

GENERAL BIOLOGY

DIFFERENTIAL EFFECTS OF MODAFINIL ON BODY FAT INDICES IN MICE.

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Provigil (modafinil) is a Schedule IV drug, approved for use as an anti-narcoleptic. Although this compound has been shown to be neither a non-adrenergic nor a non-serotonergic receptor agonist, it has been shown to have varying (often contradictory) effects on body weight. In this project, the effect of dietary modafinil on several body weight indices will be examined. Sixty-three mice were randomly assigned to three groups: 1) a control group (no dietary additives), 2) a group receiving the normal diet plus 500 ug/gm weight bromocriptine daily (a dopaminergic agonist with known body weight effects), and 3) a group receiving the normal diet plus 175 ug/gm weight modafinil daily. Mice were maintained on 10:14 photoperiod and sacrificed after 28 days. At time of sacrifice, food consumption, body weights, liver weights, and epididymal fat pad weights were recorded, with the livers being retained for cholesterol and triglyceride content analysis using the MSPD method. MANOVA was used to determine statistical differences between groups. Mice receiving modafinil did not differ significantly from the control group in terms of body weight, liver weight, or food consumption ($F=19.127$, $DF=1,59$, $P=0.148$; $F=0.578$, $DF=1,59$, $P=0.450$; and $F=0.0494$, $DF=1,59$, $P=0.9518$ respectively). The epididymal fat pad weights were, however, larger in the mice receiving modafinil as compared to the control-diet mice ($F=14.731$, $DF=1,59$, and $P<0.001$). Paradoxically, no differences were observed in either liver cholesterol or triglyceride content between the modafinil and control groups ($F=0.9993$, $DF=2,51$, $P=0.3752$; $F=0.5664$, $DF=2,51$, $P=0.5711$ respectively). We hypothesize that these differences may be related to alterations in lean body mass.