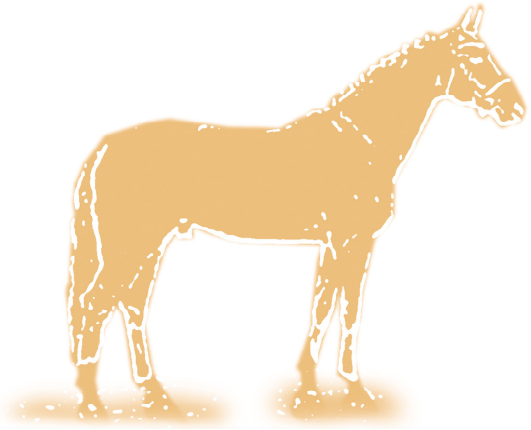


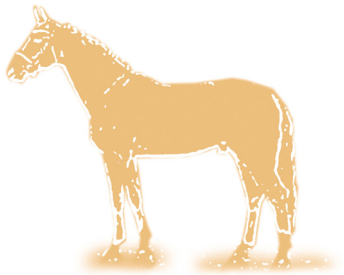
Stress response and interaction with the horse of male and female riders in equestrian show jumping

Natascha Ille, Jörg Aurich, Mareike von Lewinski, Regina Erber, Manuela Wulf, Rupert Palme, Christine Aurich

Veterinärmedizinische Universität Wien

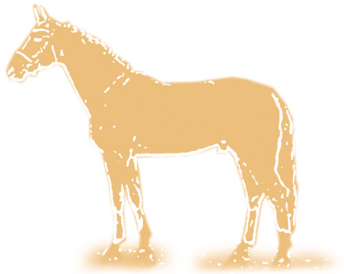
vetmeduni vienna

Introduction



- riding theories over centuries developed for men
- equestrian sports nowadays dominated by women
  (in Germany 79% of the riders are female)
- women and men participate in the same competitions

About the study



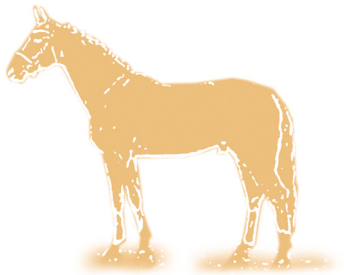
Experiment 1

- stress response in male and female riders and their horses during a show jumping course

Experiment 2

- pressure under the saddle of male and female riders

About the study



Experiment 1

- stress response in male and female riders and their horses during a show jumping course

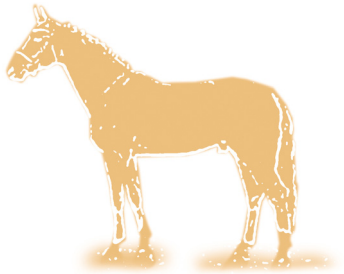
Experiment 2

- pressure under the saddle of male and female riders

Hypothesis

- less pronounced stress response in female riders
- horses are not affected by the sex of the rider
- male riders exert more pressure on the horses back

Experiment 1
Stress response of riders and horses



- riding students of the Brandenburg State Stud
  (n=16, 8 male and female each)
- 8 male horses of the Brandenburg State Stud riding school

- warm up phase
- standardised jumping course: 8 obstacles, 85 – 90 cm high
- cool down

Experiment 1
Stress response of riders and horses

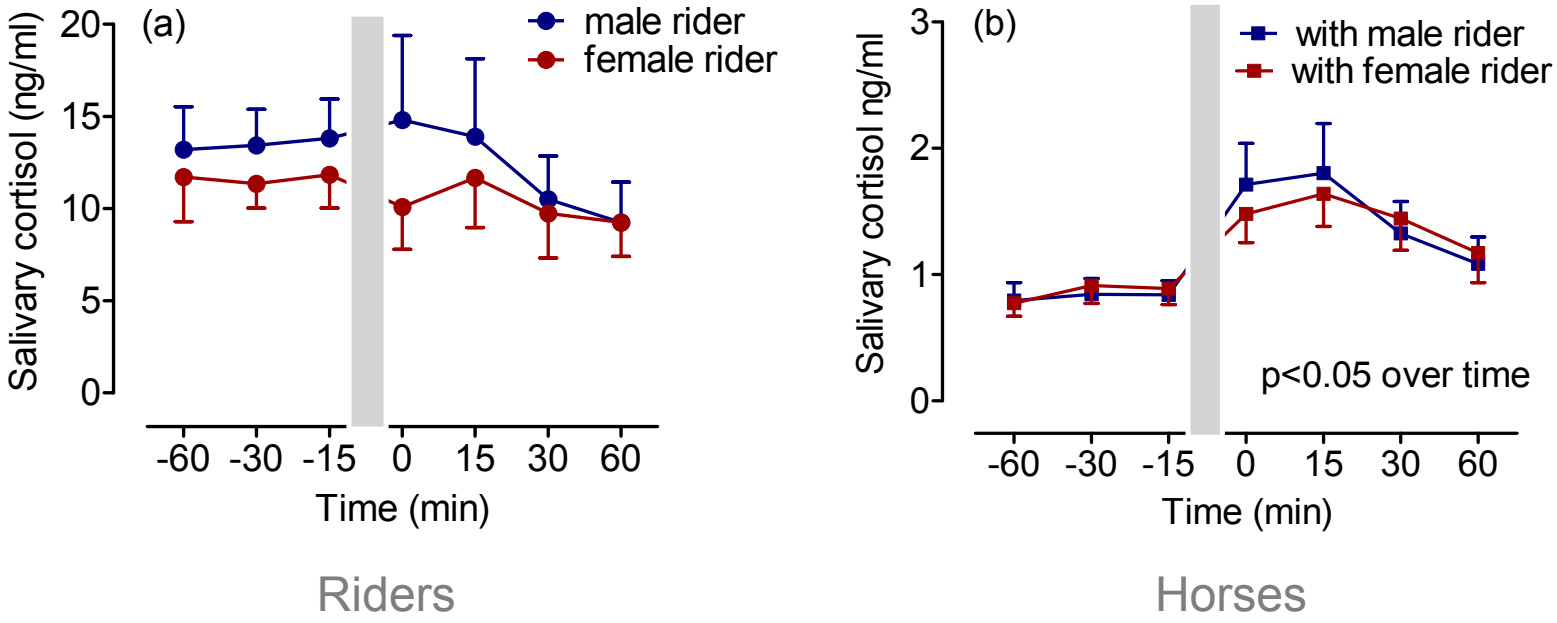
- cardiac beat to beat interval (RR)
  - mobile recording system (Polar)
  - continuously from 60 min before until 30 min after the jumping course

- heart rate
- heart rate variability
  - SDRR (standard deviation of RR interval)
  - RMSSD (root mean square of successive RR differences)

Experiment 1
Stress response of riders and horses

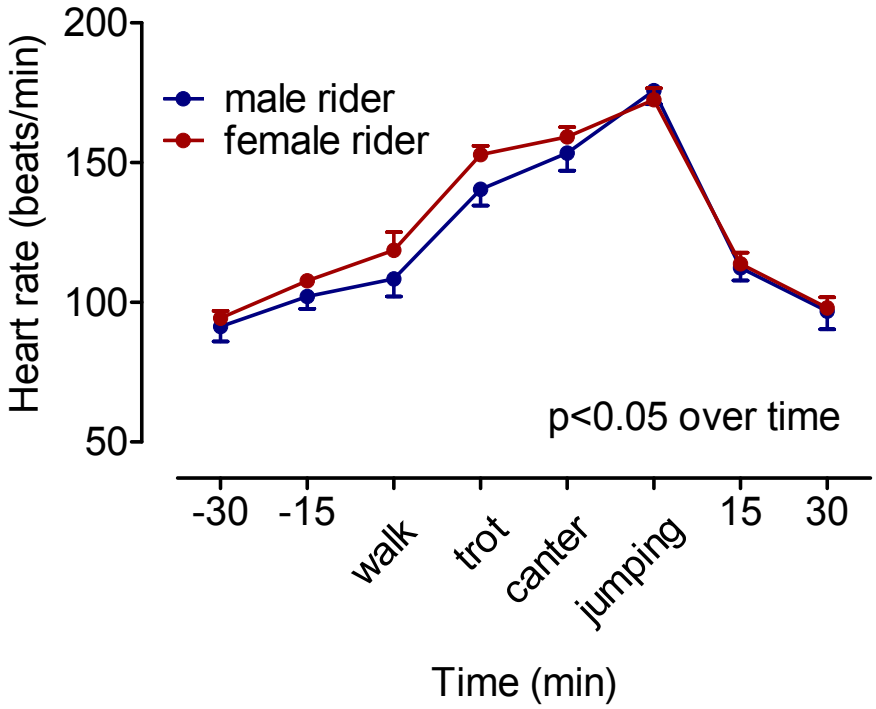
- cortisol concentration
  - Collection of saliva (Salivette)
  - 60, 30, 15 Min. before mounting the horse
  - 0, 15, 30, 60 Min. after finishing the show jumping course
- analysis with a direct enzyme immunoassay

Results – cortisol concentration



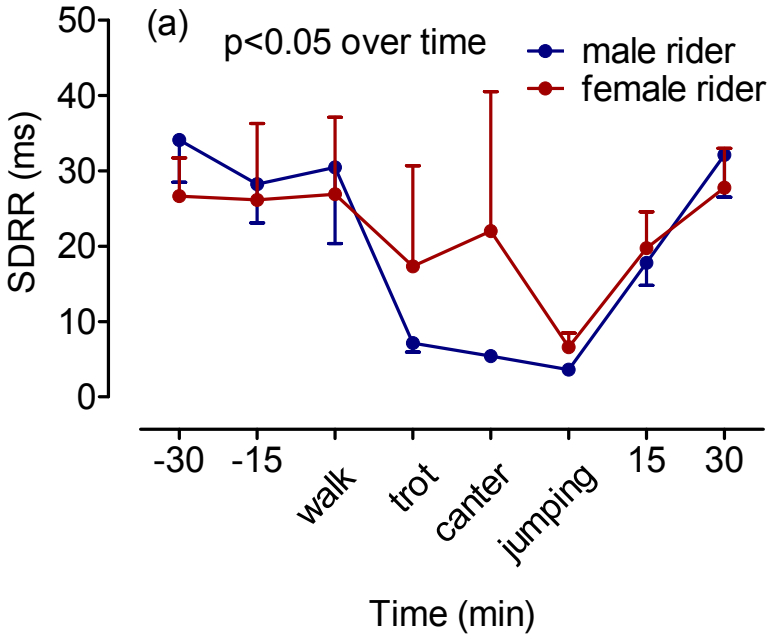
Salivary cortisol concentration before and after jumping a course of obstacles in (a) male and female riders and (b) horses ridden by either a male or a female rider. Grey bars indicate time of warm up period and the jumping course

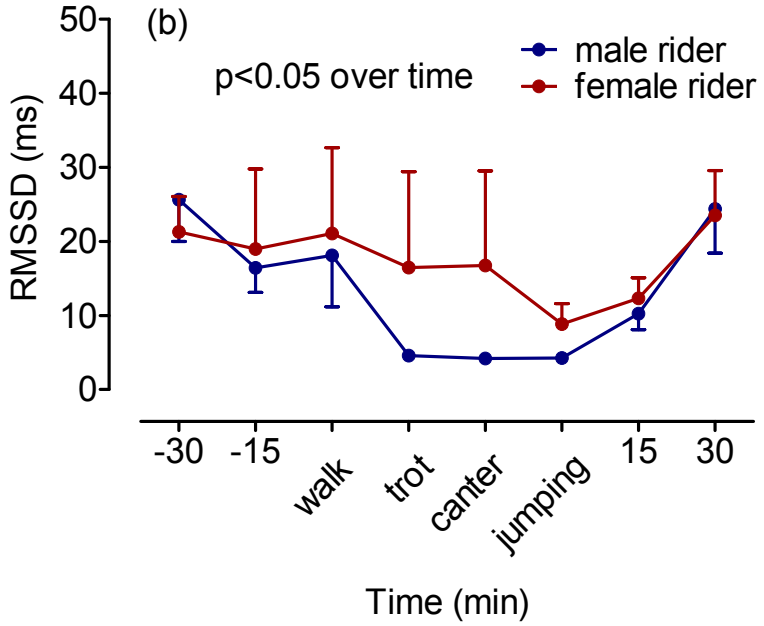
Results riders - heart rate



heart rate at rest, during a warm up phase (walk, trot and canter), during jumping a course of obstacles and at 15 and 30 min thereafter in male and female riders

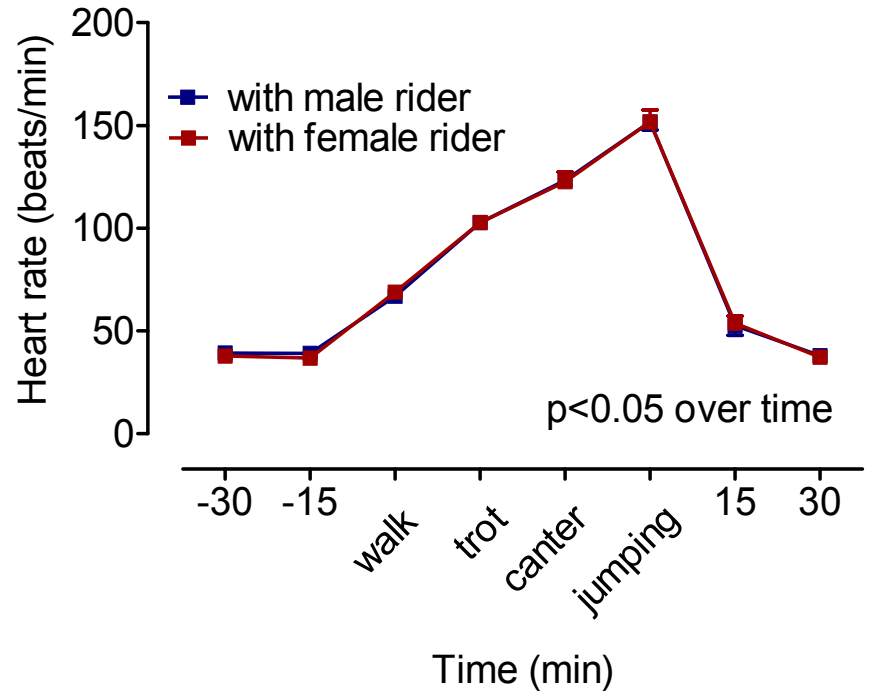
Results riders - heart rate variability





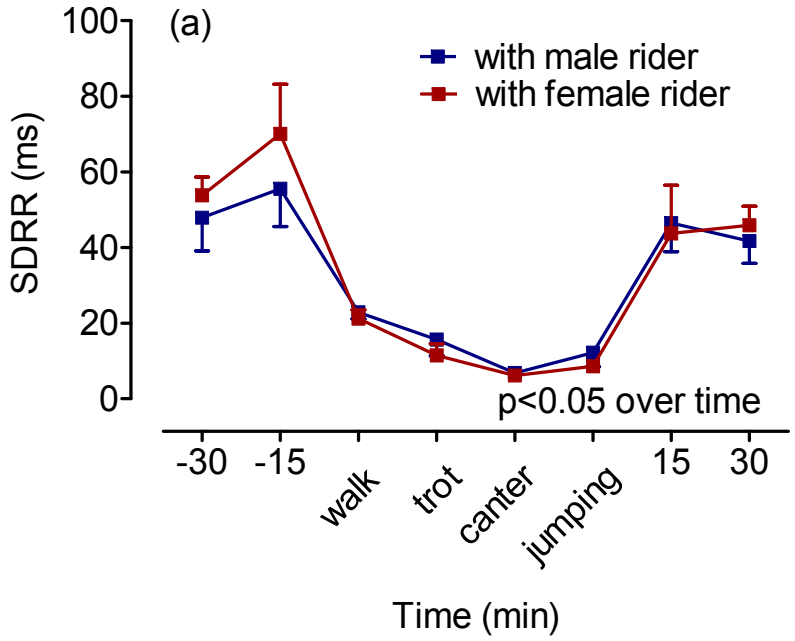
HRV variables (a) SDRR and (b) RMSSD at rest, during a warm up phase (walk, trot and canter), during jumping a course of obstacles and at 15 and 30 min thereafter in male and female riders

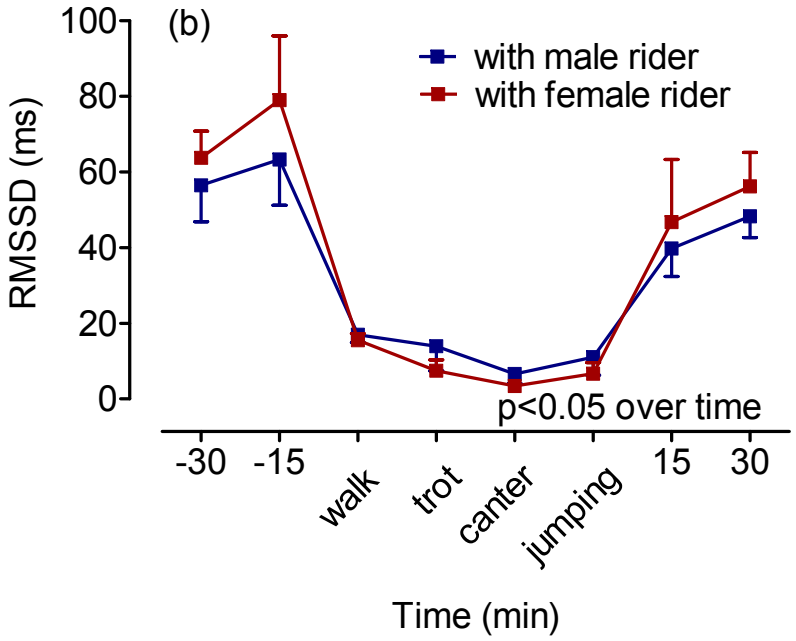
Results horses - heart rate



heart rate at rest, during a warm up phase (walk, trot and canter), during jumping a course of obstacles and at 15 and 30 min thereafter in horses ridden by either a male or a female rider

Results horses - heart rate variability



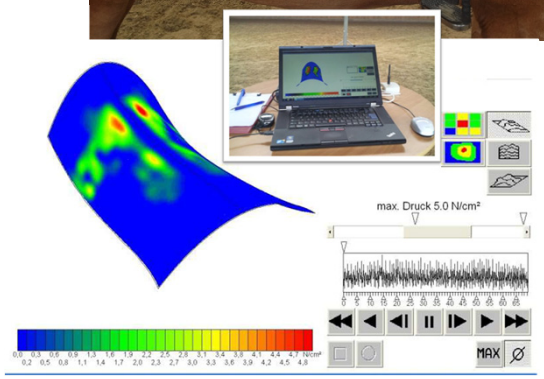


HRV variables (a) SDRR and (b) RMSSD at rest, during a warm up phase (walk, trot and canter), during jumping a course of obstacles and at 15 and 30 min thereafter in horses ridden by either a male or a female rider

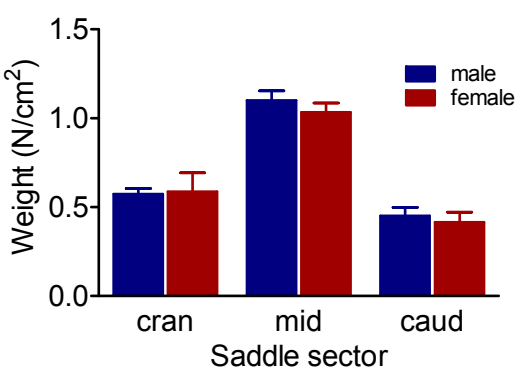
Experiment 2
Pressure under the saddle

- 10 riding students from the Brandenburg State Stud
  (5 male, 5 female)
- 1 male warmblood horse

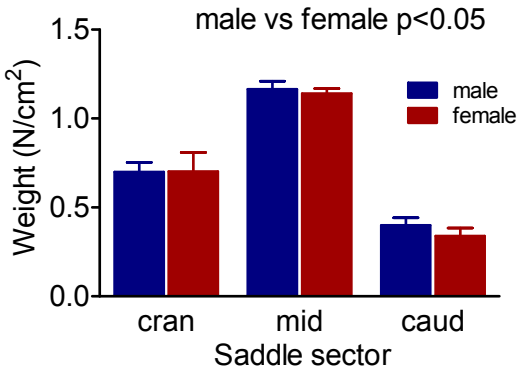
- saddle pressure pad (medilogic)
  - walk, trot, canter
  - clockwise and counterclockwise



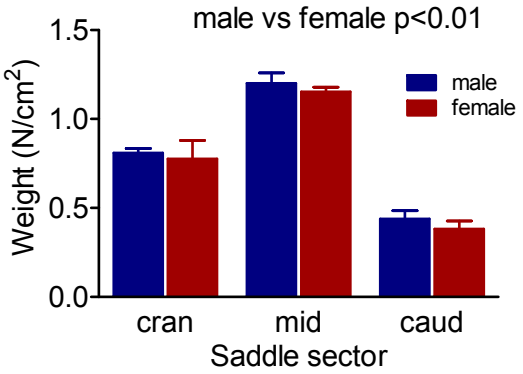
Results – average saddle pressure



walk



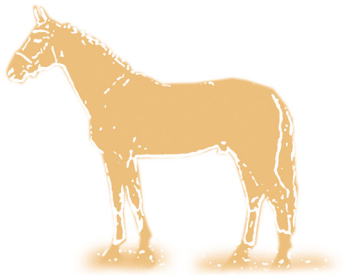
trot



canter

Average pressure in the cranial, middle and caudal segment of the saddle of horses ridden by either a male (■) or a female rider (■), differences between male and female riders are indicated in the figures, differences between saddle sectors for walk, trot and canter p<0.01.

Conclusion



- no fundamental differences in the physical effort and stress response to the equestrian task between male and female riders
- stress response of the horse is similar with male and with female riders
- pressure pattern onto the horse did not differ in men and women

➢ Riding theories and principles developed largely for male riders can also be applied to female riders.

Contact

Mag. med. vet. Natascha Ille

Centre for Artificial Insemination and Embryo Transfer
University of Veterinary Medicine Vienna (Vetmeduni Vienna)
Veterinärplatz 1, A-1210 Vienna
T +43 1 250 77-6422
natascha.ille@vetmeduni.ac.at