

The benefits of long-term exercise in regulation of melatonin secretion

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Objective: To evaluate the long-term exercise in early-aging rats may be profits the regulation of anti-oxidative enzymes and melatonin levels.

Methods: To address the hypothesis, chronic administration of D-galactose is used to mimic the process of early brain aging. Meanwhile, the normal aging animals in late stage (15-18 month-old) are compared side by side at the same time. Swimming Exercise intensity is conducted by.... Cortex and hippocampus are isolated to test the anti-oxidative enzyme expression and melatonin level differences in response to the treatment. Melatonin levels in cortex and hippocampus, and plasm are tested by Abnova Melatonin ELISA Kit. Melatonin ELISA Kit in cortex and hippocampus are tested by immunochemical analysis (antibodies to SOD, HO-1, catalase, tubulin, Melatonin, creatine and etc.). Melatonin measurement is briefly described as followed: Brain tissue homogenates melatonin are determined by ELISA with commercially available melatonin competitive enzyme immunoassay kit (MyBioSource, San Diego, CA, USA) according to manufacturers' instructions. Samples are analyzed against a melatonin standard curve (3.12 pg/mL-100 pg/mL), with sensitivity of 1.0 pg/mL. Both intra- and inter-assay coefficients of variation (CV) are less than 15%.

Results: There is no significant differences in melatonin level in blood and cortex. However, melatonin concentration is significantly decreased in the hippocampus of natural aging rats, which could match the results of miRNA microarray. Surprisingly, the melatonin level returns to control level in exercise group.

Conclusion: Melatonin concentration is significantly decreased in the hippocampus of natural ageing rats and the melatonin level returns to control level in exercise group.

中文題目：探討長期運動是否可調控腦部褪黑激素表現量

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