

# NASA TECH BRIEF

## Ames Research Center



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### Real-Time Pair-Feeding of Animals

Pair feeding is a biological technique in which the same amounts of food are delivered over similar time periods to an experimental animal exposed to unusual conditions and to a control animal exposed to normal conditions. In the past, experiments in pair feeding involved determination of the food consumed by an experimental animal over a 24-hour period (in a neon-oxygen atmosphere, for example), and then the offering of the same amount of food over the next 24 hours to a control animal in a normal atmosphere. Obviously, conclusions drawn from rates of food consumption obtained in such experiments are not strictly correlatable because of the 24-hour lag in the pair-feeding schedules of the experimental and normal animals; moreover, pair-feeding experiments involving periods less than 24 hours can not be performed with this technique.

An automatic pair-feeding system has been developed which immediately dispenses the same amount of food to a control animal as has been consumed by an experimental animal that has free access to food. The automatic system consists of three main units: a master feeding system, a slave feeding station, and a control mechanism. Each feeding station is designed to dispense a single food pellet weighing about 0.1 g; the dispensing system is designed to reject fractured pellets and deliver whole ones.

The automatic pair-feeding system represents a distinct improvement over prior techniques, for it

performs real-time pair-feeding; there is no lag between the time when the experimental animal eats and an equivalent amount of food is made available to the control animal. The automatic system also includes an event counter which keeps track of the number of food pellets dispensed per hour, and the number is periodically recorded to provide a histogram of the feeding pattern. Other aspects of the system design permit operation in pure oxygen or at reduced pressure.

**Note:**

Requests for additional information may be directed to:

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Reference: TSP 72-10298

**Patent status:**

Inquiries about obtaining rights for the commercial use of this invention may be made to:

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