 53. Results: During the 22-year follow-up, both women with NIH-PCOS and women with Rotterdam-PCOS had a significantly higher risk for cardiovascular events than control women. The BMI-adjusted hazard ratio (HR) for MACE in the Rotterdam-PCOS group and the NIH-PCOS group was 2.33 (1.26-4.30) and 2.47 (1.18-5.17), respectively. The cumulative hazard curves in both diagnostic categories began to diverge at age 35. Regarding the individual CVD endpoints, MI was significantly more prevalent in both women with NIH-PCOS (p=0.010) and women with Rotterdam-PCOS (p=0.019), when compared to control women. Conclusions: PCOS should be considered a significant risk factor for CVD. Future follow-up will show how the risk of CVD events develops after menopausal age.

**Mol Neurobiol. 2023 Jul 10. doi: 10.1007/s12035-023-03424-6. Online ahead of print.**

### **Women's Brain Health: Midlife Ovarian Removal Affects Associative Memory**

Alana Brown 1, Nicole J Gervais 2, Jenny Rieck 2, Anne Almey 3, Laura Gravelins 3, Rebekah Reuben 3, et al.

Women with early bilateral salpingo-oophorectomy (BSO; removal of ovaries and fallopian tubes) have greater Alzheimer's disease (AD) risk than women in spontaneous/natural menopause (SM), but early biomarkers of this risk are not well-characterized. Considering associative memory deficits may presage preclinical AD, we wondered if one of the earliest changes might be in associative memory and whether younger women with BSO had changes similar to those observed in SM. Women with BSO (with and without 17 $\beta$ -estradiol replacement therapy (ERT)), their age-matched premenopausal controls (AMC), and older women in SM completed a functional magnetic resonance imaging face-name associative memory task shown to predict early AD. Brain activation during encoding was compared between groups: AMC (n=25), BSO no ERT (BSO; n=15), BSO+ERT (n=16), and SM without hormone therapy (n=16). Region-of-interest analyses revealed AMC did not contribute to functional group differences. BSO+ERT had higher hippocampal activation than BSO and SM. This hippocampal activation correlated positively with urinary metabolite levels of 17 $\beta$ -estradiol. Multivariate partial least squares analyses showed BSO+ERT had a different network-level activation pattern than BSO and SM. Thus, despite being approximately 10 years younger, women with BSO without ERT had similar brain function to those with SM, suggesting early 17 $\beta$ -estradiol loss may lead to an altered functional brain phenotype which could influence late-life AD risk, making face-name encoding a potential biomarker for midlife women with increased AD risk. Despite similarities in activation, BSO and SM groups showed opposite within-hippocampus connectivity, suggesting menopause type is an important consideration when assessing brain function.