Evaluation of sedative drugs using cook's pole climbing apparatus

The Cook's Pole Climbing Apparatus is commonly used in preclinical pharmacological research to evaluate the sedative effects of drugs. This test is designed to assess the ability of a substance to induce sedation or affect motor coordination and behaviour, specifically by observing an animal's ability to climb or interact with a vertical pole.

EQUIPMENT REQUIRED

Animal:	Rat
Drugs:	Benzodiazepine
Instrument:	Cook's pole climbing apparatus

PRINCIPLE

Cook's Pole Climbing Apparatus is based on the observation that sedative drugs impair motor coordination and behaviour. When rat is administered a sedative drug, it typically exhibits **reduced motor activity, slower response times.** In this test, the animal is expected to climb a vertical pole, and the time taken as well as response to electrical shock is also been measured, serves as a measure of the sedative effect of the drug(benzodiazepine). It has grid floor that acts as source of shock along with that in centre there is wooden pole for climbing.

PROCEDURE:

1) The rat needs to be trained first in cook's pole climbing apparatus as follows:
   - Buzzer is pressed. (Conditional stimulus)
   - After 20sec shock of 20milliampere is given through the floor grid. (Unconditional stimulus)
   - This cycle is repeated until the rat learned to climb the pole as soon as the buzzer is pressed without getting shock.
2) The trained rats are then further chosen for sedative study.
3) Furthermore, the benzodiazepine is administered, to observe the sedative effect of drug.
4) The trained drug treated rats are taken for further study and the activity is observed and measured.

CONCLUSION:

By comparing the performance of treated animals with control groups, researchers can assess the degree of sedation and evaluate the potential sedative properties of new drugs. This test is useful in preclinical drug screening to understand both the therapeutic and side effects of sedative substances.

IDEAL OBSERVATION

	Response on buzzer	Response on current
Control Group	Positive	Positive
Drug treated	No response	No response

RESULT: Rats were given benzodiazepines (sedative drugs) under both stimulus conditions, which involve pressing a buzzer and passing a little amount of current, but no reaction was observed.