

ASSESSMENT OF STRESS RESPONSE IN MUSHING DOGS

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FINAL DEGREE PROJECT (JUNE 2021)

Introduction

Mushing is an old sport that has its beginnings in sled dogs that made long distances through the snow. Today, the modality of dry land races has been created where participants compete in cars, bicycles, mountain scooters or even running.

In long-distance racing, a significant increase in serum gastrin, cortisol, and C-reactive protein has been observed in sled dogs (Fergestad et al. 2016), three parameters that are elevated in stressful situations.

The value of SDNN, which we will work with, is used as an indicator of stress as it tends to be lower when sympathetic ANS activity is stronger (Song et al. 2006). Therefore, at lower SDNN, the dog is considered to have a higher level of stress.

Sex influence

Sex seems not to be an influencing factor in the level of stress in dogs (p value 0,620). In the reviewed literature we also found no significant differences in SDNN values between males and females (Bogucki & Noszczyk-Nowak. 2015).

Waiting place before competition

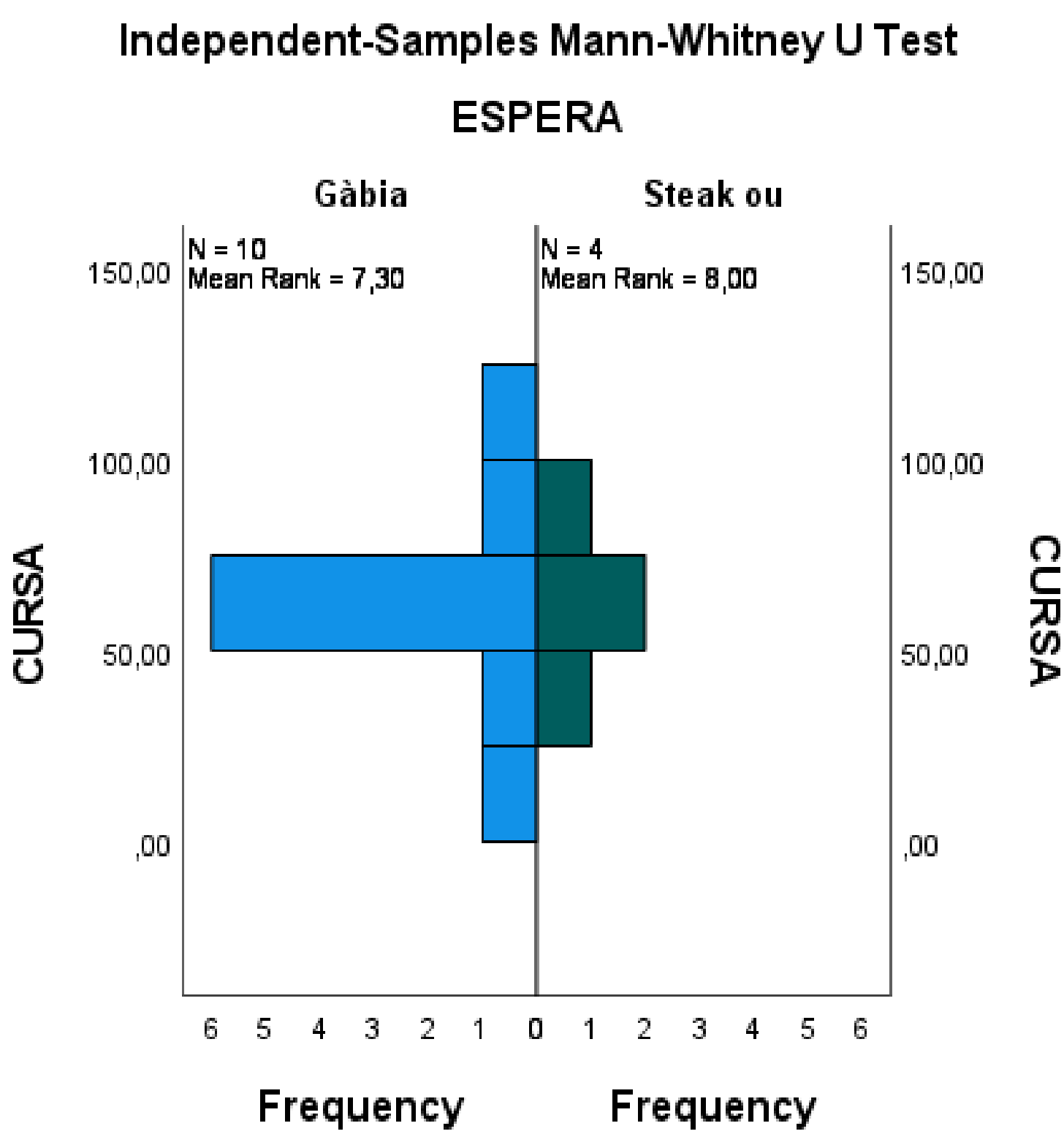


Figure 2. Distribution of the SDNN in dogs waiting in boxes (gàbia) and in the steak out.

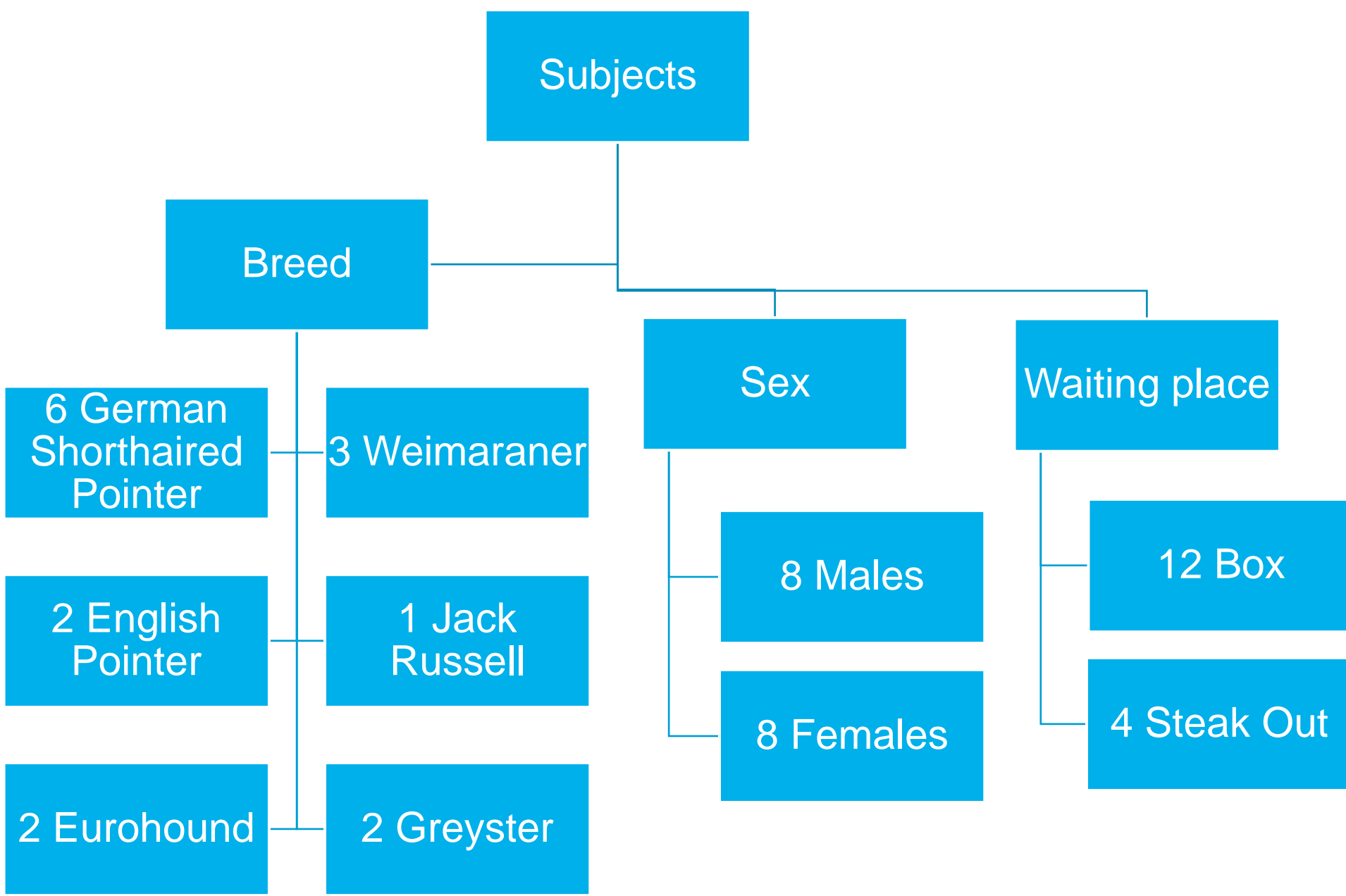
There are no significant differences between the SDNN from dogs waiting to run in a box (gàbia) and those who are tied to the steak out (p value 0,839) (Fig. 2).

Even though, behaviors like barking, trembling and circling, related to stress (Pastore et al. 2011) were observed in dogs tied to the steak out.

Conclusion

- ✓ The moment of the competition shows significative differences between groups. Therefore, it is possible to confirm that competition is a stressful factor to canine athletes.
- ✓ Another of the factors that seems to be determining in the stress level of the dogs is the waiting place before competition. Although this study doesn't show significant differences in SDNN between dogs that were in one place or another, it would be interesting for the future to expand the sampling.
- ✓ Sex and breed doesn't influence the stress level of the animals.
- ✓ In order to carry out with the individual differences, the same individuals should be evaluated by exposing them all to different situations.

Animals



16 dogs participated in the study but only 14 dogs' registers were used for the independent analysis and 7 for the related samples analysis due to the quality of the recordings.

Breed influence

No significant differences were found between stress levels in hunting dogs (Fig. 3) and mixed-breed dogs created by sprint mushing (Fig. 4). These mixed-breeds have only been designed for the competition itself, so no major differences in stress levels were expected.



Figure 3. One of the dogs of the study, a German shorthaired pointer in bikejoring.



Figure 4. Four eurohounds running in DR4, two of them participated in the study (right in front and left behind).

Data recording and analysis

Data has been recorded in different moments:

Before the competition

After the competition

End of the journey

Data was recorded with Polar® V800 (Fig. 1) and processed with Kubios HRV Standard® and SPSS Statistics®.



Figure 1. Two of the dogs of the study tied to the steak out with the SDNN register device, before the race.

Changes in different moments of the competition

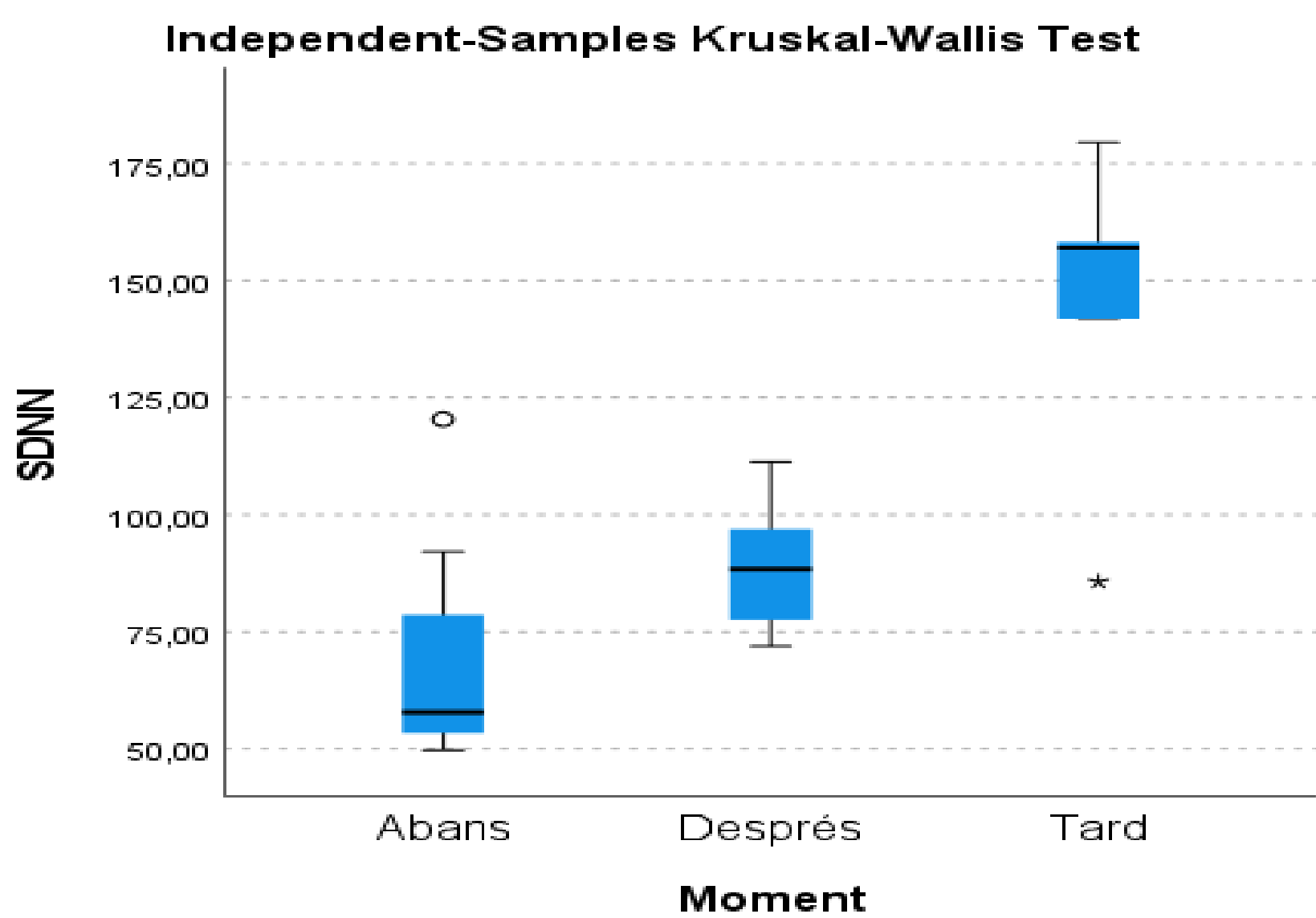


Figure 5. Distribution of SDNN before the race (abans), after the race (després), and hours later (tard).

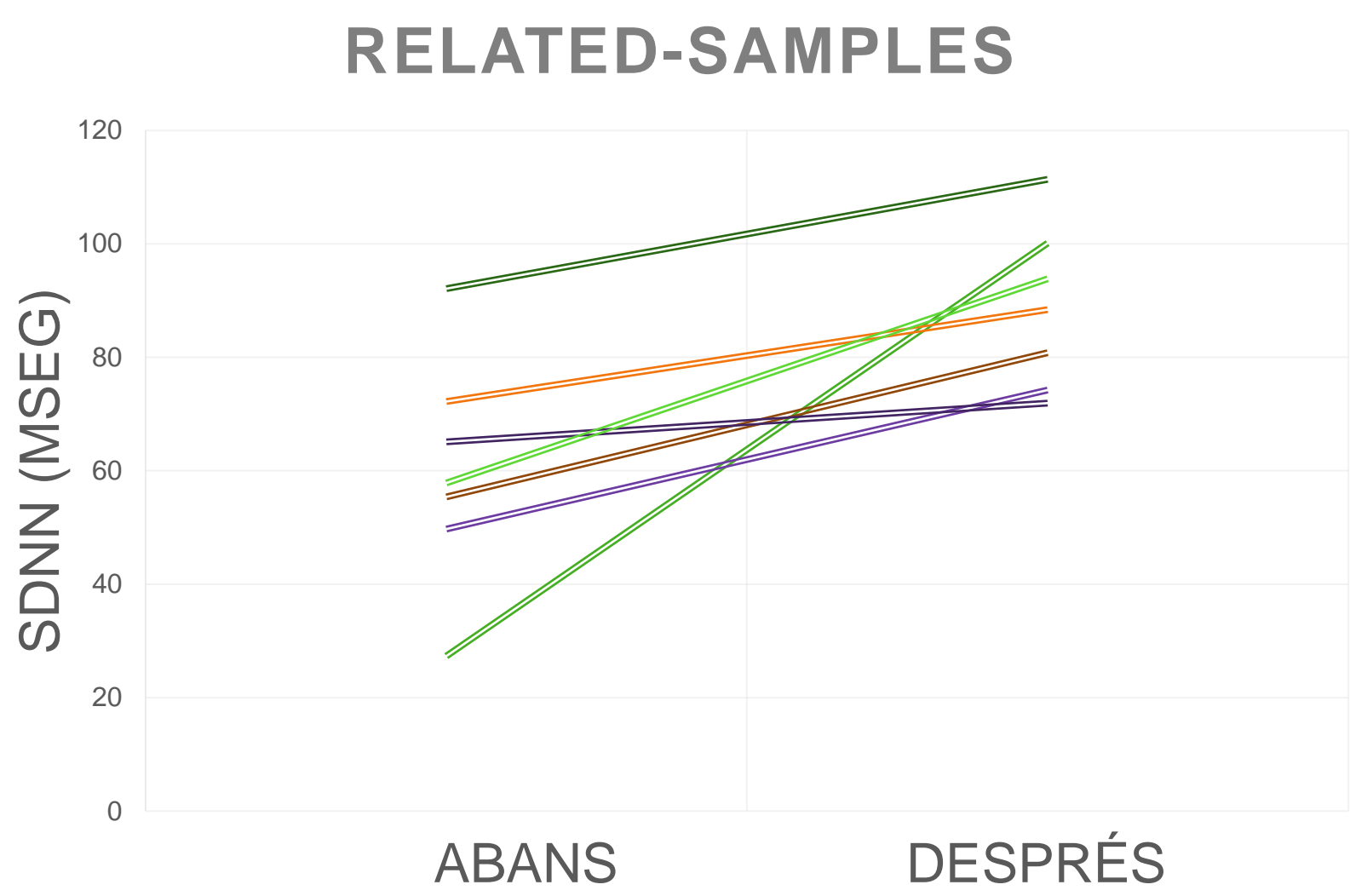


Figure 6. Distribution of SDNN in related samples before (abans) and after (després) the race.

Doing an independent sample analysis, there are no significant differences between the data before (abans) and after (després) the race. In the other hand, the analysis between these data and the registers taken when all the competition journey had ended (tard) shows significant differences (p value 0,011) (Fig. 5).

Even though, analysing the data between each dog before (abans) and after (després) the competition, there is a significative increase after the race (p value 0,018) (Fig. 6).

Literature Cited

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