The Effects of Acutely Administered Fenfluramine on Activity and Eating Behaviour*

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Abstract. Three experiments are reported investigating the effects of acute administration of fenfluramine over 3 doses on activity, eating and drinking behaviour. A time sampling procedure of activity analysis was used, employing six behaviour categories. Fenfluramine produced a dose related decrease in rearing behaviours, with some evidence of an increase in walking categories at the lower dose levels. Eating and drinking behaviours showed clear dose related decreases. Sniffing categories showed a clear dose related increase. Attention is drawn to some of the difficulties of interpretation and assessment of anorexic effect.

Key-Words: Anorexic Effect — Fenfluramine — Activity Analysis — Time Sampling Technique — Rat.

In behavioural terms, the assessment and identification of anorexic effect present similar problems, centering round the difficulty of adequate definition. Anorexic agents, like many other substances and manipulations, produce a decrease in eating behaviour. In a human situation, this might be accompanied by a verbal description of loss of appetite, etc., which would aid identification, and constitute part of a scale for measuring anorexic effect. This aid, however, is denied any investigation making use of animals as subjects; and as such comparative investigations occupy an important role in drug screening, and the investigation of the parameters of drug action, the problem, therefore, assumes considerable importance.

Thompson and Schuster (1968), define, in behavioural terms, anorexic drugs as agents that "specifically decrease eating behaviour". If 'specifically' is interpreted to mean "effects only on eating behaviour, but not on any other behaviour", this provides a working definition for both identi-
fying anorexic effect, in terms of a reduction in eating behaviour, and no
other behaviour, and assessment of anorexic effect, in terms of the degree
to which other behaviours are affected by the anorexic agent. Thus, assess-
ment of anorexic effect involves consideration of eating behaviour and
other ongoing behaviour. A time sampling technique of categorising
activity (Bindra and Blond, 1958; Bindra and Spinner, 1958), would seem
suited to the assessment needs outlined above. This consists of sampling,
and recording, the animals behaviour over a fixed period of time. The
behaviour sampled is categorised into one of a number of mutually ex-
clusive categories.

A further necessary part of a definition of anorexic effect must also
be that the presumed anorexic agent reduces all eating behaviours.
Clearly, if its effect are only present with the eating of specific foods, but
not all foods, then such a drug must necessarily be regarded as inadequate.

The most commonly used, and investigated, anorexic agent in the
past has been amphetamine and its derivations. Behaviourally, the am-
phetamines produce considerable increases in activity (Cole, 1963, 1965;
Leonard et al., 1966; Epstein, 1959), and some investigators, as a result of
the hyperactivity resulting from amphetamine administration, have sug-
gested that the apparent empirical anorexic effect of amphetamine results
not from any effect on eating behaviour as such, but from a strengthening
of other behaviours, (e.g. Cole). Thompson and Schuster suggest a similar
explanation for the effects of amphetamine on operant performance.

Fenfluramine (Ponderax), a relatively new anorexic agent, appears
to be somewhat unusual, in that it is claimed to be an anorexic agent hav-
ing no adverse effects in common with amphetamine, on behaviours other
than eating behaviour. Rossum and Simons (1969), found fenfluramine to
have no significant effect on motor behaviour. There is some evidence,
however, for a depressant effect to emerge (Duncan and Munro, 1968).
Investigations of this type of drug action have hitherto largely been
confined to effects on motor behaviour, as defined by breaks in a photocell
beam, etc. Such investigations might be regarded as quantitative investiga-
tions; the three experiments reported here are an attempt to qualitatively
investigate the effects of fenfluramine on some of the points outlined above
by way of the time sampling technique. Experiment 1 deals with the
effects of fenfluramine on activity, experiment 2 deals with its effects on
activity and eating behaviour, and experiment 3 deals with its effects on
activity and drinking behaviour.

**Methods**

In all three experiments, dose groups of 2, 4 or 8 mg/kg were used,
with a saline control group in each experiment.