

Selección de Resúmenes de Menopausia

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Bioimpacts. 2024 Aug 4;15:30378. doi: 10.34172/bi.30378. eCollection 2025.

Deciphering the role of classical oestrogen receptor in insulin resistance and type 2 diabetes mellitus: From molecular mechanism to clinical evidence

Haryati Ahmad Hairi 1, Nurul Izzah Ibrahim 2, Muhammad Zulfiqah Sadikan 3, Putri Ayu Jayusman, et al. The biological actions of oestrogen are mediated by the oestrogen receptor α or β (ER α or ER β), which are members of a broad nuclear receptor superfamily. Numerous in vivo and in vitro studies have demonstrated that loss of circulating oestrogen modulated by classical ER α and ER β led to rapid changes in pancreatic β -cell and islet function, GLUT4 expression, insulin sensitivity and glucose tolerance, dysfunctional lipid homeostasis, oxidative stress, and inflammatory cascades. Remarkably, 17 β -oestradiol (E2) can completely reverse these effects. This review evaluates the current understanding of the protective role of classical ER in critical pathways and molecular mechanisms associated with insulin resistance and type 2 diabetes mellitus (T2DM). It also examines the effectiveness of menopausal hormone therapy (MHT) in reducing the risk of developing T2DM in menopausal women. Clinical trials have shown the protective effects of MHT on glucose metabolism, which may be useful to treat T2DM in perimenopausal women. However, there are concerns about E2's potential side effects of obesity and hyperlipidaemia in menopausal women. Further studies are warranted to gain understanding and find other oestrogen alternatives for treatment of insulin resistance and T2DM in postmenopausal women.

Health Sci Rep. 2025 Apr 18;8(4):e70736. doi: 10.1002/hsr2.70736. eCollection 2025 Apr.

Adherence to Mediterranean Diet and Breast Cancer Risk: A Meta-Analysis of Prospective Observational Studies

Mehdi Karimi, Omid Asbaghi, Farnaz Hooshmand, Amir Hossein Aghayan, Amir Ahmad Shariati, et al. Background and aim: The Mediterranean diet (MD) is widely recognized for its health benefits and potential protective effects against various chronic diseases such as cardiovascular conditions and cancer. This meta-analysis evaluates the association between MD adherence and breast cancer risk in women. Methods: A comprehensive search of major databases was conducted until November 2024 to identify cohort or case-control studies. The meta-analysis employed a random-effects model to pool multivariable-adjusted effect sizes, reporting them as hazard ratios (HR) while evaluating heterogeneity using the I^2 statistic and assessing publication bias. Results: The pooled analysis of 31 studies indicated a significant association between adherence to the MD and a 13% risk reduction in risk of breast cancer (HR: 0.87, 95% CI: 0.82-0.92; $I^2 = 70\%$). Specifically, postmenopausal women exhibited a 12% significant reduction in the risk of breast cancer (HR: 0.88; 95% CI: 0.84, 0.92), while premenopausal women showed no significant effect (HR: 0.98, 95% CI: 0.90, 1.06). Geographically, the effect was most pronounced in Asia (OR: 0.59, 95% CI: 0.50, 0.68), while from America (OR: 0.92, 95% CI: 0.82, 1.02) and Europe (OR: 0.90, 95% CI: 0.83, 0.97) showed moderate associations. Subgroup analysis suggested a stronger significant association in case-control studies (HR: 0.77, 95% CI: 0.70, 0.85), whereas no significant association was observed in cohort studies (HR: 0.96, 95% CI: 0.90, 1.02). Conclusion: Adherence to the Mediterranean diet is associated with a significant reduction in breast cancer risk, particularly among postmenopausal women and in regions such as Asia. These findings suggest that the Mediterranean diet may be an important dietary factor in reducing breast cancer risk, especially in certain populations. However, further research is needed to confirm its impact in different study designs and geographical areas.

Cureus. 2025 Mar 20;17(3):e80875. doi: 10.7759/cureus.80875. eCollection 2025 Mar.

Expert Opinion on the Use of Probiotics in General Gynecological Conditions

Ameet Patki 1, Suchitra Pandit 2, Noushin Ashraf 3, Sanjay Makhwana 4, Bishwanath Ghosh Dastidar 5.

Various gynecological conditions, including bacterial vaginosis, urinary tract infection, genitourinary syndrome of menopause, polycystic ovarian syndrome, and vulvovaginal candidiasis, impose a significant global burden, including among the Indian population. This expert opinion emphasizes the importance of oral probiotic supplementation in managing these conditions. A physical meeting with 14 experts was conducted on June 29-30, 2024, during which they highlighted that probiotics, particularly *Lactobacillus* species, have beneficial effects on restoring and maintaining healthy vaginal microbiota. Probiotics also promote vaginal health and aid in treating conditions such as bacterial vaginosis, vulvovaginal candidiasis, polycystic ovarian syndrome, and genitourinary syndrome of menopause. Probiotics are proven effective in managing bacterial vaginosis by enhancing beneficial bacteria and reducing harmful ones. They help prevent and treat recurrent urinary tract infections by increasing lactobacilli levels, inhibiting *Candida* growth, and maintaining vaginal pH to prevent vulvovaginal candidiasis. Symptoms of genitourinary syndrome of menopause, such as vaginal dryness, itching, and recurrent urinary tract infections, can be alleviated through a combination of *Lactobacillus*-based probiotics and estrogen therapy. Experts also recommended probiotic supplementation for women with polycystic ovarian syndrome to improve both chemical and clinical pregnancy rates. Probiotics help modulate gut microbiota; improve blood glucose levels, insulin resistance, cholesterol, and androgen levels; restore the LH/FSH ratio; and enhance reproductive health. This expert opinion underscores the key role of *Lactobacillus* species in treating and preventing various gynecological disorders such as bacterial vaginosis, vulvovaginal candidiasis, genitourinary syndrome of menopause, urinary tract infection, and polycystic ovarian syndrome by restoring and maintaining vaginal microbiota, thus supporting overall feminine health.

Endocr Res. 2025 Apr 21:1-11. doi: 10.1080/07435800.2025.2490891. Online ahead of print.

Menopause and diabetes: Interconnected associations of risk

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Menopause is an important transition in a women's life that has been associated with a worsening cardiometabolic risk profile. Diabetes is a well-known risk factor for cardiovascular disease risk in women. Recent studies have improved the understanding of the hormonal and metabolic changes that occur during menopause, which have provided an opportunity to intervene with preventive efforts. Despite this, menopause's role and its direct (independent) relationship with cardiovascular risk factors, such as diabetes, remain largely unknown. This review highlights the inter-relationships between menopause, vasomotor symptoms, and menopausal hormone therapy with the risk of developing diabetes and outlines further knowledge gaps.

Brain Res. 2025 Apr 16:149649. doi: 10.1016/j.brainres.2025.149649. Online ahead of print.

Menopause triggers microglia-associated neuroinflammation in Parkinson's disease

Sehar Usman 1, Amal Chandra Mondal 2

Microglia, immune cells of the brain, can drive neurodegenerative diseases like Parkinson's disease (PD). The resting microglia can polarize into two extremes, either proinflammatory M1 or anti-inflammatory M2 phenotype under a specific microenvironment. Different transcriptional factors and the release of various cytokines characterize these states. The released proinflammatory markers from M1 microglia lead to neuroinflammation that ultimately causes irreversible loss of dopaminergic neurons in PD patients, on the contrary, the M2 microglia possess neuroprotective activity. PD is caused by aggregation and misfolding of α -synuclein in the affected dopaminergic neurons. The misfolded α -synuclein is cytotoxic and can propagate like a prion from one cell to the other, acting like a template that can initiate the conversion of normal

proteins into abnormal conformation. The extracellular α -synuclein can interact and polarize the microglia into the M1 phenotype resulting in inflammation, thereby driving the progression of PD. The progression of neuroinflammation-mediated neurodegeneration in PD is seen higher in menopausal women; likely due to the low circulating estrogen levels. Estrogen hormones possess neuroprotective activity, and one of the ways is that they can polarize the microglia into M2 phenotypes and reduce α -synuclein-mediated microglial activation. A detailed understanding of the signaling mechanisms underlying microglial polarization between M1 and M2 phenotypes is crucial for identifying druggable targets to reduce PD symptoms, including in menopausal women.

Front Aging Neurosci. 2025 Apr 3;17:1524474. doi: 10.3389/fnagi.2025.1524474. eCollection 2025.
Lifetime estrogen exposure and domain-specific cognitive performance: results from the IGNITE study

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Introduction: Disruptions in estrogen exposure (i.e., surgically induced menopause) have been linked to poorer cognitive aging and dementia risk. Hormone therapy use (e.g., birth control, menopausal hormone therapy) has shown mixed associations with cognitive performance, possibly due to limited cognitive test batteries. To address previous inconsistencies, we investigated baseline data from Investigating Gains in Neurocognition in an Intervention Trial of Exercise (IGNITE). We hypothesized that (1) oophorectomy prior to natural menopause would be associated with poorer cognitive performance, (2) timing and duration of birth control and menopausal hormone therapy would influence associations with cognitive performance, and (3) APOE4 carrier status would interact with oophorectomy and hormone therapy to influence cognitive performance. **Methods:** In 461 post-menopausal females (M age = 69.6) we assessed oophorectomy and hormone therapy use to examine associations with the Montreal Cognitive Assessment (MoCA) and factor-analytically derived composite scores for episodic memory, processing speed, working memory, executive function/attentional control, and visuospatial processing. **Results:** Hypothesis (1) We did not observe associations between oophorectomy prior to natural menopause and poorer cognitive performance. However, hormone therapy use, started on average within 2 years of oophorectomy, was associated with better episodic memory ($\beta = 0.106$, $p = 0.02$), working memory ($\beta = 0.120$, $p = 0.005$), and visuospatial processing ($\beta = 0.095$, $p = 0.03$). Hypothesis (2) Birth control use was associated with better performance on the MoCA ($\beta = 0.093$, $p = 0.04$), working memory ($\beta = 0.102$, $p = 0.02$), and executive function/attentional control ($\beta = 0.103$, $p = 0.02$). However, duration and timing of birth control and menopausal hormone therapy were not associated with cognitive performance. Hypothesis (3) We did not observe significant interactions between APOE4 status and oophorectomy or hormone therapy in their associations with cognitive performance. **Discussion:** Our results suggest exposure to estrogen during adulthood, specifically birth control and hormone therapy among women undergoing pre-menopausal oophorectomy, benefits cognitive function in older adulthood. Our comprehensive cognitive battery allowed us to examine cognitive function with a high degree of granularity. Future work should evaluate causal mechanisms of associations between lifetime estrogen exposure and later life cognitive function.