Progesterone Research Abstracts

Natural progesterone, but not medroxyprogesterone acetate, enhances the beneficial effect of estrogen on exercise-induced myocardial ischemia in postmenopausal women.

Rosano GM, Webb CM, Chierchia S, et al.
Journal of the American College of Cardiology. 2000 Dec; 36(7):2154–9.

This aim of this clinical study was to compare the effects of estrogen + transvaginal progesterone gel against estrogen + oral medroxyprogesterone acetate (MPA) on exercise-induced myocardial ischemia in post-menopausal women with coronary artery disease (CAD) or previous myocardial infarction, or both. Estrogen hormone therapy is beneficial to post-menopausal women with exercise-induced myocardial ischemia. Prior to this study the effects of combining estrogen with progestin therapy were unknown. The results from this clinical study indicate that by adding natural progesterone gel to estradiol treatment, there was an increase in exercise time to myocardial ischemia compared to estradiol therapy alone. The addition of MPA to estradiol therapy had no effect on exercise time to myocardial ischemia. Overall, the results indicate that estrogen and progesterone together have a synergistic effect on exercise time to myocardial ischemia, but this is not replicated with the combination of estrogen and MPA.

Natural progesterone and antihypertensive action.

Rylance PB, Brincat M, Lafferty K, et al.
British Medical Journal. 1985 Jan, 290 (6461): 13-14

Natural oral progesterone was found to have an antihypertensive effect compared to a placebo in a trial of men and post-menopausal women with mild to moderate hypertension, who were not receiving any treatment for their blood pressure. The results of the study indicate that progesterone causes a significant reduction in blood pressure when administered at a dose that produces a blood plasma concentration just higher than the level measured during the luteal phase. Natural progesterone may be recognised as a “protective” female hormone as following the menopause, blood concentration of progesterone decreases, and this may be associated with the increased incidence of cardiovascular disease and high blood pressure in post-menopausal women. This association may also explain why the statistics for post-menopausal women catch up with men who similarly have a naturally low blood concentration of progesterone.

Comparative analysis of the uterine and mammary gland effects of progesterone and medroxyprogesterone acetate.

Otto C, Fuchs I, Vonk R, Fritzemeier KH.
Maturitas. 2010 Apr; 65(4):386–91.

The aim of this study was to assess the balance between uterine and mammary gland effects of two progestins widely used in HRT, progesterone and medroxyprogesterone acetate, in a quantitative mouse model. Ovariectomised mice were treated subcutaneously with either estradiol (100ng) or estradiol plus increasing doses of progesterone or MPA for a period of three weeks. Progestogenic activity in mammary glands was measured using stimulation of side-branching and epithelial cell proliferation. Progestogenic activity in the uterus was assessed by measuring the inhibition of estradiol-activated uterine epithelial cell proliferation. Overall, the study found that the progestins behave differently from one another, favouring the use of natural progesterone over MPA in combined hormone therapy. Estradiol in combination with MPA demonstrated antiproliferative uterine activity and mitogenic activity in the mammary gland at the same dose. Estradiol in combination with natural progesterone demonstrated antiproliferative uterine activity at doses lower than those leading to significant stimulation of epithelial cell proliferation in the mammary gland.

Effects of estradiol with micronized progesterone or medroxyprogesterone acetate on risk markers for breast cancer in postmenopausal monkeys.

Wood CE, Register TC, Lees CJ, Chen H, Kimrey S, Mark CJ.
Breast Cancer Research and Treatment. 2007 Jan; 101(2):125–134

This study compared the effects of oral estradiol (E2) with either medroxyprogesterone acetate (MPA) and micronised progesterone on risk biomarkers for breast cancer in a post-menopausal primate model. 26 ovariectomised adult female cynomolgus macaques were divided into groups and rotated randomly through treatments of placebo, estradiol (1mg/day), estradiol + progesterone (200mg/day), and estradiol + medroxyprogesterone acetate (2.5mg/day). All treatments were administered orally for a period of two months and separated with a wash-out period of one month. Breast epithelial proliferation was measured by Ki67 expression. Compared to the placebo, estradiol + MPA administration resulted in significantly greater breast proliferations, whereas estradiol + progesterone did not. Overall this suggests that oral micronised progesterone has a more favourable effect on risk biomarkers for menopausal breast cancer than MPA.