

EXAMINATION OF M-OPIOID RECEPTOR ACTIVATION IN THE NUCLEUS ACCUMBENS ON
BASELINE DIET PREFERENCES IN RATS SELECTIVELY BRED TO RUN LONG OR SHORT
DISTANCES

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ABSTRACT

The current study used two novel rat phenotypes, developed by selectively breeding for either high- or low-levels of voluntary running (HVR and LVR, respectively).. The current study sought to investigate the influence of voluntary exercise or forced sedentary conditions in HVR and LVR rats using an opioid feeding model choice task between either a low-fat/high-carb or high-fat/low carb diet.

LVRs demonstrated a strong preference for the low-fat/high carb diet at baseline; this preference became further pronounced in a dose-dependent fashion following intra-Acb infusions of the mu opioid agonist DAMGO. HVR rats did not demonstrate a clear preference for either diet at baseline; however, their consumption of the high-fat/low carb diet increased dose-dependently following DAMGO infusions. Analysis of low-fat/high-carb consumption revealed interactions between phenotype and baseline preference, as well as between phenotype, exercise condition, and DAMGO dose, suggesting differential opioid signaling across phenotype-by-exercise conditions.