

## Figure 1: Description of how the experimental design was elaborated

- Four weeks old male Swiss mice ( $\cong$  25 g) from the Unicamp Central Animal Facility (CEMIB) were kept in isolated cages under controlled light, temperature, sound and humidity conditions, as described into the main document.
- When the animals reached 8 weeks old, they were separated into two groups: one kept fed chow diet (CTL) and the other started feed HFD (Obese group).
- After 14 weeks of induction to obesity, the obese animals were distributed into two groups: one kept sedentary (OB) and the other started the strength training (STO). For this, the STO group started adapting to the strength training apparatuses (ladder and the tubs in which the overloads were inserted). After 5 days of adaptation, the animals rested for 1 day and the next day the test for MVCC determination was performed. After MVCC determination, the animals rested 1 more day and the strength training was started.
- Initially, the animals trained for 13 uninterrupted days. Eight hours after the thirteenth strength exercise session and 8 hours fasting, the animals were submitted to ipPTT to evaluate the HGP control. The animals did not exercise on that day.
- After the ipPTT, the animals performed another two days of strength exercise, completing the 15 exercise sessions proposed.
- Eight hours after the last exercise session and also 8 hours fasting, the animals were anesthetized and had their tissues collected for future analysis.