Performance diagnostics in Icelandic sport horses

Analyze of the endurance capacity of Icelandic horses

Nora Weiher, Prof. Dr. Winter

Bachelorthesis, Nuertingen-Geislingen University

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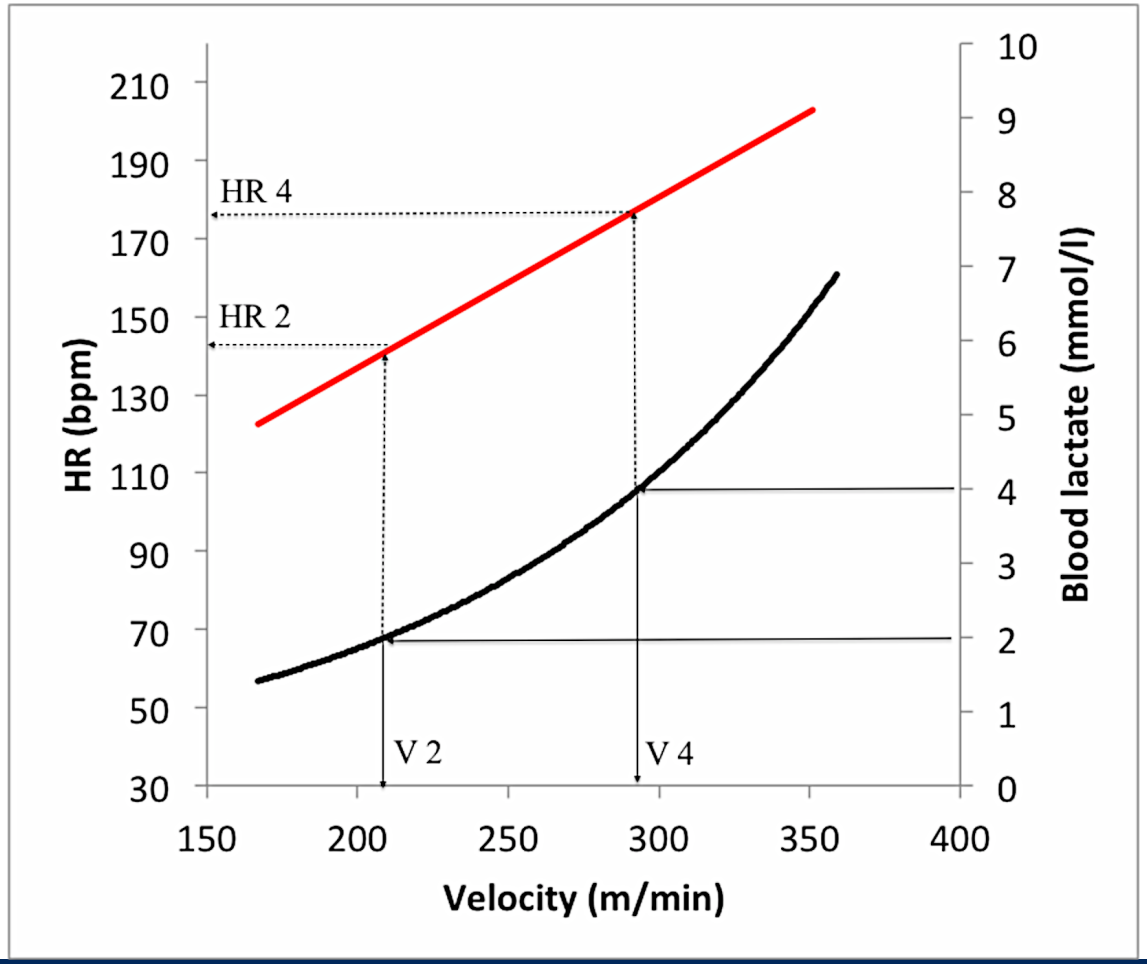
Basics

- Training to improve performance (Hinchcliff et al. 2008)
- Condition: Endurance, speed, strength (Ellendorf, 2011)
- Endurance important for performance (Lindner, 1997)
- Parameters: Heart rate, lactate, velocity
  - Calculated values: V_2, V_4, HR_2, HR_4
  - Quantify aerobic and anaerobic metabolism

Calculated values: V_2, V_4, HR_2, HR_4



Aim of the study

Analyze the endurance capacity of Icelandic sport horses

Icelandic horses

- 17 Icelandic horses
- Different gender
- Age: 5 – 27 yrs
- Experiences on competition
  - Four gait
  - Toelt
  - Speed pace
  - other

Experimental set-up

Date	02.11.16	07.11.16	08.11.16	18.11.16	24.11.16	27.11.16
Length of the track	220m	220m	250m	250m	220m	200m
Number of horses	6	4	1	1	2	3
Riders	a, b, c	a, b	d	d	e	f

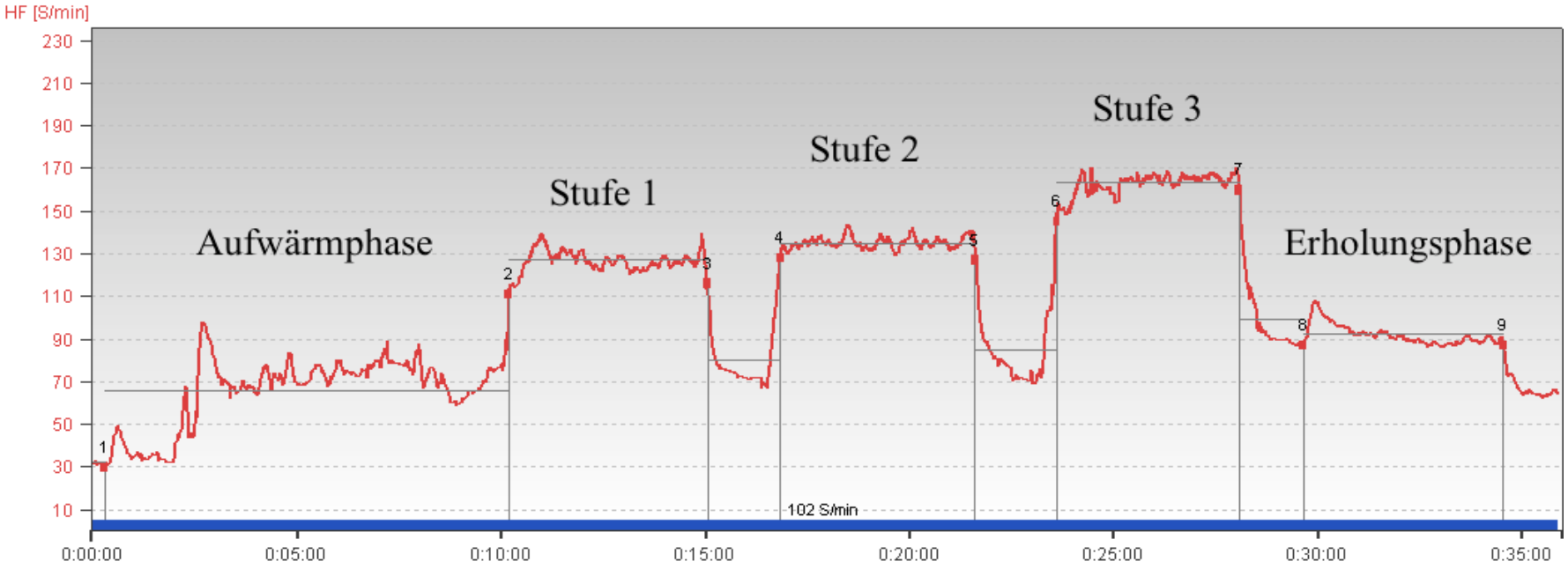
- Measurement of
  - Velocity — stopwatch
  - blood lactate — Lactate Scout+ (SensLab GmbH)
  - heart rate (HR) — Polar HR Monitor (RS800CX)

Set-up of the field exercise test

Phase	Gait	Velocity (m/min)	Time (min:sec)
Warm up	walk	-	10:00
1	toelt	180	05:00
2	trot	250	05:00
3	galop	320	05:00
Recovery	walk	-	05:00

- Lactate values 02:21 (min:sec)
- Average duration total 37:04 (min:sec)

Set-up of the field exercise test



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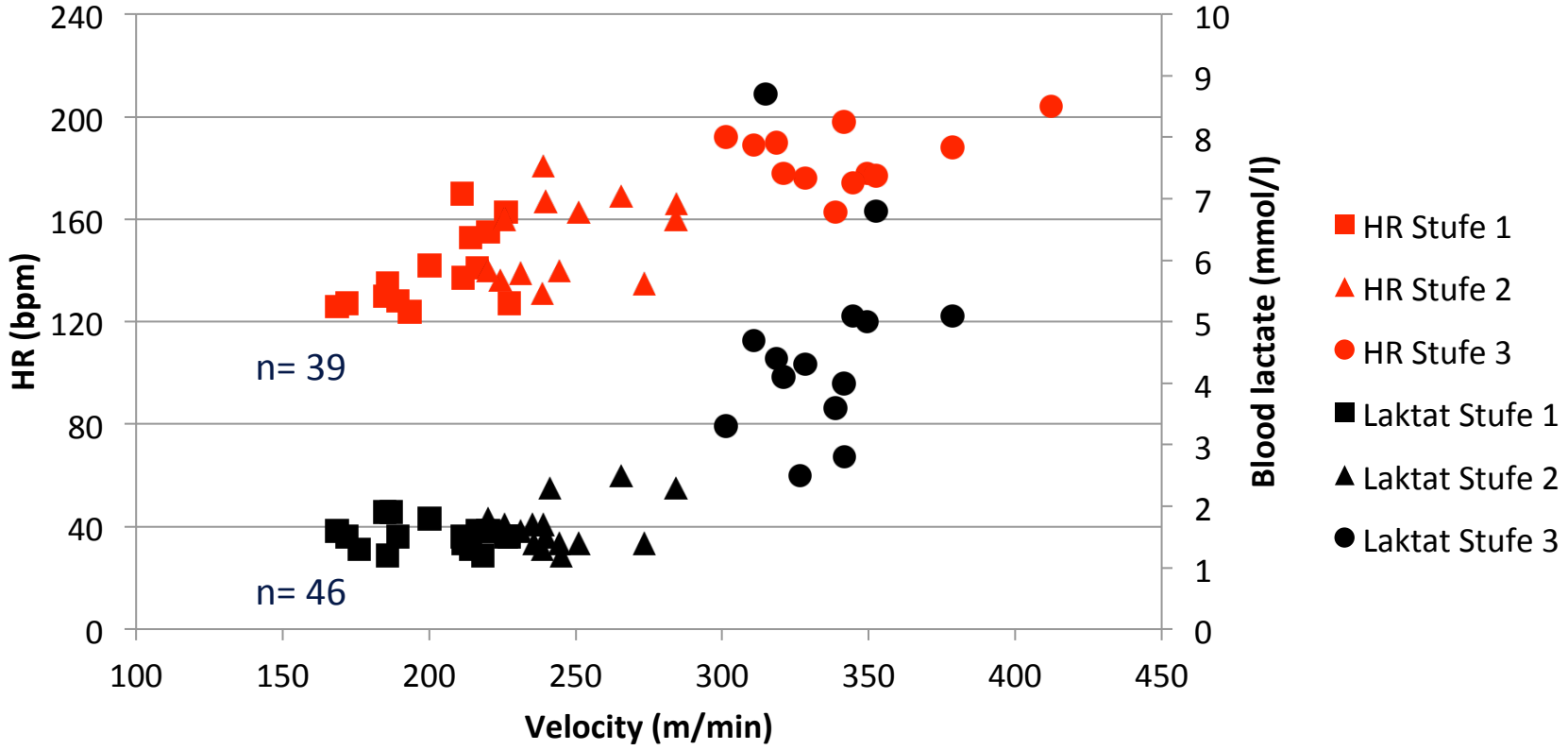
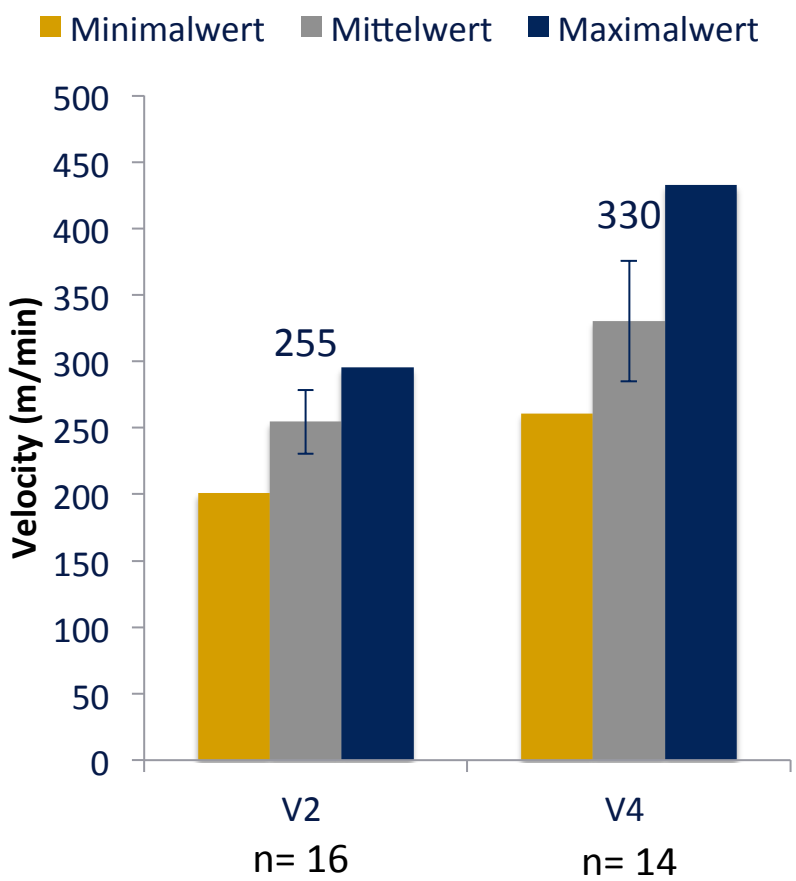
Statistical analysis and calculations

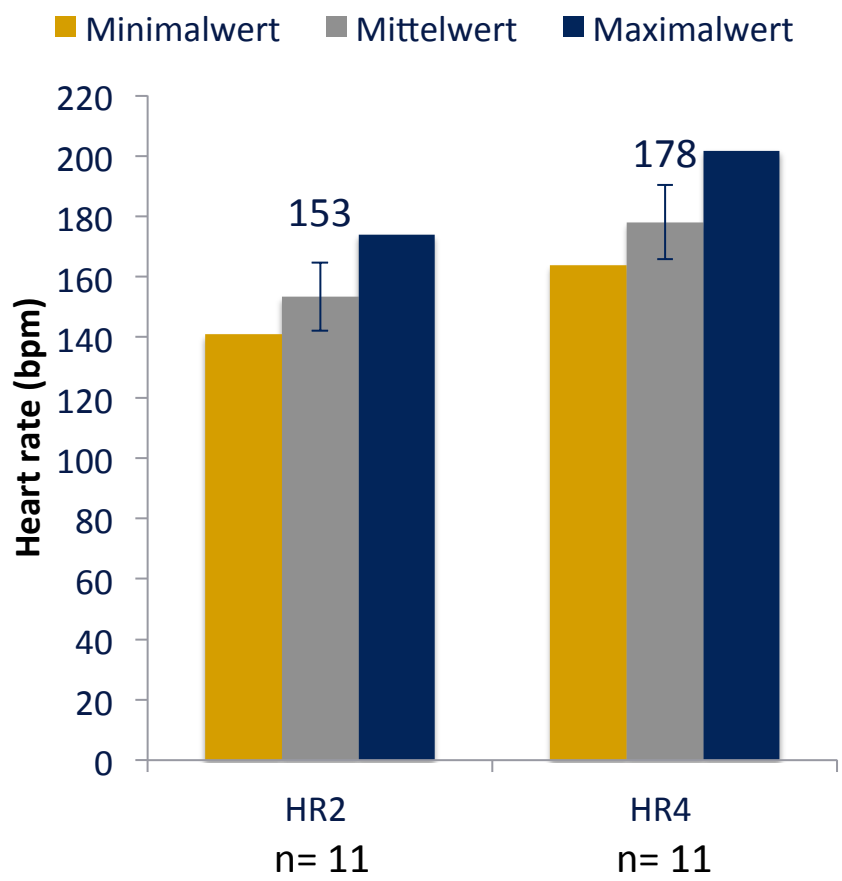
- Polar ProTrainer 5™
  - Error correction
  - Calculation of average HR for each phase and horse
- Microsoft Excel 2011
  - Inter- and extrapolation
- SPSS Statistics (IBM)
  - Standard distribution
  - Regression analysis

Heart rate (HR) and lactate values of the horses

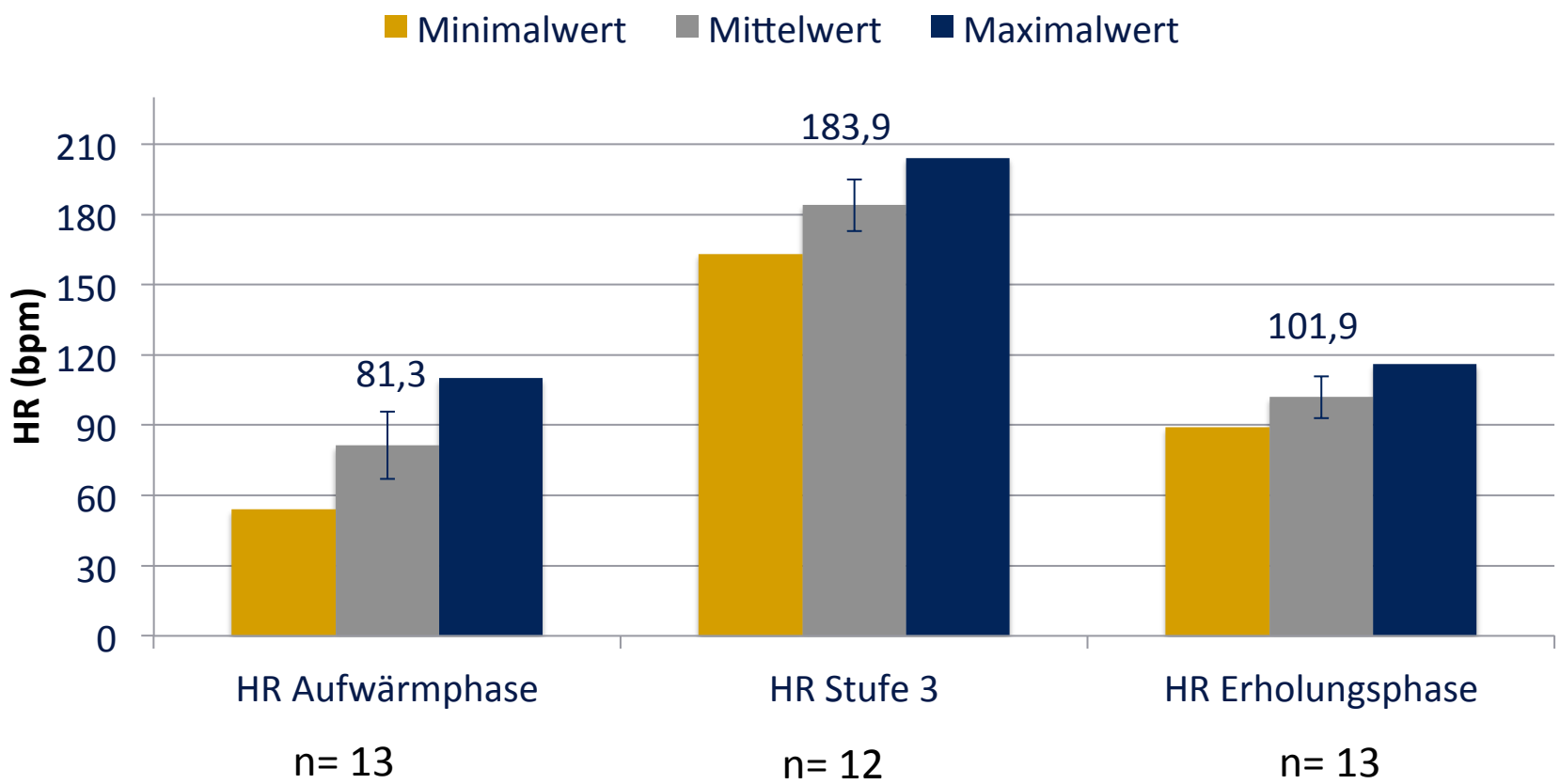


Values V_2, V_4, HR_2 and HR_4

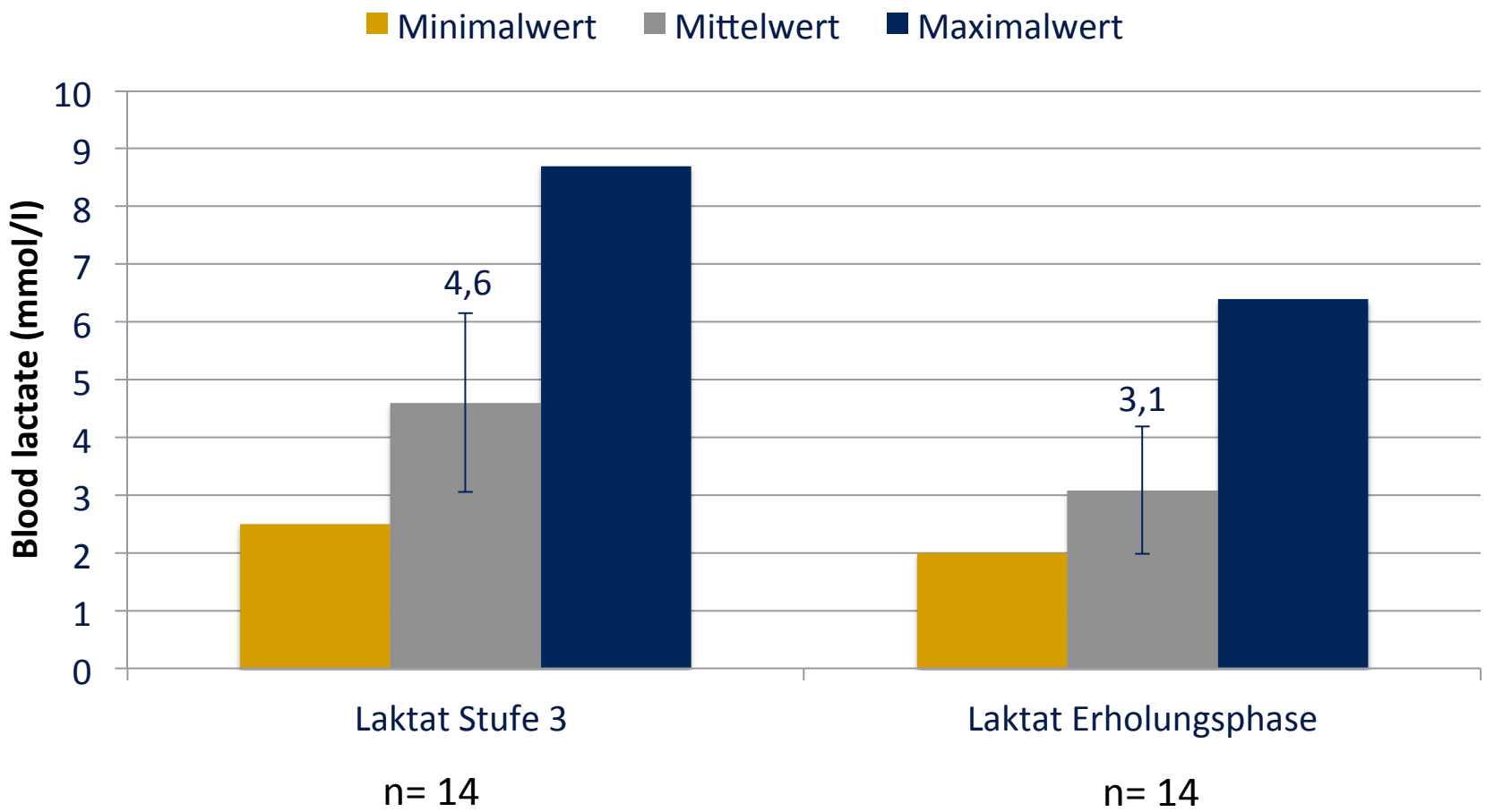




Heart Rate (HR) in warm up, phase 3 and recovery phase



Lactate elimination



The tested Icelandic horses...

- recovered quickly
- Give indications for well-developed endurance capacities

Results usable...

- as reference values
- for specific training programs

References

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Thank you for your attention!