

Longevity - Aging

Vopr Kurortol Fizioter Lech Fiz Kult. 1999 Sep-Oct;(5):7-9.

[The characteristics of the geroprotective action of magnetotherapy in elderly patients with combined cardiovascular pathology]

[Article in Russian]

[Abramovich SG](#), [Fedotchenko AA](#), [Koriakina AV](#), [Pogodin KV](#), [Smirnov SN](#).

Central hemodynamics, diastolic and pumping functions of the heart, myocardial reactivity, microcirculation and biological age of cardiovascular system were studied in 66 elderly patients suffering from hypertension and ischemic heart disease. The patients received systemic magnetotherapy which produced a geroprotective effect as shown by improved microcirculation, myocardial reactivity, central hemodynamics reducing biological age of cardiovascular system and inhibiting its ageing.

Naturforsch [C]. 2000 Mar-Apr;55(3-4):267-70.

Effect of a pulsed magnetic field and of first cold-pressure sunflower oil on mice.

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In previous studies it has been shown that exposure of mice to a 12-Hz 6 mT unipolar square pulsed magnetic field (PMF) suppressed the excess of weight due to application of 1st cold-pressure sunflower oil. This time we considered the effect of oil and/or PMF on the growing curves lifespans of mice. The exposure took place for 30 min 5 days a week, from the 7th week of life to death. The results are 1) a broken slope in the growing curves from the 125th day of aging: the exposed mice were lighter than the controls, keeping the differences between the growing curves needed a repeated exposure all life long; 2) a significant increase in the lifespan of the controls which received oil versus the controls which received water; 3) an increase in the lifespan of the exposed mice versus the non-exposed control batches. On one hand it has been reported that essential polyunsaturated fatty acids found in first cold-pressure sunflower oil played a prominent role in

membrane structures and in immune equilibrium. On the other hand, it was shown that oscillating electric fields could activate Na⁺K⁺-ATPase.

Aging (Milano). 1991 Sep;3(3):241-6.

Exposure to low-frequency pulsed electromagnetic fields increases mitogen-induced lymphocyte proliferation in Down's syndrome.

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We previously reported that exposure of human mitogen-stimulated peripheral blood lymphocytes (PBL) to extremely low frequency pulsed electromagnetic fields (PEMFs) could restore the defective proliferative capability of PBL from aged subjects. The effects of exposure to PEMFs were studied in PBL from 25 patients with Down's syndrome (DS), a syndrome of premature aging characterized by precocious immune system derangement, including age-related defective PBL proliferative capability. PBL were stimulated with different doses of phytohemagglutinin, and cell proliferation was assessed by measuring the incorporation of tritiated thymidine. After PEMF-exposure, a significant increase in cell proliferation was observed in cells from DS children and young adults, but it was much more evident in PBL from relatively aged DS patients. The age-related effect of PEMFs on DS lymphocytes demonstrates that age must be considered a major variable when studies on DS are performed, and confirms that DS must be regarded as a syndrome of accelerated aging.

FEBS Lett. 1989 May 8;248(1-2):141-4.

Extremely low frequency pulsed electromagnetic fields increase interleukin-2 (IL-2) utilization and IL-2 receptor expression in mitogen-stimulated human lymphocytes from old subjects.

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The effects of the exposure of mitogen-stimulated human lymphocytes from aged subjects to low-frequency pulsed electromagnetic fields (PEMFs) were studied by measuring the production of interleukin-2 (IL-2) and the expression of IL-2 receptor. PEMF-exposed cultures that presented increased [3H]thymidine incorporation showed lower amounts of IL-2 in their supernatants, but higher percentages of IL-2 receptor-positive cells and of T-activated lymphocytes. Taken together, these data suggest that PEMFs were able to modulate mitogen-induced lymphocyte proliferation by provoking an increase in utilization of IL-2, most likely acting on the expression of its receptor on the plasma membrane.

