

Poster Communication 30

Endocrine response to intermittent fasting: A systematic review of hormonal changes

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Abstract

Background: Intermittent fasting encompasses alternating periods of food intake and dietary restriction [1]. This practice has gained prevalence, motivated by cultural, religious, and health objectives [1], yet endocrine adaptations across different protocols remain incompletely characterized [1,2]. The heterogeneity of fasting protocols (short-term, alternate-day, periodic, and time-restricted feeding [2]) contributes to variable endocrine responses [3]. **Objective:** This study aimed to systematically review endocrine responses to intermittent fasting by examining appetite-regulating hormones (leptin, ghrelin), metabolic hormones (insulin), gastrointestinal hormones (GLP-1, PYY, CCK), and thyroid axis hormones across different protocols and populations [2,3]. **Methods:** A systematic review of 9 peer-reviewed articles (2020–2025) was conducted to examine hormonal responses to intermittent fasting [4,5]. Studies analyzed leptin and ghrelin secretion [4], insulin sensitivity [6,7], gastrointestinal hormones, and thyroid hormone metabolism with emphasis on hypothalamic–pituitary–thyroid axis regulation [8]. **Results:** Ghrelin increased during fasting [4,5], while leptin decreased, reflecting reduced adipose energy status [4]. Leptin reduction was associated with decreased thyroid-stimulating hormone and triiodothyronine, promoting energy conservation [8]. Insulin responses remained inconclusive, dependent on protocol, duration, meal timing, and individual characteristics [6,7,9]. Gastrointestinal hormones showed modest, context-dependent changes, varying across populations [3,10,11]. Thyroid hormone activity decreased peripherally, while the central axis remained stable, representing coordinated adaptive responses [1,8]. **Conclusions:** Intermittent fasting induces coordinated endocrine changes [1]. Ghrelin elevation and leptin reduction are consistent markers [4,5], while insulin responses show variability [6,7,9]. Heterogeneity reflects differences in fasting duration, protocols, and populations [3]. Time-restricted eating shows promise when aligned with circadian rhythms [2]. Future research with standardized methodologies is essential [1].

Keywords: intermittent fasting; endocrine hormones; appetite regulation; metabolic adaptation; leptin; ghrelin

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