

## The Effect of Hydration on Readiness and Recovery Before and After Resistance Exercise- A Pilot Study

<sup>1</sup>CHERISH A. DUNLAP, <sup>2</sup>NIGEL C. JIWAN, <sup>2</sup>CASEY R. APPELL, <sup>2</sup>RYANONEIL ELLIS, <sup>2</sup>ISABELL R. TREVINO, <sup>2</sup>CARSON LEWIS, <sup>2</sup>RAOUL STERLING, <sup>1</sup>MARCOS S. KEEFE, <sup>1</sup>RYAN A. DUNN, <sup>1</sup>ALAN T. KY, <sup>1</sup>JAN-JOSEPH S. ROLLOQUE, <sup>1</sup>KELLY B. ELLIOTT, <sup>2</sup>HUI-YING LUK, <sup>1</sup>YASUKI SEKIGUCHI

<sup>1</sup>Sports Performance Laboratory, Department of Kinesiology & Sport Management, Texas Tech University, Lubbock, TX

<sup>2</sup>Applied Exercise Physiology Laboratory, Department of Kinesiology & Sport Management, Texas Tech University, Lubbock, TX

---

*Category: Undergraduate*

*Advisor / Mentor: Sekiguchi, Yasuki (yasuki.sekiguchi@ttu.edu)*

### ABSTRACT

Dehydration can disturb sleep which is essential for the readiness and recovery process. However, the role of hydration on readiness and recovery indicated by low resting heart rate (RHR) and high heart rate variability (HRV) before and after resistance exercise (RE) is not known. **PURPOSE:** The purpose of this study was to examine the effect of hydration status on readiness and recovery before and after RE. **METHODS:** Seven resistance-trained men (age: 21±1 years; weight: 77.8±11.0 kg; height: 177.4±5.3 cm) performed a series of RE that included bilateral leg press and knee extensions (5 sets of 10 repetitions at 80% of 1 repetition maximum). Participants completed the same RE twice with 2 weeks in between. Participants completed one trial in a euhydrated state (EUH; urine specific gravity (USG) < 1.020) and the other in a dehydrated state (DEH; USG ≥ 1.020). For the DEH trial, participants were restricted from consuming fluids for 24 hours prior to the RE and were only permitted to drink 1.5 L of water post-exercise for the remainder of the day. For the EUH trial, participants were instructed to consume fluid throughout the day before and the day of RE to maintain euhydration. Data was collected from a wearable sleep device that participants wore to determine recovery by assessing RHR and HRV. Repeated measures ANOVAs were used to identify the differences, and effect size (ES), resulting effects identified as either small (0.2-0.49), medium (0.5-0.79), or large (>0.8) effects, was calculated. **RESULTS:** There were no differences in RHR between EUH and DEH on the night before (EUH, 63±13 bpm; DEH, 61±11 bpm; ES=0.16) and after RE (EUH, 59±14 bpm; DEH, 58±9 bpm; ES=0.12; p=0.806). No significant difference was found in recovery between EUH and DEH on the night before (EUH, 37±30 au; DEH, 39±25 au; ES=0.05) or the night after (EUH, 38±29 au; DEH, 42±22 au; ES=0.42; p=0.821) RE. HRV were not different between EUH and DEH on the night before (EUH, 55±27 ms; DEH, 60±32 ms; ES=0.16) and after (EUH, 67±38 ms; DEH, 71±23 ms; ES=0.12; p=0.947). **CONCLUSION:** This pilot study showed hydration status did not impact readiness and recovery before and after RE. However, this could be because the few participants resulted in a low statistical power. Therefore, further studies with more participants could be conducted to better determine how hydration affects readiness and recovery.