Osteoporosis and Osteopenia Among Patients With Type 2 Diabetes Aged ≥50: Role of Sex and Clinical Characteristics.

INTRODUCTION/BACKGROUND: Although some studies have explored the association of adiposity and life habits (such as smoking) with osteoporosis and osteopenia among type 2 diabetes mellitus (T2DM) patients, the association between diabetic clinical characteristics (especially hypoglycemic drug use) and osteoporosis/osteopenia remains unclear. This study aimed to investigate the relationship of clinical characteristics with osteoporosis and osteopenia among T2DM patients by sex.

METHODS: A total of 1222 T2DM patients aged ≥50 were included in the present study. Information on demographic, anthropometric and clinical characteristics was collected from medical records. Bone mineral density was assessed by dual-energy X-ray absorptiometry densitometer. Multiple adjusted logistic regression analyses were performed to estimate the odds ratio (OR) and 95% confidence interval (CI) of osteoporosis and osteopenia related to clinical characteristics.

RESULTS: Of all participants, the prevalence of osteoporosis and osteopenia was 9.2% and 41.3%, respectively, and they were higher in females (14.7% and 48.5%) than in males (2.8% and 33%). After adjustment for potential confounders, the results showed that overweight (OR = 0.59; 95% CI, 0.42-0.81) and obesity (OR = 0.35; 95% CI, 0.24-0.50) were related to decreased odds of osteoporosis and osteopenia in both male and female T2DM patients, poor glycemic control (OR = 1.63; 95% CI, 1.08-2.47) was associated with increased odds of osteoporosis and osteopenia in males, and metformin treatment (OR = 0.65; 95% CI, 0.43-0.99) was associated with decreased odds of osteoporosis and osteopenia in females.

CONCLUSIONS: Better glycemic management and rational choice of antidiabetic medication might be promising to prevent osteoporosis in T2DM patients. Further longitudinal studies are warranted to explore the association between antidiabetic treatment and osteoporosis.

Is There Enough Evidence for Osteosarcopenic Obesity as a Distinct Entity? A Critical Literature Review.

The co-existence of impaired bone health (osteopenia/osteoporosis), reduced muscle mass and strength (sarcopenia), and increased adiposity (obesity) in middle-aged and older people has been identified in recent studies, leading to a proposal for the existence of "osteosarcopenic obesity" as a distinct entity. Evidence for the pathophysiological overlap of these conditions is mounting, although a causal relationship is yet to be established. Each component condition occurs frequently with increasing age, and with shared risk factors in many instances, thus, an overlap of these three conditions is not surprising. However, whether the concurrent existence of sarcopenia, osteoporosis and obesity leads to an increased risk of adverse musculoskeletal outcomes and mortality above and beyond the risks associated with the sum of the component parts remains to be proven and is a question of research interest. In this article, we review evidence for the existence of osteosarcopenic obesity including the current operational definition of osteosarcopenic obesity, prevalence, pathophysiology, outcomes and exploratory approaches to the management of components. We conclude that, there is insufficient evidence to support a discrete clinical entity of osteosarcopenic obesity at this time. To expand knowledge and understanding in this area, there is a need for consensus on a definition of osteosarcopenic obesity which will allow for identification, further epidemiological studies and comparisons between studies. Additionally, studies should assess whether the clinical outcomes associated with osteosarcopenic obesity are worse than the mere addition of those linked with its components. This will help to determine whether defining a person as having this triad will eventually result in a more effective treatment than addressing each of the three conditions separately.

Is There Enough Evidence for Osteosarcopenic Obesity as a Distinct Entity? A Critical Literature Review.

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The Impact of Aerobic Exercise on Female Bone Health Indicators.
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Introduction: Females usually suffer from bone health problems, particularly with aging. Aerobic exercise has been shown to have health benefits for females. Aim: The main objective of this study was to investigate the impact of aerobic exercise on female bone health by measuring serum trace elements and bone metabolism markers. Methods: Prospective interventional study was conducted at rehabilitation clinics in Royal Medical Services, Jordan. A total of 65 female participants were included. Participants were assigned into three groups: control group (N = 20), osteopenic group (N = 22), and osteoporotic group (N = 23). A standard aerobic exercise protocol was followed for 12 weeks. Endurance exercise protocol involved three sessions weekly for 60 minutes each. At basal level and after the experiment, the following parameters were assessed: body mass index (BMI), bone-specific alkaline phosphatase (BAP), T-score, bone mineral density (BMD), and calcium. The analysis of data was carried out using SPSS version 21. The difference in means was computed based on t-test. Significance was considered at p < 0.05. Results: Aerobic training exercise improved the levels of all parameters in all groups for both sexes significantly, including BMI, BAP, T-score, BMD, and calcium (p < 0.05). Conclusion: Aerobic training exercise improves bone health and restores the hemostasis of bone tissue by restoring bone biomarkers, including BAP and calcium.

Symptom severity and quality of life in the management of vulvovaginal atrophy in postmenopausal women.
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OBJECTIVES: To evaluate the association between treatments for vulvovaginal atrophy (VVA) and symptom frequency and severity, quality of life (QoL) and sexual functioning in postmenopausal women. STUDY DESIGN: Cross-sectional survey conducted in postmenopausal women aged 45-75 years. Data on demographic and clinical variables, as well as vaginal, vulvar and urinary symptoms were collected. The EuroQoL questionnaire (EQ5D3L), the Day-to-Day Impact of Vaginal Aging (DIVA), the Female Sexual Function Index (FSFI) and the Female Sexual Distress Scale - revised (FSDS-R) were filled out. MAIN OUTCOME MEASURES: Association between treatments for VVA and symptom frequency. RESULTS: Women on VVA treatment presented with more severe symptoms. The sexual function score was higher in the treated women (FSFI: 15.6 vs 16.7; p = 0.010), as was the score for sexual distress (FSDS-R: 9.2 vs 12.3, p < 0.0005). The systemic hormone group presented with fewer VVA symptoms, lower vaginal impact (DIVA), and better sexual function (FSFI and FSDS-R) and vaginal health. The rates of sexual distress and vulvar atrophy were higher in the non-hormonal treatment group. No significant differences were found according to treatment duration. CONCLUSIONS: Postmenopausal women with VVA receiving treatment complained of more severe symptoms than those untreated. Women on systemic treatment had fewer and milder VVA symptoms and presented with better vaginal and vulvar health than women on other treatments. Many women request effective local treatment too late, when VVA symptoms are already severe. Our data suggest that VVA treatments should ideally be initiated when symptoms commence and cause distress, rather than later, when symptoms may have become more severe and even a cause of intolerable distress for the woman.

Tubal Ligation and Age at Natural Menopause.
Ainsworth AJ, Baumgarten SC, Bakkum-Gamez JN, Vachon CM, Weaver AL, Laughlin-Tommaso SK.
OBJECTIVE: To determine the effect of tubal ligation on age at natural menopause, as a marker of long-term ovarian function. METHODS: Three preexisting population-based cohorts were included in this cross-sectional study. Data from each cohort was analyzed separately. The cohorts were restricted to women who never smoked and had reached natural menopause, without prior hysterectomy or oophorectomy. The following variables were collected: race, age at menarche, age at menopause, history of hysterectomy or oophorectomy, gravidity and parity, tobacco use, and ever use of hormonal contraception. The type of tubal ligation and age at tubal ligation were manually abstracted in cohort 1. For cohorts 2 and 3, history of tubal ligation was obtained from an institutional form, completed by patient report. The primary outcome, age at natural menopause, was compared between the two groups (those with and without a history of tubal ligation). RESULTS: Inclusion criteria was met by 555 women from cohort 1, 1,816 women from cohort 2, and 1,534 women from cohort 3. Baseline characteristics did not differ between cohorts. The percentage with tubal ligation was the same in all cohorts: 26.0%, 25.5%, and 25.0%, respectively. Women with a tubal ligation were
more likely to have had at least one pregnancy and to have used hormonal contraception compared with women without a tubal ligation. There was no significant difference in age at natural menopause in women who underwent tubal ligation (50.1, 49.9, 50.0 years, respectively) compared with those who did not (50.7, 49.6, 50.0 years, respectively). The type of tubal ligation (cohort 1 only) had no effect on age at menopause. CONCLUSIONS: Tubal ligation did not affect age at natural menopause in the three large cohorts included in this study.

**Prevalence of sarcopenia and associated factors in climacteric women of the Colombian Caribbean.**

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OBJECTIVE: The aim of the study was to determine the prevalence of sarcopenia and associated factors in climacteric middle-aged women. METHODS: This was a cross-sectional study carried out in Colombian Caribbean women (40-59 y, n=403), who were surveyed with a form that included sociodemographic information and two validated tools (the Menopause Rating Scale and the SF-36 Health questionnaire). Calf circumference, handgrip, and gait speed were measured. Low muscle mass (calf circumference <31 cm), reduced muscle strength (<20 kg in handgrip), and lower physical performance (<0.8 m/s gait speed) were estimated. Criteria of the European Working Group on Sarcopenia in Older People were used to identify sarcopenia. Association between sarcopenia (dependent variable) and menopausal symptoms and health perception (independent variables) was estimated. RESULTS: Median age of surveyed women was 48 years, with 44.5% being postmenopausal. 9.6% had low muscle mass, 18.1% had reduced muscle strength, and 6.9% had lower physical performance. Presarcopenia was identified in 9.6% and sarcopenia in 7.9% (nonsevere sarcopenia 7.1% and severe sarcopenia 0.8%). Most important factors associated with sarcopenia were feeling full of life only sometimes, feeling a lot of energy only sometimes, having joint/muscular discomfort, history of hysterectomy, hot flashes, mestizo ethnic group, age 50 or more, being postmenopausal, and sleep problems. CONCLUSIONS: Sarcopenia was present in this middle-aged female Colombian Caribbean sample and associated with various factors such as ethnicity, age, and menopausal symptoms and status.

**The associations between menopausal symptoms and sleep quality in Spanish postmenopausal women.**

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OBJECTIVES: Around the menopause, sleep disturbances frequently occur or worsen and are associated with decreased health quality and physical and psychological problems. The aim of this study was to analyze sleep quality and its association with the impact of menopausal symptoms in Spanish postmenopausal women. METHODS: A total of 278 postmenopausal women (age 60.95 ± 8.01 years) participated in this cross-sectional study. The Medical Outcomes Study Sleep Scale (MOS-SS) and the Menopause Rating Scale (MRS) were used to analyze sleep quality and severity of menopausal symptoms, respectively. Anxiety and depression were measured using the Hospital Anxiety and Depression Scale. RESULTS: The linear regression showed that a greater impact of menopausal symptoms (MRS total score) was associated with worse scores regarding sleep adequacy (p < 0.001, R² = 0.056), snoring (p = 0.020, R² = 0.036), awaken short of breath (p < 0.001, R² = 0.089), and quantity of sleep (p < 0.001, R² = 0.075) domains. Anxiety (p < 0.001) and worse somatic symptoms (p = 0.001) were related to greater sleep disturbances (R² = 0.164). We also found relationships of heightened psychological symptoms (p < 0.001) and low physical activity level (p = 0.003) with increased daytime somnolence (R² = 0.064). Finally, higher MRS total score and anxiety levels were associated with worse sleep quality assessed by MOS-SS Sleep Problems Index I (R² = 0.179, p < 0.001 and p = 0.001, respectively) and Sleep Problems Index II (R² = 0.146, p < 0.001 and p = 0.011, respectively). CONCLUSIONS: Anxiety and severity of menopausal symptoms were associated with poorer sleep quality. Furthermore, low physical activity level and worse psychological symptoms in menopause were predictors for increased somnolence. Therefore, screening for these factors in postmenopausal women is important, since they may be susceptible for intervention.