

THE IMPACT OF A PROTEIN-RICH BREAKFAST ON FOOD CRAVINGS AND REWARD IN
OVERWEIGHT/OBESE 'BREAKFAST SKIPPING' ADOLESCENT GIRLS

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ABSTRACT

This study examined whether the addition of a higher-protein (HP) vs. normal-protein (NP) breakfast leads to beneficial changes in perceived appetite, food cravings, and plasma homovanillic acid (HVA), which is an index of central dopamine production, in overweight/obese 'breakfast skipping' (BS) teen girls. A randomized crossover design was incorporated in which 20 BS girls (age 19 ± 1 y; BMI 28.6 ± 0.7 kg/m²) consumed 350 kcal breakfast meals containing NP (13g protein) or HP meals (35g protein) for 7 days. On day 7, a 4h testing day was completed including the consumption of breakfast followed by perceived appetite, satiety, and food craving questionnaires and blood sampling for HVA concentration assessment throughout the morning. Breakfast, regardless of protein content, reduced perceived hunger and cravings for sweet and savory foods vs. BS (all, $p<0.05$). Breakfast also increased perceived fullness and overall pleasure/well-being vs. BS (all, $p<0.05$). Between meals, HP led to greater reductions in savory cravings vs. NP ($p<0.05$) and greater increases in fullness vs. NP ($p=0.08$). No other differences in perceived sensations were observed. Plasma HVA concentrations were greater following consumption of both breakfast meals vs. BS (both, $p<0.05$), with only HP exhibiting sustained increases prior to lunch vs. NP ($p=0.09$). Additionally, HVA concentrations were correlated with perceived fullness, breakfast palatability, and protein content at breakfast. In conclusion, these findings suggest that the daily addition of a protein-rich breakfast, containing 35g of protein, alters signals associated with food motivation and reward, and might be a beneficial strategy to combat the modern food environment in young people.