Selección de Resúmenes de Menopausia

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Role of Physical Activity in Bone-Muscle Crosstalk: Biological Aspects and Clinical Implications

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Bone and muscle tissues influence each other through the integration of mechanical and biochemical signals, giving rise to bone-muscle crosstalk. They are also known to secrete osteokines, myokines, and cytokines into the circulation, influencing the biological and pathological activities in local and distant organs and cells. In this regard, even osteoporosis and sarcopenia, which were initially thought to be two independent diseases, have recently been defined under the term "osteosarcopenia", to indicate a synergistic condition of low bone mass with muscle atrophy and hypofunction. Undoubtedly, osteosarcopenia is a major public health concern, being associated with high rates of morbidity and mortality. The best current defence against osteosarcopenia is prevention based on a healthy lifestyle and regular exercise. The most appropriate type, intensity, duration, and frequency of exercise to positively influence osteosarcopenia are not yet known. However, combined programmes of progressive resistance exercises, weight-bearing impact exercises, and challenging balance/mobility activities currently appear to be the most effective in optimising musculoskeletal health and function. Based on this evidence, the aim of our review was to summarize the current knowledge about the role of exercise in bone-muscle crosstalk, highlighting how it may represent an effective alternative strategy to prevent and/or counteract the onset of osteosarcopenia.

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T-Score and Handgrip Strength Association for the Diagnosis of Osteosarcopenia: A Systematic Review and Meta-Analysis

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Background: Osteosarcopenia is a recently identified condition caused by the coexistence of osteoporosis and sarcopenia that affects the frail elderly population, leading to an increased risk of falls and fractures. Given the recent socio-economic interest associated with osteosarcopenia, the aim of this meta-analysis is to provide an overview of the factors potentially involved in its pathogenesis, assessing its population type, prevalence, and associated variables. Methods: A comprehensive systematic search for relevant studies, published from 2015 to 2020, was performed by using PubMed, EMBASE, and Cochrane databases. We analysed the variables of age, vitamin D, handgrip, and T-score in four different groups: healthy, osteopenic-osteoporotic, sarcopenic, and osteosarcopenic. Results: A total of 6504 patients from 16 studies were included in the final meta-analysis. The analysis of the individual variables reveals a statistically significant correlation between the handgrip test data and T-score ($p < 0.001$). Conclusions: The correlation between T-score values and handgrip strength suggests a new potential parameter in the development of predictive models that could be used in clinical practice, highlighting its importance for the diagnosis of osteosarcopenia.

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Online assessment of the perception of loneliness and associated factors in Colombian climacteric women during the COVID-19 pandemic: A cross-sectional study

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Background: The coronavirus disease 2019 (COVID-19) pandemic has generated changes due to confinement, this measure can increase the perception of loneliness. The objective was to estimate the frequencies of emotional, social and general loneliness and their association with fear and anxiety with COVID-19, religiosity and severe deterioration

of quality of life in middle-aged women. Methods: A cross-sectional study in Colombian women (40-59 y, n=984) surveyed with an electronic form that included sociodemographic characteristics and validated measures (Menopause Rating Scale, de Jong Gierveld Loneliness Scale, fear of COVID-19 scale, Coronavirus Anxiety Scale and Francis Scale for Religiosity). Associations of emotional, social and general loneliness (dependent variables) with severe somatic, psychological, urogenital and quality of life deterioration, as well as with high religiosity, anxiety and high fear of COVID-19 (independent variables), were estimated. Results: The median age was 47 years old, and 39.2% [95% CI: 36.2-42.3] postmenopausal. Severe deterioration in somatic, psychological, urogenital domains and quality of life in women with emotional, social and general loneliness was found (P <0.001). In adjusted models, high fear of COVID-19, severe deterioration of psychological and urogenital domains and quality of life were associated with emotional, social and general loneliness. Anxiety with COVID-19, somatic domain and high religiosity were not associated with loneliness. Conclusion: Emotional, social and general loneliness were identified in 4/10 middle-aged Colombian women surveyed, and the associated factors were high fear of COVID-19, severe deterioration of quality of life and psychological and urogenital domains. Professionals who care for climacteric women should explore the perception of loneliness when assessing menopausal symptoms.

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Aging and menopause reprogram osteoclast precursors for aggressive bone resorption

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Women gradually lose bone from the age of ~35 years, but around menopause, the rate of bone loss escalates due to increasing bone resorption and decreasing bone formation levels, rendering these individuals more prone to developing osteoporosis. The increased osteoclast activity has been linked to a reduced estrogen level and other hormonal changes. However, it is unclear whether intrinsic changes in osteoclast precursors around menopause can also explain the increased osteoclast activity. Therefore, we set up a protocol in which CD14+ blood monocytes were isolated from 49 female donors (40-66 years old). Cells were differentiated into osteoclasts, and data on differentiation and resorption activity were collected. Using multiple linear regression analyses combining in vitro and in vivo data, we found the following: (1) age and menopausal status correlate with aggressive osteoclastic bone resorption in vitro; (2) the type I procollagen N-terminal propeptide level in vivo inversely correlates with osteoclast resorption activity in vitro; (3) the protein level of mature cathepsin K in osteoclasts in vitro increases with age and menopause; and (4) the promoter of the gene encoding the dendritic cell-specific transmembrane protein is less methylated with age. We conclude that monocytes are "reprogrammed" in vivo, allowing them to "remember" age, the menopausal status, and the bone formation status in vitro, resulting in more aggressive osteoclasts. Our discovery suggests that this may be mediated through DNA methylation. We suggest that this may have clinical implications and could contribute to understanding individual differences in age- and menopause-induced bone loss.

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Gender Bias in Cardiovascular Disease Prevention, Detection, and Management, with Specific Reference to Coronary Artery Disease

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Even though cardiovascular disease (CVD) kills more women than men each year and remains a leading cause of death in women, it is a common misconception that women are less likely to develop CVD. Considerable sex difference exists between men and women with regard to prevention, investigations, and management of CVD. Coronary artery disease (CAD) is a major contributor to CVD morbidity and mortality and hence is specifically addressed in this article. With an explosive increase in the incidence of conventional risk factors for coronary artery disease in India, there has been an alarming increase in women's coronary events as much as men. A false sense of gender-based protection by estrogen leads to less aggressive and late prevention or management strategies that contribute to women's CAD. Metabolic syndrome (MetS) is an important contributor to future development of CAD and is also an indicator for earlier interventions for prevention. Due to physical inactivity and central obesity, MetS is more prevalent in women, especially postmenopausal. With estrogen loss, menopause marks a critical cardiovascular biological transition, with a significantly increased CVD risk in women aged >55 years. Certain female-specific risk factors, such as history of polycystic ovarian syndrome, pregnancy-induced hypertension, and gestational diabetes, also seem to play an essential

role in the development of CVD in later life. Certain vascular and biological factors, such as smaller coronary vessel size, higher prevalence of small vessel disease, and lesser development of collateral flow, also play an important role. This review article is an attempt to provide important information on gender differences in CVD with specific emphasis on CAD.

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Discriminative ability of trabecular bone score over bone mineral density for vertebral and fragility fracture in patients treated with long-term and low-dose glucocorticoid

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Aim: To evaluate the ability of the trabecular bone score (TBS) to discriminate vertebral fracture (VF) and fragility fracture (FF) in patients with chronic inflammatory rheumatic diseases on long-term and low-dose glucocorticoid (GC) treatment and those without exposure to GC. Methods: This study assessed TBS and bone mineral density (BMD) in chronic GC users, defined as ≥2.5 mg/d of prednisone for >3 months (n = 89, mean age: 62.5 ± 11 years), and in controls (n = 59, mean age: 60.3 ± 9.6 years). Osteoporosis risk factors, radiographs of the thoracolumbar spine, non-VF history, osteoporosis drugs, and current/cumulative GC doses were collected. Patients were classified as high (TBS <1.23), intermediate (1.23-1.31), or low risk (>1.31), according to the fracture risk based on a recent meta-analysis. Results: The mean current dose and duration of GC treatment were 3.9 ± 1.9 mg/d and 3.9 ± 4.2 years, respectively. The prevalence of VF was significantly higher in chronic GC users than in controls (20.2% vs 5.1%, P = .010), although the prevalence of non-VF was similar (11.2% vs 5.1%). The GC group had significantly lower L1-L4 TBS and femur total BMD than did the controls (all with P < .01) without significantly different lumbar BMD. TBS (<1.31) showed a higher sensitivity for patients with VF and FF (83.3% and 81.8%, respectively) than with densitometric osteoporosis in the GC group (61.1% and 59.1%, respectively). Using the receiver operating characteristic curve, TBS <1.31 showed better diagnostic accuracy than TBS <1.23 and BMD in chronic GC users. Conclusion: TBS is more sensitive than BMD in detecting VF and FF in chronic GC users, even at a lower dose.

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Sleep Disturbances During the Menopausal Transition: The Role of Sleep Reactivity and Arousal Predisposition

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Background: Sleep disturbances are common during the menopausal transition and several factors can contribute to this increased incidence. This study examined the association between sleep reactivity, arousal predisposition, sleep disturbances, and menopause. Methods: Data for this study were derived from a longitudinal, population-based study on the natural history of insomnia. A total of 873 women (40-60 years) were divided into two groups according to their menopausal status at baseline: reproductive (n = 408) and postmenopausal (n = 465). Participants were evaluated annually throughout the five-year follow-up period. Four questionnaires were used to examine sleep quality, insomnia severity, sleep reactivity, and arousal predisposition. The data were analyzed using two approaches: cross-sectional with a multivariate analysis and binary regression, and longitudinal with a linear mixed models using menopausal groups (3) x time (5) design. Results: Cross-sectional analyses showed that postmenopausal women reported significantly more severe insomnia and poorer sleep quality than reproductive women. Sleep reactivity and arousal predisposition were significant predictors of sleep disturbances. Longitudinal analyses revealed increased sleep disturbances in the two years before and after the menopausal transition. Sleep reactivity and arousal predisposition did not moderate the temporal relationship between menopausal transition and sleep disturbances. Conclusion: More sleep disturbances were reported during the menopausal transition, but those difficulties were not explained by sleep reactivity and arousal predisposition. These results suggest the involvement of other psychophysiological factors in the development of sleep disturbances during the menopause.