WSU ORAP Supplemental Research Funds Application- (4/30 deadline)

https://orap.wsu.edu/funding/internal/supplemental-research-funds/

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Title/rank Assistant Professor

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Department: Translational Medicine & Physiology

College: Elson S. Floyd College of Medicine

Campus: Spokane

What are you Requesting? Equipment/Technology Costs

Amount Requested: $1,856.43

Funding Request Purpose and Justification- *Please describe the purpose of the funding request and describe how the funds will advance both you or your teams research program and research initiatives at WSU.*

This funding request is to purchase additional Oura Ring devices to collect biometric sleep data for an ongoing research initiative: Triathlon Risk Surveillance and Assessment of Fatalities and Environments (TriSafe). Each year, approximately 700,000 individuals participate globally in ultra-endurance race events including Ironman Triathlons. In the United States alone, the mortality rate from triathlons is twice that of marathons. These deaths most frequently occur within the first 60 minutes of triathlon competition, during the swim portion of the event. The current etiological theories underlying these life-threatening events have received inadequate empirical examination in the triathlete population. As this population voluntarily endures incredibly high physiological strain, understanding the impacts of sleep on injury prevention and other risks (i.e., death) during competition is critical. Accordingly, the primary aim of TriSafe is to improve the safety of triathlon (Ironman) races and reduce the incidence of life-threatening cardiac emergencies during these events.

TriSafe is led by Washington State University faculty members (PIs and CO-PIs): Dr. Christopher Connolly (Exercise Physiology & Performance Lab, Kinesiology & Educational Psychology Dept., College of Education), Dr. Amanda Lamp (Occupational Sleep Medicine Group, Translational Medicine & Physiology Dept., Elson S. Floyd College of Medicine), and Dr. Erin Griffin (Elson S. Floyd College of Medicine). This research initiative involves collaborators outside of WSU (Dr. Sandya Venugopal, Cardiologist at UC-Davis; Alex Montoye, PhD at Alma College). Accordingly, **TriSafe supports WSU-Spokane's 2nd strategic objective: Optimize existing campus research capabilities to support research excellence and interdisciplinary collaboration.**

Oura Rings are capable of detecting several biometrics including sleep data, heart rate (HR), and heart rate variability indices. **The primary use of Oura Rings in this study is to continuously collect sleep data on study participants** throughout a 14-day period: seven days pre-race, during the race, and seven days post-race. The secondary use for these devices will be to perform convergent validity analysis

comparing Oura Rings HR metrics with the other wearable study devices HR metrics (i.e., Polar HR wristwatch and Fourth Frontier single lead EKC chest strap). Dr. Lamp and her team (including Dr. Thomas Gooding; postdoctoral research fellow) are the sleep experts for this research initiative and are responsible for the curation and analysis of sleep data collected with the Oura Rings.

Currently, we have 10 Oura Ring devices previously purchased with internal funds from Dr. Lamp's and Dr. Connolly's labs (five rings each). During our initial year of data collection, we had considerably more interest from prospective study participants than we were able to include in the study due to only having enough devices to recruit 10 participants at one time. Consequently, we are requesting $1,856.43 of supplemental funding to purchase an additional five Oura Ring devices and the requisite software memberships through Oura ($1,708 plus tax = $1,856.43). This would allow our research team to increase our recruitment capacity by 50% and better understand how sleep disturbances contribute to cardiac emergency risks in this population. In the event that the Office of Research Advancement and Partnerships is not able to provide the requested amount, we have provided an alternative funding request of $1,455.88. This would provide the funding for four additional devices ($1,337 plus tax = $1455.88).

Budget Justification and Other Sources of Support

Supplemental Research Funds are not intended to be the sole source of support for a research need. *Indicate the **total** cost of the project and identify other sources of internal or external support and the amounts that you have secured or are seeking to meet this need. This should be a bulleted list of sources and amounts with a brief narrative.*

Total Cost of Project: Our TriSafe team has collected pilot data to request funding for this longitudinal, multi-site study. Currently, the PI and co-PIs are not receiving funding for this effort beyond what is stated below. Securing five additional Oura Rings will allow us to collect significantly more pilot data, which will allow us to then demonstrate the importance of this work to external funders (described below).

Tier 1- Funding Request: $1,856.43

- 5 Oura Ring devices ($299 each + 8% tax)
- 5 1-year memberships ($71.99 each + 8% tax)
- $20 shipping fee
- -$166.32 discount on software membership (provided by Oura)

Tier 2 Funding Request: $1,455.88

- 4 Oura Ring devices ($299 each + 8% tax)
- 4 1-year memberships ($71.99 each + 8% tax)
- $20 shipping fee
- -$166.32 discount on software membership (provided by Oura)

Current Funding:

- Exercise Physiology & Performance Lab (Dr. Connolly's lab) - $4,475

- Occupational Sleep Medicine Group (Dr. Lamp's lab) - $2870.17
    - Our lab group (OSMG) has a working relationship with the Oura company as we use these devices for multiple research initiatives. Given this relationship, Oura is offering a discount on the cost of each ring allowing us to purchase the rings at $299 per device (full price is $349)
    - Additionally, Oura is offering a one-time discount on the requisite device 1-year software membership for each device ($71.88 per device) for an additional discount of $166.32.
- Other funding for this collaborative research initiative include:
    - WSU Travel with a purpose award (awarded to Dr. Connolly) - $3,000
        - For airfare and travel-related expenses to race locations.
    - WSU College of Education Faculty Funding Award (awarded to Dr. Connolly) - $9,885
        - For equipment purchases and travel-related expenses to race locations.

Potential Future Funding:

- National Operating Committee on Standards for Athletic Equipment (NOSCAE)-Small Pilot Research Program: $50,000
- International Olympic Committee-Advanced Olympic Research Programme: $40,000
- Wu Tsai Human Performance Alliance Agility Project Program: $100,000
- American Heart Association-Institutional Award for Undergraduate Student Training: $180,000
- **Sleep Research Society Foundation- Early Career Development Award: $50,000.
- **National Athletic Trainers' Association Research & Education Foundation: $50,000
- **National Institutes of Health- National Heart, Lung, and Blood Institute- Mentored Clinical Scientist Development Award: $100,000 salary + $25,000 research support
- **American Academy of Sleep Medicine- Bridge to Success Grant for Early Career Investigators: $100,000

**Denotes grant mechanisms this study is eligible for through Dr. Lamp's postdoctoral research fellow (Dr. Thomas Gooding).