



Selección de Resúmenes de Menopausia

Semana de 25 de septiembre a 1 de octubre , 2024

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Arch Gynecol Obstet. 2024 Sep 28. doi: 10.1007/s00404-024-07752-3. Online ahead of print. -24

Ovarian tissue cryopreservation and transplantation as a natural means to delay menopause

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Ovarian tissue cryopreservation and transplantation (OTCT) offers hope for preserving fertility and endocrine functions in patients undergoing gonadotoxic treatments. Advancements in techniques for the procedure have transformed OTCT from an experimental procedure into a viable option. There is a growing interest in utilizing OTCT to delay menopause and alleviate associated health issues. Menopausal transition affects women globally, leading to symptoms and long-term health risks. OTCT has the potential to restore endocrine functions, reducing menopause-related symptoms while mitigating health consequences such as osteoporosis and cardiovascular diseases. Although the use of OTCT for delaying menopause is not clinically proven, the discussion around shows potential for future utilization. In essence, the remarkable advancements in OTCT have bestowed upon us the ability to safeguard fertility and sustain the delicate endocrine functions of the ovaries. However, it is the tantalizing prospect of utilizing this technique to postpone menopause and alleviate its associated symptoms that truly captivates the imagination. Further research is imperative to substantiate the clinical efficacy of OTCT; nonetheless, its potential in menopausal therapy is both promising and warrants comprehensive exploration. This review highlights advancements and the feasibility of OTCT to postpone menopause as an alternative approach to currently used conventional menopause therapy methods.

Nutrients. 2024 Sep 16;16(18):3130. doi: 10.3390/nu16183130.

Effects and Mechanisms of Polyunsaturated Fatty Acids on Age-Related Musculoskeletal Diseases: Sarcopenia, Osteoporosis, and Osteoarthritis-A Narrative Review

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Background: The process of the globally aging population has been accelerating, leading to an increasing social burden. As people age, the musculoskeletal system will gradually go through a series of degenerative and loss of function and eventually develop age-related musculoskeletal diseases, like sarcopenia, osteoporosis, and osteoarthritis. On the other hand, several studies have shown that polyunsaturated fatty acids (PUFAs) possess various important physiological functions on the health of muscles, bones, and joints. Objective: This narrative review paper provides a summary of the literature about the effects and mechanisms of PUFAs on age-related musculoskeletal diseases for the prevention and management of these diseases. Methods: Web of Science, PubMed, Science Direct, and Scopus databases have been searched to select the relevant literature on epidemiological, cellular, and animal experiments and clinical evidence in recent decades with keywords "polyunsaturated fatty acids", "PUFAs", "omega-3", "omega-6", "musculoskeletal diseases", "sarcopenia", "osteoporosis", "osteoarthritis", and so on. Results: PUFAs could prevent and treat age-related musculoskeletal diseases (sarcopenia, osteoporosis, and osteoarthritis) by reducing oxidative stress and inflammation and controlling the growth, differentiation, apoptosis, and autophagy of cells. This review paper provides comprehensive evidence of PUFAs on age-related musculoskeletal diseases, which will be helpful for exploitation into functional foods and drugs for their prevention and treatment. Conclusions: PUFAs could play an important role in the prevention and treatment of sarcopenia, osteoporosis, and osteoarthritis.

Life (Basel). 2024 Sep 3;14(9):1107. doi: 10.3390/life14091107.

Retrospective Analysis of the Effect of Postmenopausal Women Medications on SARS-CoV-2 Infection Progression

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Since the beginning of the COVID-19 pandemic, it has been evident that women and young people were less susceptible to severe infections compared to males. In a previous study, we observed a reduced prevalence of SARS-CoV-2 infections in hormonal-driven breast cancer patients undergoing SERM (selective estrogen receptor modulator) therapy with respect to other treatments inhibiting estrogen synthesis. In addition to being used in anticancer therapy, SERMs are also prescribed for postmenopausal osteoporosis prevention and treatment. Therefore, in this study, a retrospective analysis of the clinical outcomes of SARS-CoV-2 infections in a population of women over 50 years who were treated for the management of menopausal symptoms was performed. SARS-CoV-2 infections, hospitalizations, and death rates were evaluated in women residing in the Italian north-eastern Veneto Region who were undergoing treatment with Estrogen Modulators (EMs); Estrogen or Progestin, and their combination (EPs); Bisphosphonates (BIs); or cholecalciferol (vitamin D3) ± calcium supplementation (CC). The final cohort study included 124,393 women, of whom 6412 were found to be SARS-CoV-2 infected (CoV2+ve). The results indicated that only women treated with vitamin D3 alone or in combination with calcium showed a significant reduction in their SARS-CoV-2 infection risk by 26% (OR 0.74; 95% CI 0.60-0.91). On the other hand, an increased risk of hospitalization (OR 2.69; 95% CI 1.77-4.07) was shown for the same treatments. The results highlighted in this work contribute to shedding some light on the widely debated role of vitamin D in the prevention of SARS-CoV-2 infections and the disease's treatment.

Biomedicines. 2024 Aug 26;12(9):1948. doi: 10.3390/biomedicines12091948.

Cellular Senescence: The Driving Force of Musculoskeletal Diseases

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The aging of the world population is closely associated with an increased prevalence of musculoskeletal disorders, such as osteoporosis, sarcopenia, and osteoarthritis, due to common genetic, endocrine, and mechanical risk factors. These conditions are characterized by degeneration of bone, muscle, and cartilage tissue, resulting in an increased risk of fractures and reduced mobility. Importantly, a crucial role in the pathophysiology of these diseases has been proposed for cellular senescence, a state of irreversible cell cycle arrest induced by factors such as DNA damage, telomere shortening, and mitochondrial dysfunction. In addition, senescent cells secrete pro-inflammatory molecules, called senescence-associated secretory phenotype (SASP), which can alter tissue homeostasis and promote disease progression. Undoubtedly, targeting senescent cells and their secretory profiles could promote the development of integrated strategies, including regular exercise and a balanced diet or the use of senolytics and senomorphs, to improve the quality of life of the aging population. Therefore, our review aimed to highlight the role of cellular senescence in age-related musculoskeletal diseases, summarizing the main underlying mechanisms and potential anti-senescence strategies for the treatment of osteoporosis, sarcopenia, and osteoarthritis.

Maturitas. 2024 Sep 26;190:108119. doi: 10.1016/j.maturitas.2024.108119. Online ahead of print.

A systematic review and meta-analysis investigating differences in chronic inflammation and adiposity before and after menopause

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Background: Menopause represents a pivotal physiological transition characterized by hormonal fluctuations and an augmented susceptibility to chronic diseases. The relationship between menopause and heightened disease risk may be attributed in part to alterations in low-grade chronic inflammation and adiposity. Methods: Three databases were searched for studies assessing differences in inflammation and body adiposity between pre- and postmenopausal women. Meta-analysis examined the association between menopausal status and key inflammatory biomarkers, including leptin, adiponectin, interleukin-6, tumour necrosis factor- α and c-reactive protein, and indices of body adiposity (fat mass, waist circumference, waist-to-hip-ratio and body mass index). The National Institute of Health Quality Assessment Tool for Observational and Cross-sectional studies was used to evaluate quality of studies, and GRADE-assessed evidence certainty. Results: Levels of adiponectin and leptin were higher in postmenopausal women than in premenopausal women [(1.30 μ g/ml, 95 % CI: 0.56 to 2.03 μ g/ml, $p = 0.001$), (0.88 ng/ml; 95 % CI: 0.22 to 1.52; $p = 0.008$)]. A trend towards significance was observed for tumour necrosis factor- α (0.59 pg/ml, 95 % CI: -0.07 to 1.26 pg/ml, $p = 0.080$), with no significant differences in interleukin-6 and c-reactive protein [(0.83 pg/ml, 95 % CI: -0.24 to 1.91 pg/ml, $p = 0.128$), (0.06 mg/ml, 95 % CI: -0.17 to 0.29, $p = 0.606$)]. Postmenopausal women had greater waist circumference, waist-to-hip-ratio and body mass index than premenopausal women [(0.74 cm; 95 % CI: 1.02 to 0.47; $p \leq 0.001$), (0.78; 95 % CI: 1.47 to -0.09; $p = 0.027$), (0.31 kg/m²; 95 % CI: 0.50 to 0.12; $p = 0.001$)]. Conclusions: Postmenopausal women had higher adipokine levels and greater adiposity. However, given the low certainty of the

available evidence, future prospective cohort studies assessing inflammatory changes over the menopausal transition are warranted to inform future clinical decisions.

JAMA Health Forum. 2024 Sep 6;5(9):e243128. doi: 10.1001/jamahealthforum.2024.3128.

Menopausal Hormone Therapy Use Among Postmenopausal Women

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Importance: Menopausal hormone therapy (MHT) is the treatment of choice for symptoms of menopause. However, its adoption is hindered by the risk-benefit trade-off in relation to acute and chronic diseases. **Objective:** To evaluate trends in and correlates of MHT use among postmenopausal women in the US from 1999 to March 2020. **Design, setting, and participants:** This serial cross-sectional analysis of MHT use used data from the nationally representative National Health and Nutrition Examination Survey (NHANES). Participants included noninstitutionalized US postmenopausal women from 10 NHANES study cycles (1999-2000 to 2017-March 2020 [pre-COVID-19 pandemic]). Data were analyzed from December 2023 to April 2024. **Exposures:** NHANES study cycle. **Main outcomes and measures:** Prevalence of MHT use was extracted from the prescription medication data collected during NHANES household interviews. MHT formulations were determined by hormone type. **Results:** Data on 13 048 US postmenopausal women (47.1% ≥ 65 years old) were analyzed. From 1999 to 2020, the prevalence of MHT use decreased among women of all age groups, from 26.9% (95% CI, 22.6%-31.7%) in 1999 to 4.7% (95% CI, 3.4%-6.5%) in 2020. Until 2002, MHT use was highest among women aged 52 to 65 years, but since 2005, MHT use has been highest among women younger than 52 years. MHT use decreased by 23.5% (95% CI, 11.4%-35.6%), 31.4% (95% CI, 23.4%-39.5%), and 10.6% (95% CI, 6.3%-14.8%) for women younger than 52 years, 52 years to younger than 65 years, and 65 years and older, respectively. Prevalence of MHT use decreased from 13.8% (95% CI, 8.5%-21.7%) to 2.6% (95% CI, 1.5%-4.6%) for Hispanic women, 11.9% (95% CI, 8.5%-16.3%) to 0.5% (95% CI, 0.2%-1.1%) for non-Hispanic Black women, and 31.4% (95% CI, 27.1%-36.1%) to 5.8% (95% CI, 4.1%-8.2%) for non-Hispanic White women. Non-Hispanic White women consistently had the highest prevalence of MHT use. Estrogen-only formulation accounted for more than 50% of the MHT for most study periods. The prevalence of MHT use varied by family income-to-poverty ratio, health insurance coverage in all racial and ethnic groups, weight, and smoking status among non-Hispanic White women, as well as by education attainment among non-Hispanic Black and Hispanic women. **Conclusions and relevance:** Results of this cross-sectional study show that over the past 2 decades, MHT use declined among US postmenopausal women of all age and racial and ethnic groups. Women of racial and ethnic minority groups had lower prevalence of MHT use compared to non-Hispanic White women.

Heliyon. 2024 Sep 6;10(18):e37588. doi: 10.1016/j.heliyon.2024.e37588. eCollection 2024 Sep 30.

Hormone replacement therapy and risk of pancreatic cancer in postmenopausal women: Evidence from the US National Inpatient Sample 2008-2018

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Background: Pancreatic cancer is a serious, usually fatal disease and one of the most aggressive malignancies. Research into whether hormone replacement therapy (HRT) might protect against pancreatic cancer has yielded mixed results. This study aimed to investigate the potential association between HRT and the risk of pancreatic cancer in postmenopausal women. **Methods:** This population-based, retrospective study extracted data from the US National Inpatient Sample (NIS) 2008-2018. Hospitalized females aged ≥ 55 years were eligible for inclusion. Associations between HRT, other study variables, and pancreatic cancer diagnosis were determined using univariate and multivariable regression analyses. **Results:** After 1:4 matching by age, data of postmenopausal women with (n = 35,309) and without (n = 141,236) HRT were included in the analysis. The mean age was 73.4 years. Multivariable analyses showed that women with HRT had significantly decreased odds of pancreatic cancer (adjusted OR [aOR], 0.69, 95 % CI: 0.53-0.90). Compared to patients without HRT, patients with HRT in the 55-64-year-old group (aOR 0.48, 95 % CI: 0.32-0.74), 65-74-year-old group (aOR 0.49, 95 % CI: 0.34-0.71), non-hypertensive group (aOR 0.55, 95 % CI: 0.38-0.79), and non-hyperlipidemia group (aOR 0.59, 95 % CI: 0.42-0.82) had significantly decreased odds of pancreatic cancer. **Conclusions:** In US postmenopausal women, HRT is associated with a reduced risk of pancreatic cancer, especially those aged 55-74 year. Further study is needed to clarify the mechanisms underlying the associations.