ACSM's
Integrative Physiology of Exercise Conference

September 21-24, 2022
Hilton Baltimore Inner Harbor
Baltimore, Maryland

Abstract Submission Information

Preparing the Abstract

Abstract submissions will be limited to 2,300 characters, not including spaces, title or author block. Provide grant funding information at the bottom of the abstract. Please do not include tables, charts or graphs, and do not use brand names in the abstract.

Title: The title should be brief (limit to 15 words) and written in title case.

Example: **Scheduled Exercise Phase Shifts the Circadian Clock in Skeletal Muscle**

Authors: The first and last names of the authors will be included in the author block. Do not include degrees, as this affects online search functions.

Final Author Block Example: Gretchen Wolff, Karyn A. Esser. *University of Kentucky, Lexington, Kentucky*

ACSM Fellow Sponsorship: Abstracts can be recommended for acceptance by having an ACSM fellow (FACSM) attest to the scientific, medical or educational merit of the work. Abstracts received without fellow endorsement will undergo formal review. A fellow may sponsor as many abstracts as desired. You will be required to provide the fellow's name and email address when submitting. The final acceptance decision is the exclusive right of the planning committee. This may include a formal review even though an ACSM fellow is an author or sponsor; fellow endorsement does not automatically imply acceptance.

Institutions: Institutions of all authors will be included. Do not include departments.

Categories: Select the category that represents the intended focus of your abstract. These categories include:

- Cardiovascular Physiology
- Environmental Physiology
- Exercise Metabolism
- Hot Topics in Integrated Physiology of Exercise
- Physical Activity and Health
- Skeletal Muscle

Text: The abstract must be informative, including a statement of the study's specific PURPOSE, METHODS, summary of RESULTS and CONCLUSION statement using these headings. It is unsatisfactory to state "The results will be discussed."

Abstract content and editing are the responsibility of the submitting author. Abstracts will be published as received. Abstracts of experimental studies must include data to substantiate the conclusions being drawn. It is not satisfactory to simply describe what was found verbally in general terms. The lack of inclusion of experimental data may result in the abstract being rejected.

The abstract must be written in English.

Payment: There is a $50 nonrefundable submission fee.

Abstract Sample

Purpose: It has been well established in mammals that circadian behavior as well as the molecular clockwork can be synchronized to the light-dark (LD) cycle via the suprachiasmatic nucleus of the hypothalamus (SCN). In addition to light, it has been demonstrated that non- photic time cues, such as restricting the time of food availability, can alter circadian behavior and clock gene expression in selected peripheral tissues such as liver. Studies have also suggested that scheduled physical activity (exercise) can alter circadian rhythms in behavior and clock gene expression, however currently the effects of exercise alone are largely unknown and have not been explored in skeletal muscle. **Methods:** *Period2::Luciferase (Per2::Luc)* mice were maintained under 12 hours of light followed by 12 hours of darkness (12L:12D) then exposed to 2 hours of voluntary or involuntary exercise during the light phase for 4 weeks. Control mice were left in home cages or moved to the exercise environment (sham). A second group of mice had restricted access to food (4 hours per day for 2 weeks) in order to compare the effects of two non-photic cues on PER2::LUC bioluminescence. Skeletal muscles, lung and SCN tissue explants were cultured for 5-6 days to study molecular rhythms. **Results:** In the exercised mice, the phase of peak PER2::LUC bioluminescence was shifted in the skeletal muscle and lung explants but not the SCN suggesting a specific synchronizing effect of exercise on the molecular clockwork in peripheral tissues. **Conclusions:** These data provide evidence that the molecular circadian clock in peripheral tissues can respond to the time of exercise suggesting that physical activity contributes important timing information for synchronization of circadian clocks throughout the body. Supported by NIH AR055246 and ES018636 to KAE and T32 fellowship, Grant number HL086341-02 to GW

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