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HIGH-FAT DIET INCREASES THE CONDITIONING REWARDING EFFECTS OF COCAINE

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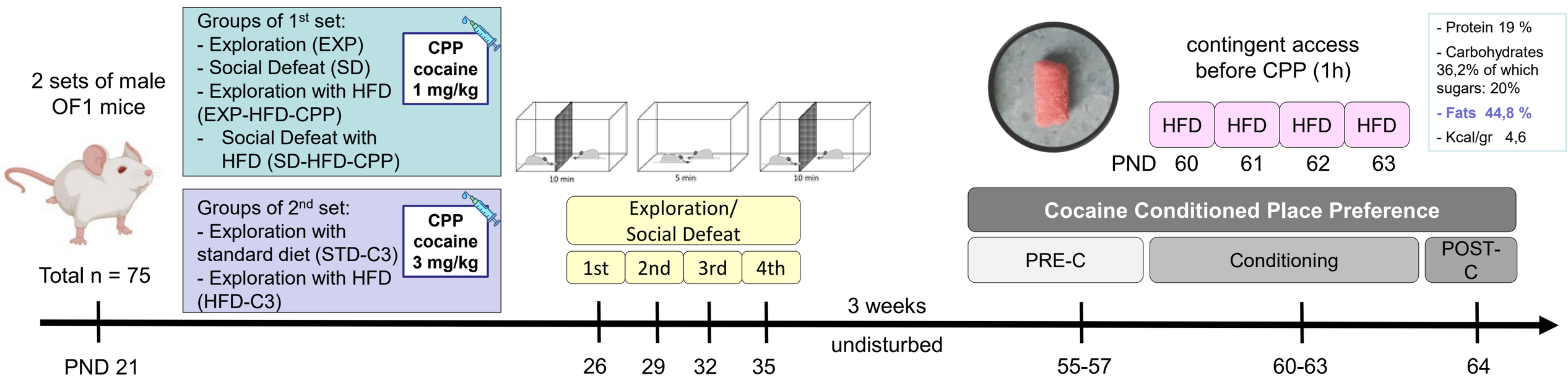
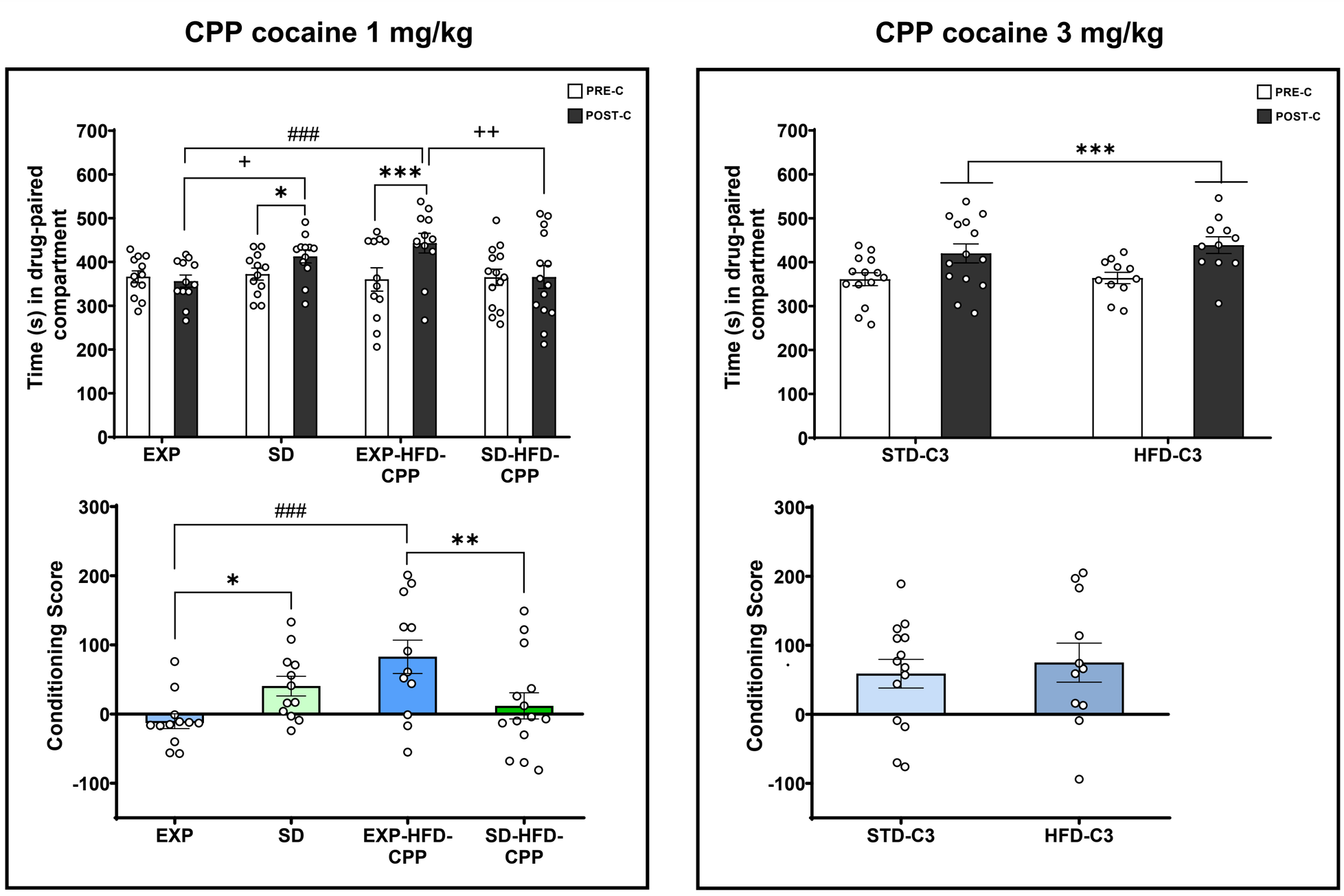
INTRODUCTION

Stress is known to be closely related to all stages of the addiction process. Also, some types of foods high in sugars and carbohydrates, known as palatable food, are known to have considerable effects on the brain's reward system by stimulating structures involved in the whole addictive process. Preclinical studies suggest that this stimulation by high-fat diets (HFD) could act as an alternative reinforcer, attenuating the increase of the rewarding properties of psychostimulants induced by social stress. The main objective of the present study was to evaluate the effect of a limited and intermittent exposure to HFD administered during the acquisition of 1mg/kg of cocaine-induced Conditioned Place Preference (CPP).

METHODS



RESULTS



Our results showed that access to an HFD administered before CPP with a subthreshold dose of cocaine blocked the increased in the conditioned rewarding effects of cocaine induced by SD. Conversely, exposure to an HFD before CPP in non-stressed animals increases the conditioned rewarding effects of cocaine. These non-stressed mice (EXP-HFD-CPP) developed preference with a non-effective cocaine dose. Nevertheless, we did not observe modulation of the HFD on the rewarding effects of cocaine with an effective dose in non-stressed animals.

CONCLUSION

Although our results support that HFD could be a good alternative reinforcer that blocks the increased in the conditioned rewarding effects of cocaine in stressed animals, we have to take into consideration the potentiating effect of HFD when is contingently consumed with cocaine.

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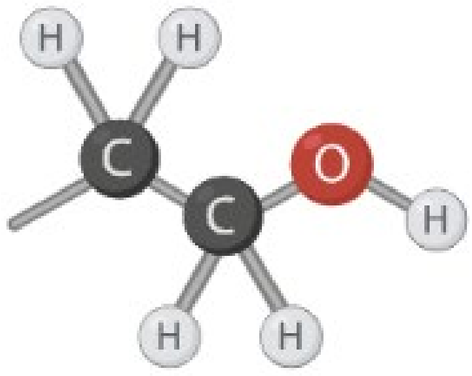

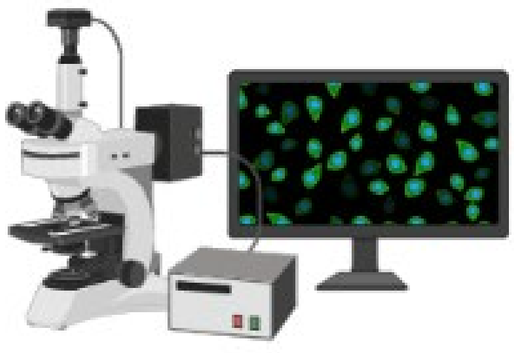

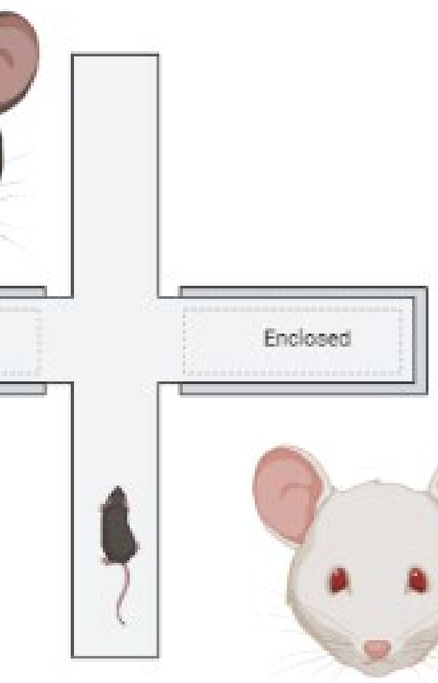

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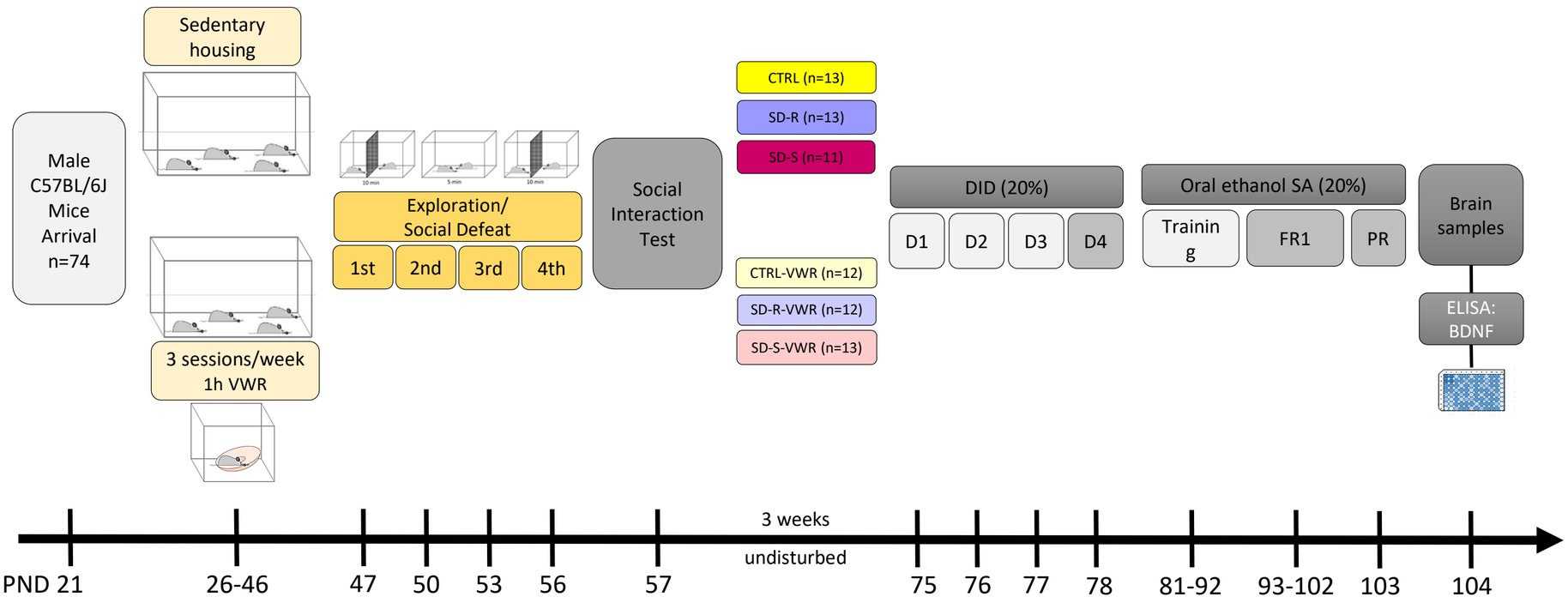
Standard Diet

Calorías de:
- Proteína 20%
- Carbohidratos 67%
- **Grasas 13%**
- Kcal/gr 2,9

High Fat Diet

Calorías de:
- Proteína 19 %
- Carbohidratos 36,2% De los cuales azúcar: 20%
- **Grasas 44,8 %**
- Kcal/gr 4,6


Male C57BL/6J Mice Arrival n=74
Sedentary housing
3 sessions/week 1h VWR
10 min
5 min
10 min
Exploration/ Social Defeat
1st
2nd
3rd
4th
Social Interaction Test
CTRL (n=13)
SD-R (n=13)
SD-S (n=11)
CTRL-VWR (n=12)
SD-R-VWR (n=12)
SD-S-VWR (n=13)
DID (20%)
D1
D2
D3
D4
Oral ethanol SA (20%)
Training
FR1
PR
Brain samples
ELISA: BDNF
3 weeks
undisturbed
PND 21
26-46
47
50
53
56
57
75
76
77
78
81-92
93-102
103
104