Effect of menstruation on sprint performance in female rugby players

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Introduction

• Menstruation affects females between the ages of 8-16 years and 45-55 yrs
• 28 day cycle of ovulation and termination
• Two phases; Proliferative and Luteal
• Complications can arise like dysmenorrhoea, as well as primary and secondary amenorrhea
What we know so far...

- During menstruation:
  - Haemoglobin levels ↓ resulting in fatigue (Brooks-Gunn, 1986)
  - Body temperature ↑ (Johnson, 1972; Birch, 2000) which affects negatively both aerobic and anaerobic performance (Gonzalez-Alonso, 1999)

- Miskec (1972) assessed anaerobic performance during and post-menstruation using the Wingate test and found no difference in peak power
- No known evidence on anaerobic performance during weight bearing activities
Menstruation and women’s rugby

• Fifteen thousand women play rugby weekly (rfu.com, 2010)
• Multiple sprint sport
• Weight bearing
Purpose of study

• To investigate whether anaerobic performance is affected during menstruation with a group of female rugby players

• To investigate the relationship between body temperature and performance in a 60 m sprint
Method: participants

- 12 female rugby players; age range: 18 - 34 years
- Anthropometry (mean ± SD: 26 ± 8 yrs, body mass: 73.92 ± 14.41 kg, stature: 157 ± 8.94 cm)
- Training experience: 5 ± 4 years
Method: test & measurements

- Two testing sessions; non-menstruation and during luteal phase
- Body temperature recorded using a tympanic thermometer (°C)
- Results were recorded and best times used for results

- 60 m sprint test using timing gates
  - 3 trials
  - Times recorded; mean and best time calculated for each session
Results

non-menstrual: 35.77°C menstrual: 36.39°C, P=0.0007

Fig. 1. Body temperature during and post-menstraution in female rugby players (n=12). * Sig at P<0.05
Results

Graph of mean best times here (Mean menstruation: 10.86 ± 1.31 s, mean non-menstruation: 10.51 ± 1.39 s, P= 0.00004)

Fig.2. Best sprint times during and post-menstruation in a 60m sprint in female rugby players (n=12). * Sig at P<0.05
Discussion

- The results show that body temperature increases during menstruation – result agrees with findings of Johnson (1972) and Birch (2000)
- Sprint times increase by 0.3 seconds on average during menstruation – results contradict Miskec (1972)
• It appears that menstruation has a negative effect on sprint performance
• This effect might be explained by the influence of body temperature on maximal speed (Gonzalez-Alonso, 1999)
• An important consideration for athletes and coaches in multiple sprint sports
Further research opportunities

- Look into the effects menstruation has upon performance within different settings
- The effect of contraceptives upon performance
- The effects of amenorrhea upon performance
References