

Guidelines for Abstract

Abstracts will be accepted for both poster and oral presentations. The abstract deadline is May 19, 2019, but will be reviewed continuously and decision sent, in order for rapid acceptance notifications.

All abstract submissions must occur electronically here. A receipt of abstract will be sent via email. Final notification of abstract acceptance will occur by **May 31, 2019**.

Abstracts must conform to the following guidelines. Abstracts that are not in this format will not be reviewed by the Scientific Committee.

Abstracts must:

- Not exceed 350 words
- Have headlines and Affiliations
- Have the following 4 sections: Background, Methods, Results, and Discussion
- Be in 12 point Arial font

Include a cover sheet that includes the primary author's complete address, telephone number, and email address. Also, please indicate your preference for presentation: Oral or Poster and whether you wish to be considered for a student award.

Example

The title and author's names, as well as institution and location, must be on the top of the abstract as follows:

Preference: Oral

The electromyographic threshold in girls and women

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Background: The electromyographic threshold (EMGTh), defined as an upward inflexion in the rising EMG signal

during progressive exercise, is thought to reflect the onset of increased type-II motor-unit (MU) recruitment. The EMGTh has been shown to occur at higher relative exercise intensities in boys than in men, but corresponding female data are not available. The objective of this study, therefore, was to compare the relative exercise intensity at which the EMGTh occurs in girls vs. women.

Methods: Participants were 19 women (22.9±3.3 yrs) and 20 girls (10.3±1.1 yrs), with similar sports training history and peak oxygen consumption (VO₂pk) (37.6±4.4 vs. 37.2±7.0 ml/kg/min, respectively). VO₂ was determined during submaximal and maximal cycle-ergometry to establish the VO₂-mechanical-power relationship and

the mechanical power associated with $\dot{V}O_2$ pk ($\dot{V}O_2$ pk power). Two to seven days later, participants performed ~10-min ramped cycle-ergometry to exhaustion. Surface EMG was recorded from both the right and left vastus lateralis muscles. The composite right-left root mean square of the EMG signals was determined for each pedal revolution and the EMGTh was mathematically determined as the point of least residual sum of squares for any two regression-line divisions of the data. EMGTh was expressed as percent of peak power output (PPO) and of $\dot{V}O_2$ pk power.

Results: EMGTh was detected in 13 (68%) of the women, but in only 9 (45%) of the girls ($\chi^2(1, n=39)=7.95$, $p<0.05$). Among those, the EMGTh occurred at higher relative exercise intensities in the girls than in the

women, whether expressed relative to PPO (88.5 ± 7.0 vs. $83.0\pm 6.9\%$, respectively, $p=0.080$), or to $\dot{V}O_2$ pk power (101.6 ± 17.6 vs. $90.6\pm 7.8\%$, respectively; $p=0.063$). In separate analysis, 'non-responders' were considered as not having reached sufficiently high power outputs to show a threshold and were assigned EMGTh=100 %PPO (an underestimate). Values then changed, respectively, to 94.8 ± 7.4 vs. 88.4 ± 9.9 %PPO ($p=0.026$), and 103.2 ± 11.7 vs. 95.2 ± 9.9 % $\dot{V}O_2$ pk power ($p=0.028$).

Discussion: The present findings suggest that, compared with women, girls rely less on type-II MU activation during progressive exercise. Although the female age-related differences were somewhat smaller, they agree with the earlier findings in males and lend further support for the differential child-adult MU-activation hypothesis.

Student Awards

If the primary author is a graduate or undergraduate student and would like to be considered for the young investigator (Student) awards (Stoboy, oral, poster), the student should indicate this on the cover sheet accompanying the abstract. To qualify for this award, the research must have been completed during a full-time graduate or undergraduate program and the student was responsible for carrying out the project (development of problem, data collection and analysis, writing the abstract, and preparing presentation).

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