

# Perturbation in Fat Regulation in Cocaine-Dependent Men

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**Aim:** The study aims to characterise key patterns of eating behaviour and weight change associated with cocaine dependence. Circulating levels of leptin, body composition and self-reported eating habits were measured in a sample of cocaine-dependent men and healthy, non-drug using control volunteers. It was hypothesised that chronic cocaine use is associated with changes in eating patterns, specifically with regard to the consumption of fat and carbohydrates similar to those observed in cocaine-treated animals. It was predicted that changes in dietary food intake are reflected in alterations of body composition.

**Background:** Cocaine is a popular recreational drug which produces highly pleasurable effects and suppresses the user's appetite. Accordingly, regular users of cocaine have relatively low body weight, but when they kick their cocaine habit they typically "pile on the pounds". It is widely believed that this excessive weight gain during drug abstinence reflects a normal process of restoring the weight that they previously lost due to a cocaine-induced suppression of appetite. However, a more nuanced view is needed that also acknowledges the major disturbance in eating behaviors and metabolism that typically accompany regular cocaine use.

**Methodology:** 65 male volunteers were recruited from the local community, half of whom satisfied the DSM-IV-TR criteria for cocaine-dependence (n=35) while the other half had no personal or family history of a psychiatric disorder, including substance abuse (n=30). Assessments were made of eating behaviour and dietary food intake, estimation of body composition and measurement of plasma leptin.

Dr Karen Ersche and her team at the University of Cambridge led this investigation.

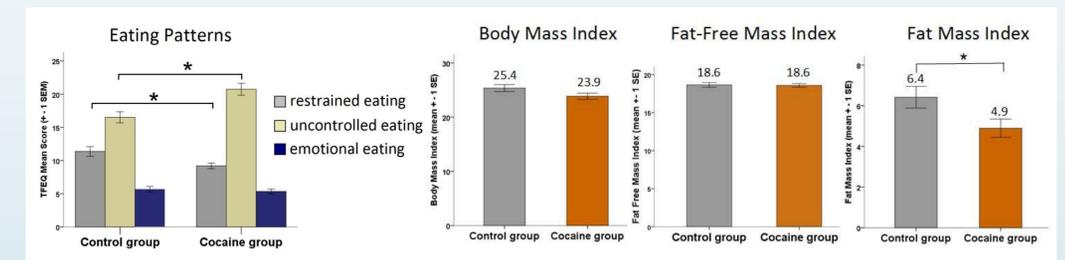
Reference: Ersche KD, Stochl J, Woodward JM, Fletcher PC (2013) The skinny on cocaine: insights into eating behaviour and body weight in cocaine-dependent men. *Appetite*, 71, pp75-80



Dual-energy X-ray Absorptiometry (DXA) scan to measure body composition.

Food Frequency Questionnaire to determine participants' habitual dietary food intake.

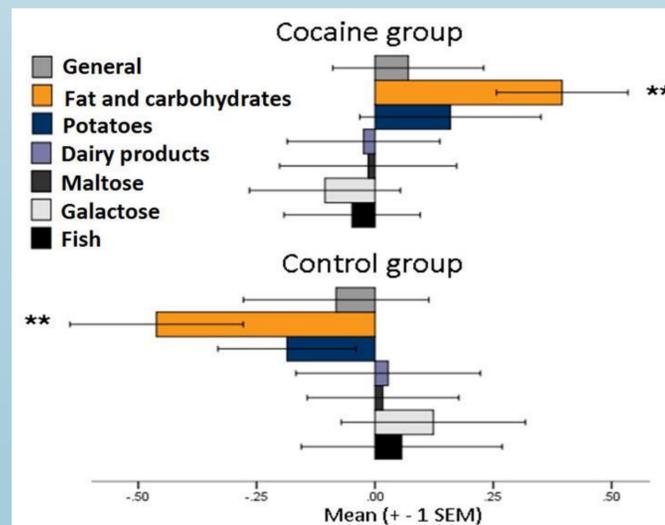
**Results:** Although cocaine users reported significantly higher levels of dietary fat and carbohydrates as well as patterns of uncontrolled eating, their fat mass was significantly reduced compared with their non-drug using peers. Levels of leptin were correlated with fat mass, and with the duration of stimulant use. Tobacco smoking status or concomitant use of medication did not affect the significance of the results.



Group profiles of eating patterns and body composition.

**Role of the Cambridge Clinical Research Facility (CRF):** The CRF's metabolic team conducted all the required metabolic measurements within the relaxed and friendly environment of the facility. The CRF nursing staff contributed to the sampling and processing of blood, physiological measurements, and the provision of a high standard of care for patients. This excellent support enabled the researchers to collect good quality data.

**Conclusion:** This study provided compelling evidence that chronic cocaine use directly interferes with metabolic processes, resulting in an imbalance between fat intake and storage. This imbalance in active users is likely to be overlooked in clinical practice, but may produce significant health problems when cocaine use is discontinued during recovery.



Comparison of profile of dietary food intake in cocaine-dependent men and healthy male control volunteers.

**Contacts**

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