

Current Research on Nicotine

A. IDENTIFICATION OF POSITIVE REINFORCING EFFECTS OF NICOTINE.

First what is a positive reinforcer?

A reinforcer is something that an organism wants. A positive reinforcer is an event that an animal will look for, eg - food, water, money, praise, status etc.

It is important to note that classes of stimuli (food) that function as positive reinforcers for rats are 'motivators' do so for humans (high correlation). Using this information we used a rat model to assess the potential of nicotine to be a positive reinforcer.

TRANSPARENCIES DATA

Conclusions:

1. Nicotine does function as a positive reinforcer.
2. The relationship between the size and dose of the reinforcer and the amount of behavior is similar to that obtained with more conventional reinforcers such as food.
3. The reinforcing effect of nicotine is relatively weak compared to other reinforcers.

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B Since nicotine functions as a positive reinforcer an investigation was undertaken to determine if this reinforcing agent has physical dependence producing properties.

1. How is a physiological dependence demonstrated using animals.

2. What is the correlation between animal and human data

3. We used the most sensitive behavioral measure

Transparencies →

DATA

4. Our conclusion is that ^{termination of} chronic nicotine administration does not result in a physiological dependence

5. Why is this important? 6
"Addiction"

Using the data from both the previous studies we have begun to evaluate other smoke components and nicotine analogues for their potential reinforcing value.

Other Areas of Ongoing Research.

C. Intra-ventricular Nicotine Administration

1. What is it? (prostration response)

2. The effect is nicotine specific

3. Our laboratory is the first to develop a behavioral profile using learning (operant conditioning) techniques.

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TRANSPARENCY DATA

Using this behavioral profile we have begun studies which will identify sites of action in the brain which mediate this nicotine specific response.

D. Other studies in our laboratory are designed to characterize the metabolic and behavioral factors that influence the rate of development and the extent of tolerance to nicotine.

* Remember chronic nicotine does produce tolerance but not physical dependence.

F. We have also begun investigations into the ability of smoke components to reduce frustration.

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