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Nutr Neurosci. 2003 Feb;6(1):11-8.

The short-term effects of fasting on the neuroendocrine system in patients with chronic pain syndromes.

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Abstract

It is commonly reported that short term fasting leads to mood enhancement and emotional harmonisation. We investigated psychosocial well-being and the neuroendocrine response, assessed by nightly urinary excretion of cortisol and catecholamines, in 28 inpatients with chronic pain syndromes during and after a one-week modified fast. Twenty-two of the patients (51.4 +/- 2.7 years, BMI 26.8 +/- 1.0 kg/m²) participated in a 7-day fast with daily intake of 300 kcal/day, six control patients (47.5 +/- 4.0 years; BMI 22.9 +/- 1.1 kg/m²) received a vegetarian-based diet. With fasting significant increases of the urinary concentration of noradrenaline (17.8 +/- 3.0-27.8 +/- 3.8 microg/ml), adrenaline (1.5 +/- 0.2-3.4 +/- 0.7 microg/ml) and cortisol (26.1 +/- 3.7-40.7 +/- 6.1 microg/ml) were observed, whereas controls showed no significant endocrine changes. The neuroendocrine response to fasting was pronounced in younger subjects (age <50 years) and in the presence of a BMI >25 kg/m², moreover the increase in cortisol excretion was significantly higher in subjects with lower baseline cortisol levels. Mood and well-being increased non-significantly in both groups. Fasting was well tolerated, and regarded as beneficial by most fasting patients. Our results show that short-term fasting leads to neuroendocrine activation and may suggest that the extent of this response is dependent on the individual metabolic and endocrine state at baseline.

PMID: 12608732 DOI: [10.1080/1028415021000042811](https://doi.org/10.1080/1028415021000042811)

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