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Effects of short-term modified fasting on sleep patterns and daytime vigilance in non-obese subjects: results of a pilot study.

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Abstract

BACKGROUND:

Periodically repeated short-term fasting is a frequently practised tradition worldwide. Empirical reports suggest that during fasting periods the quality of sleep and daytime performance are improved. The effects of a home-based 1-week modified fasting on sleep patterns and daytime vigilance and performance were analysed in 15 healthy non-obese volunteers.

METHODS:

Sleep was measured by polysomnography before and after a 7-day fasting period; sleep inventories with assessment of daytime performance were collected throughout the observation period. Blood samples and urine were drawn at the beginning and at the end of fasting.

RESULTS:

13 subjects (12 females, 1 male; age 41.2 +/- 13.4 years; BMI 23.9 +/- 4.2 kg/m²) completed the fasting period; weight decreased from 66.5 +/- 11.7 kg to 63 +/- 11.9 kg. Compared to baseline, a significant decrease in arousals, a decrease in periodic leg movements (PLM) and a non-significant increase in REM sleep were observed at the end of fasting. Subjective sleep ratings showed a fasting-induced increase in global quality of sleep, daytime concentration, vigour and emotional balance. Clinical laboratory tests showed a decrease in serum magnesium; urinary melatonin excretion decreased moderately.

CONCLUSION:

This open pilot study demonstrates that along with a decrease in sleep arousals a 1-week fasting period promotes the quality of sleep and daytime performance in non-obese subjects. The observed decrease in PLM might point to a nutritional modification of brain dopaminergic functions. In terms of evolutionary development, an improved daytime performance during periods of food deprivation could have been beneficial for the success in search for food.

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