Morphological body measurements, body condition score and ultrasound measurements of Portuguese Garrano horse breed

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INTRODUCTION

GARRANO Breed:

* Ancient pony breed – North Portugal;

* The GarranoPony belongs to a wide family of ponies which live on the Atlantic coastal area from Portugal to Scotland;

Santos et al., 2009

INTRODUCTION

GARRANO Horse:

- Straight/concave head profile;
- bay coat;
- very dense mane and tail;
- Withers height: 1.30m;
- Extremely resistant and robust.

Santos et al., 2009

INTRODUCTION

GARRANO Horse:

*"passo travado"

*Sport

*Riding tourism

*...

Santos et al., 2009

INTRODUCTION

GARRANO Breed

*Mountain free-ranging system:

*Exploitation of natural resources
*Seasonal shortage of food resources

Depending on the severity and length of the scarcity:
*Use body reserves with losses in live weight and body condition

Santos et al., 2009

OBJECTIVES

The objective of this study was to characterize as much information as possible about RTU, BCS, CNS and morphometric measurements in Garrano horses to obtain knowledge about the condition score of these animals and to find any correlations between these measurements

Santos et al., 2009

MATERIALS AND METHODS

Animals:

21 horses of the Garrano breed (5 stallions and 16 mares) semi-wild conditions in the region of Peneda - Gerês in the North of Portugal (Minho)

Measurements:

Withers Height (WH)
Girth (G)
B*ody length (BL)*
Side length (SL)
Neck circumference (NC)
Neck length (NL)
Crest height (CH)

All neck measurements were taken while the neck was held in a relaxed position, at approximately 45º angle (method from Carter *et al*., 2008)

Santos et al., 2009

MATERIALS AND METHODS

Body Condition Score:

***Body Condition was determined with visual appraisal and palpation with the hands on six particular parts of the body, according to the system described by Henneke *et al*. (1983)**

Cresty Neck Score:

By scaling the neck crest of a horse, a grade on a scale from 0 (no palpable crest) to 5 (enormous crest) was given to each horse, according to the system described by Carter *et al*. (2007 , 2008).

Santos et al., 2009

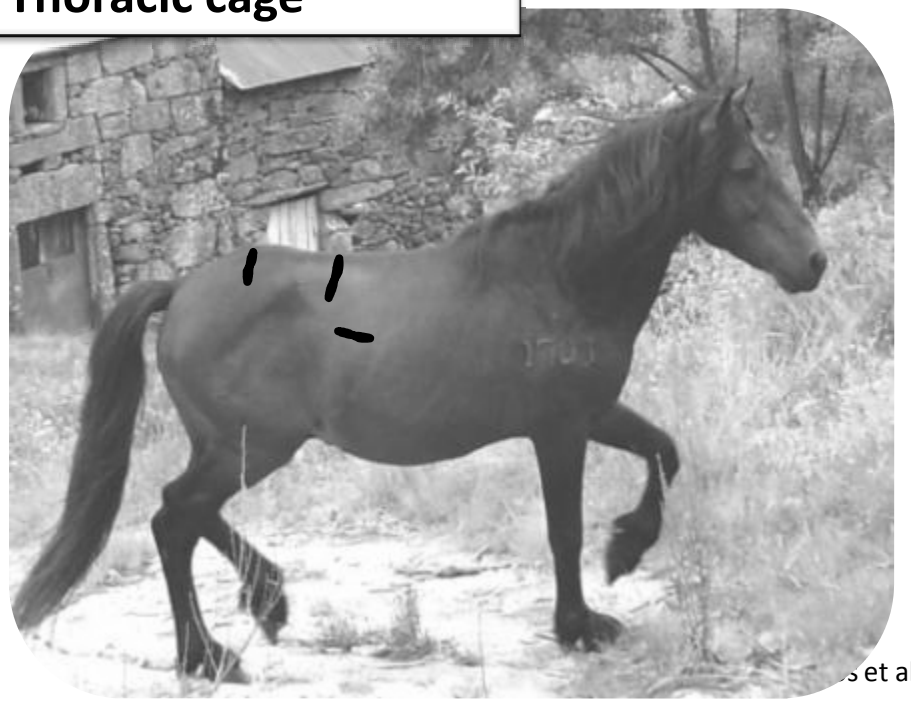
MATERIALS AND METHODS

Real Time Ultrasound (RTU):

Aloka SSD 500V real time scanner (Tokyo, Japan) linear probe of 5.0 MHz (UST-588U-5, 64 mm, Tokyo, Japan)

The probe was placed at 3 different sites:

- For subcutaneous fat measurements (SF): Back and rump
- For tissue depth measurements (TD): Thoracic cage



MATERIALS AND METHODS

Real Time Ultrasound (RTU):

Images were analised using ImageJ program (http://rsb.info.nih.gov/nih-image/)

Back

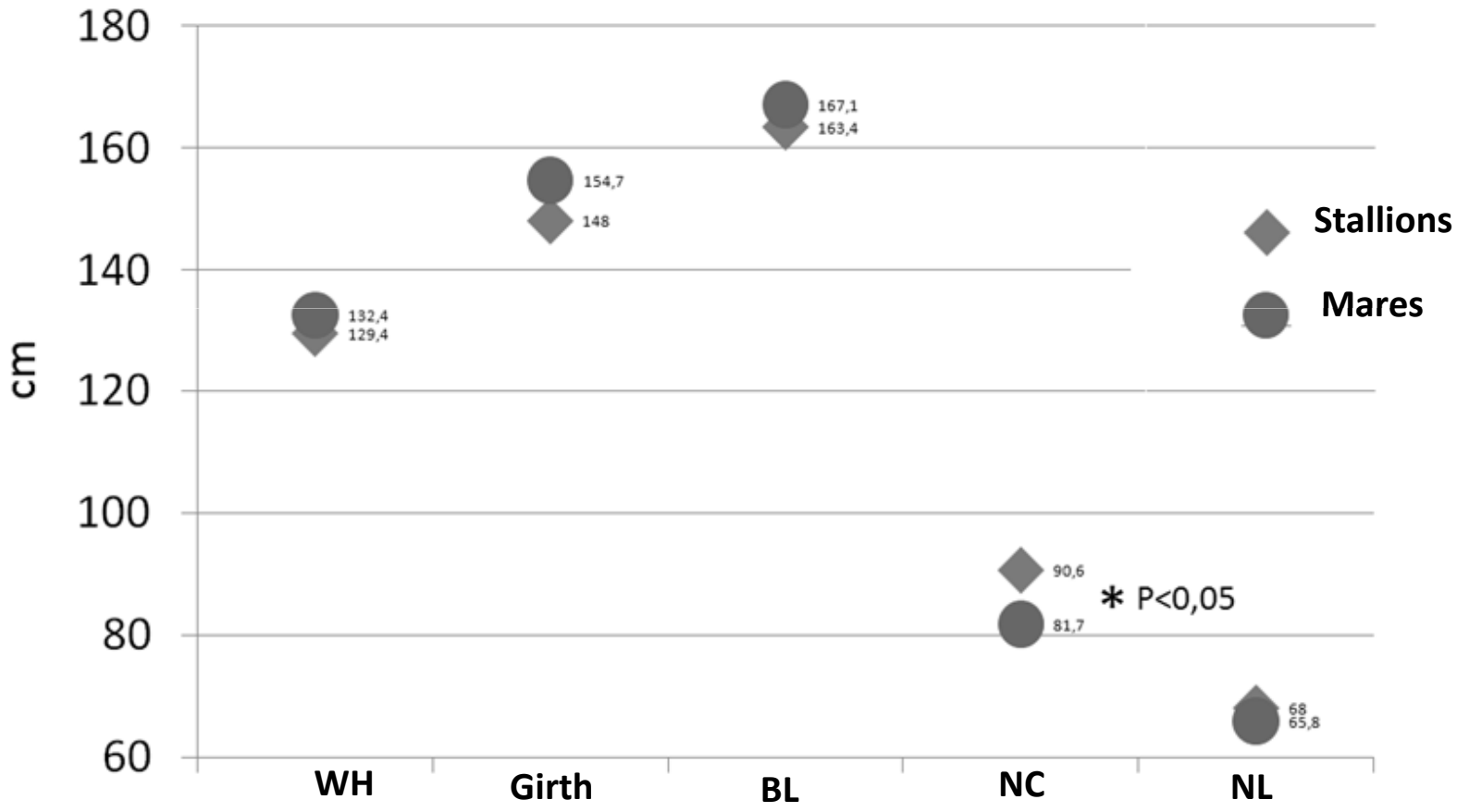
Rump

Thoracic cage

Santos et al., 2009

RESULTS AND DISCUSSION

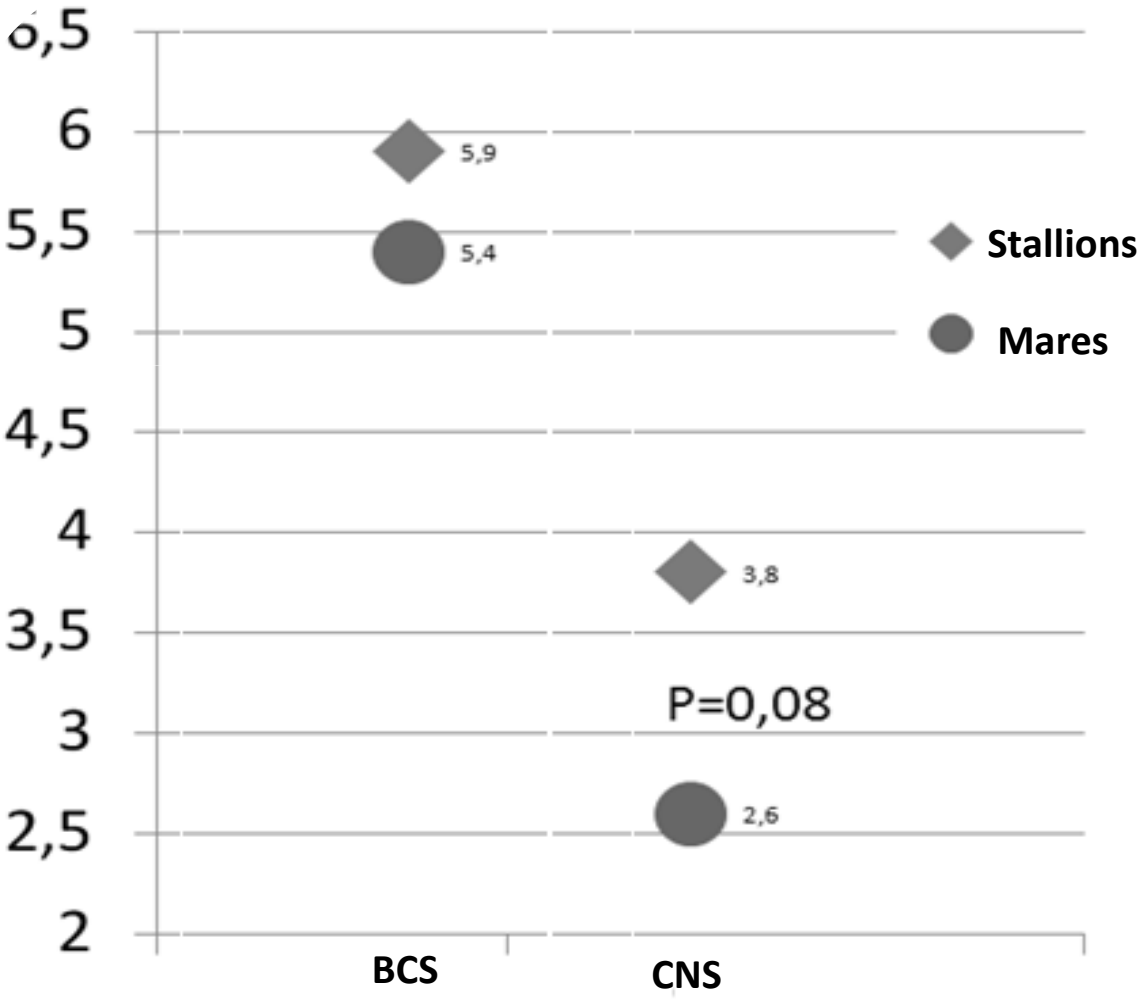
Morphometric measurements



Santos et al., 2009

RESULTS AND DISCUSSION

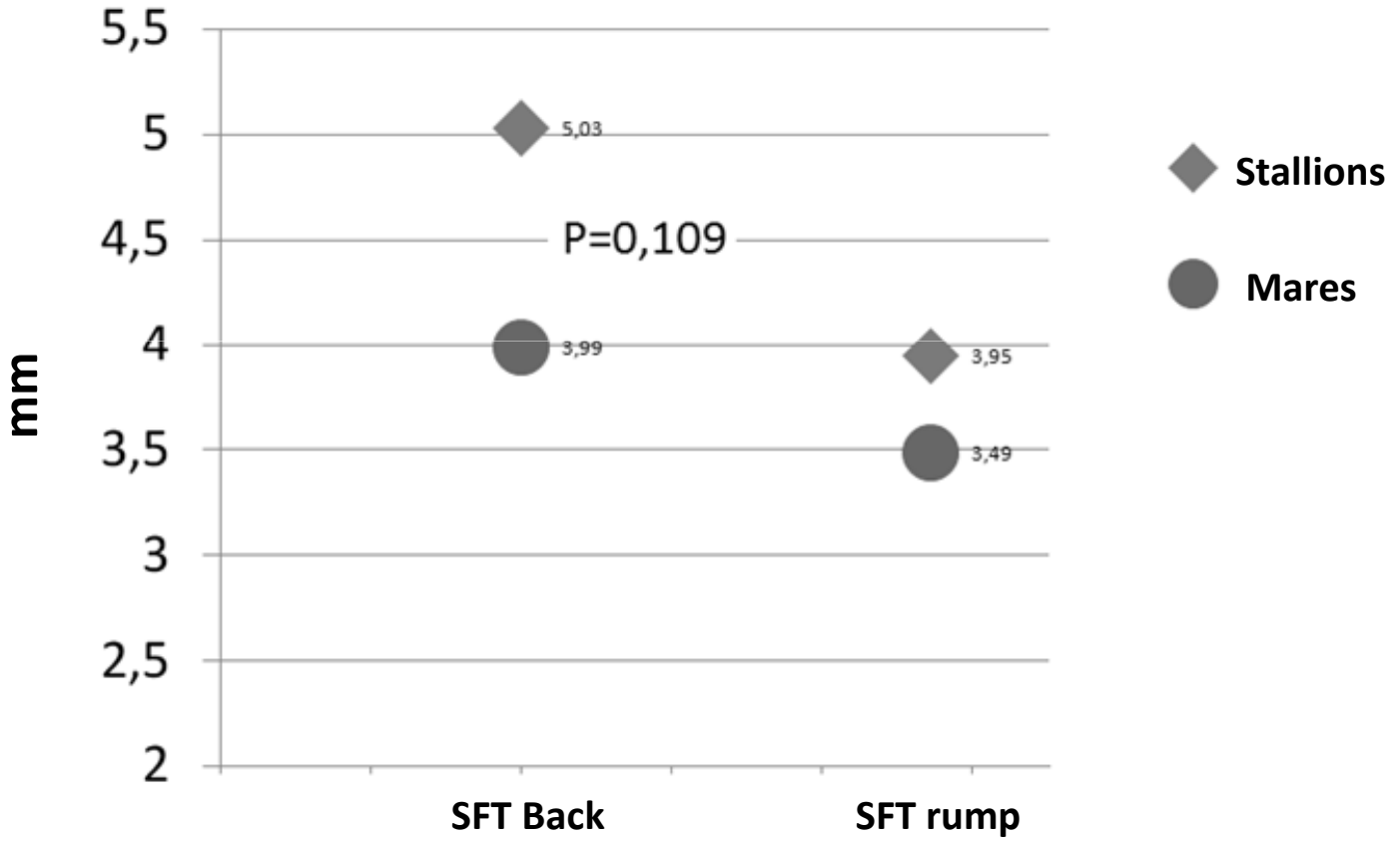
Body Condition Score (BCS) and Cresty Neck Score (CNS)



Santos et al., 2009

RESULTS AND DISCUSSION

Subcutaneous fat thikness (SFT)



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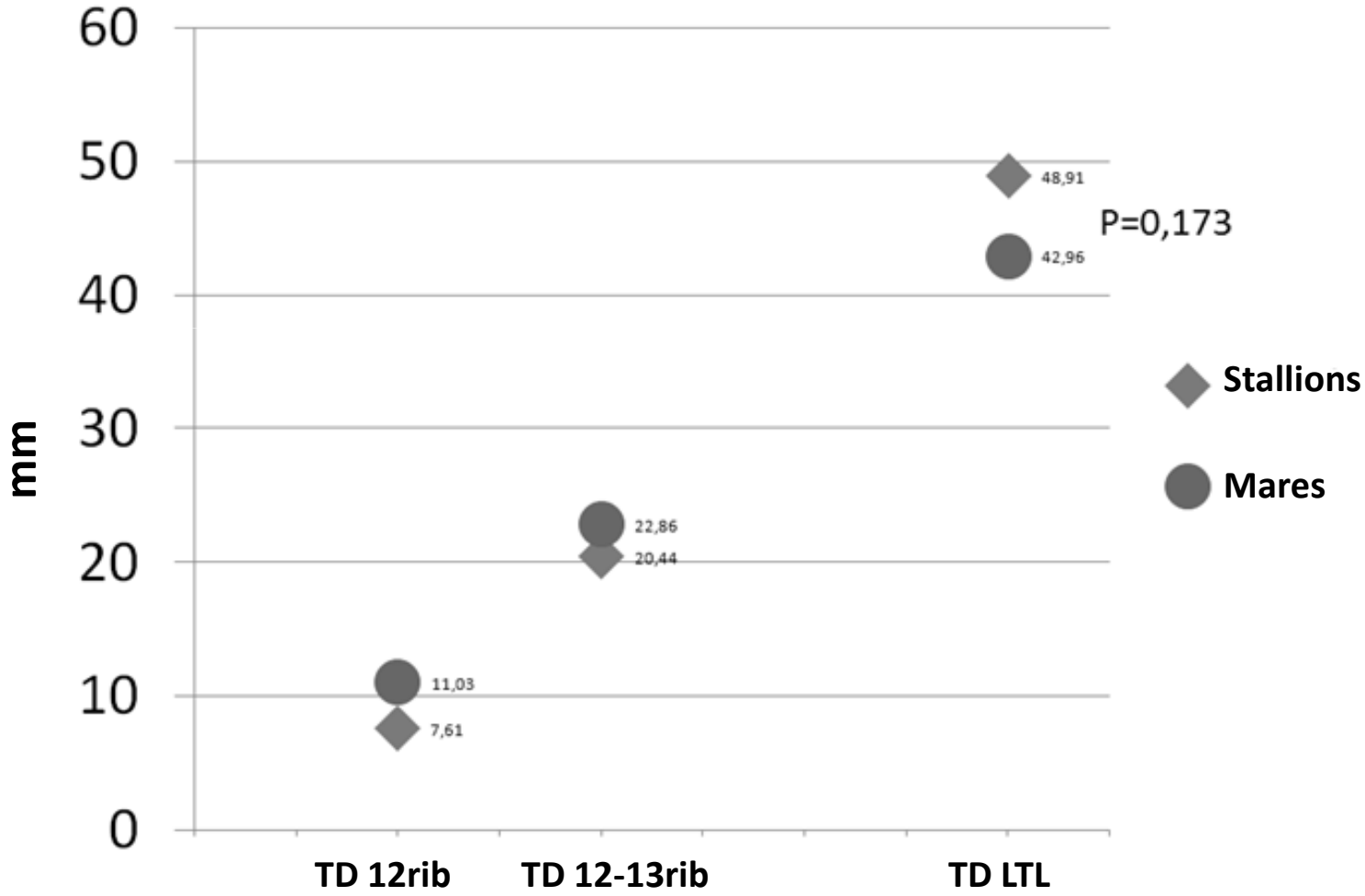
RESULTS AND DISCUSSION

Tissue Depth (TD)



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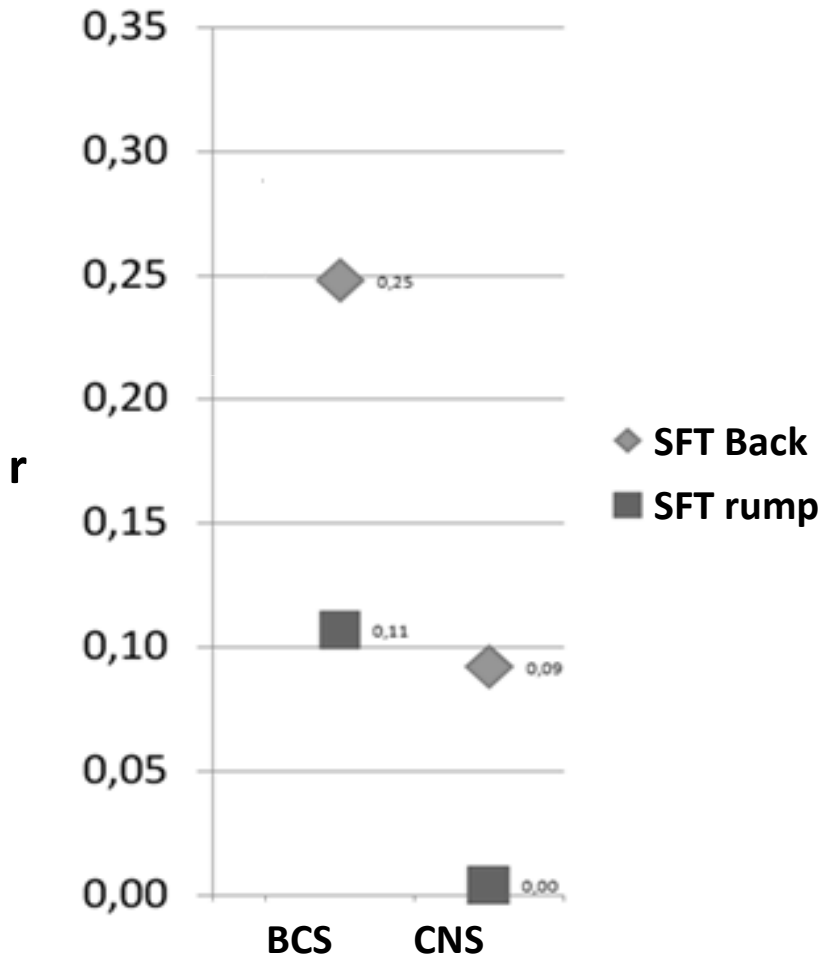
RESULTS AND DISCUSSION

Correlation SF RTU, BCS and CNS



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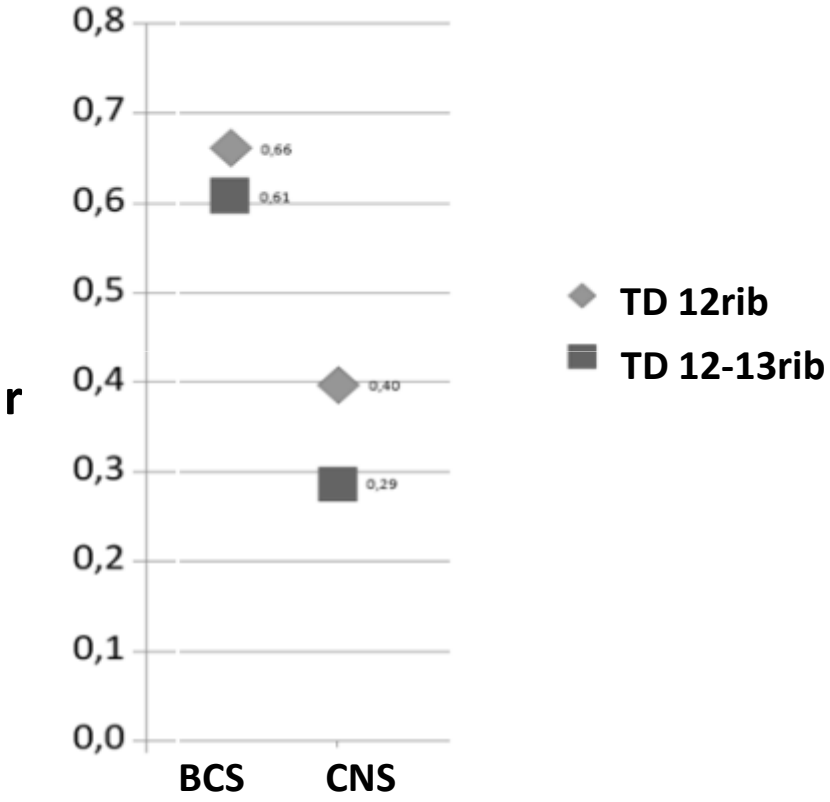
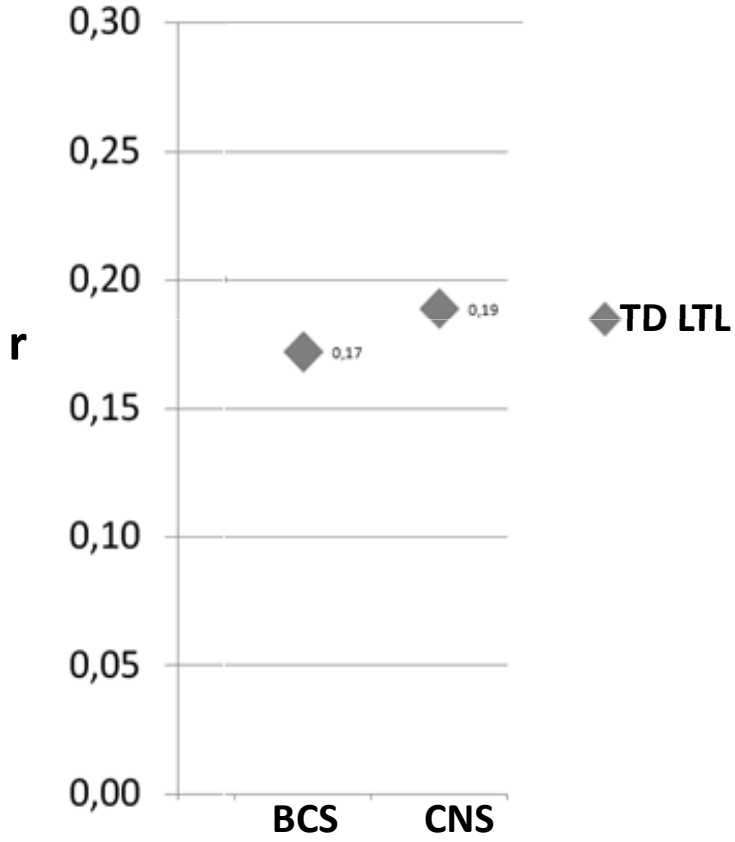
RESULTS AND DISCUSSION

Correlation TD RTU, BCS and CNS





Santos et al., 2009

CONCLUSIONS

* All 21 animals studied were within the general pattern for the Garrano breed;

*With the exception of neck measurements, sexual dimorphism was not apparent in MM;

*Animals were in a good BCS at the end of spring (5.5)

*SF RTU measurements at the back (4.2±1.3mm) and at the rump (3.6±1.1mm) showed a variation (CV=29 and 32%, respectively) close to that observed for BCS (CV=26%);

* More studies are required, namely in different seasons and with a higher number of animals.

*Contribute to the Garrano Breed knowledge

Santos et al., 2009

RESULTS AND DISCUSSION

Santos et al., 2009