Overview
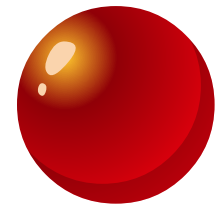
- Literature Review
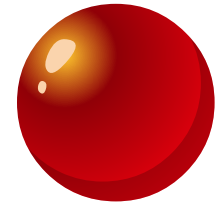
- Purpose

- Limitations & Future Directions

Literature Review

- Rowing is one of the original Olympic sports making its first appearance at the 1900 Paris Olympic Games.

- Until 1976 only men's events were included at the Olympics. Women's rowing was added to the Olympic program at the 1976 Montreal Olympics.

- In sports performance research female athletes have been greatly underserved. Often, the results of studies on male athletes are applied to female athletes' training.

NBC Olympics (2024). Rowing 101 Olympic History.
https://www.nbcolympics.com/news/rowing-101-olympic-history

# How many females participate in sport and exercise science research?

6%

Cowley, E. S., Olenick, A. A., McNulty, K. L., & Ross, E. Z. (2021). "Invisible sportswomen": the sex data gap in sport and exercise science research. Women in Sport and Physical Activity Journal, 29(2), 146-151.

High Volume Endurance Sport

U19 rowers train between 12-14 hours per week while elite level rowers train 22-25+ hours per week.
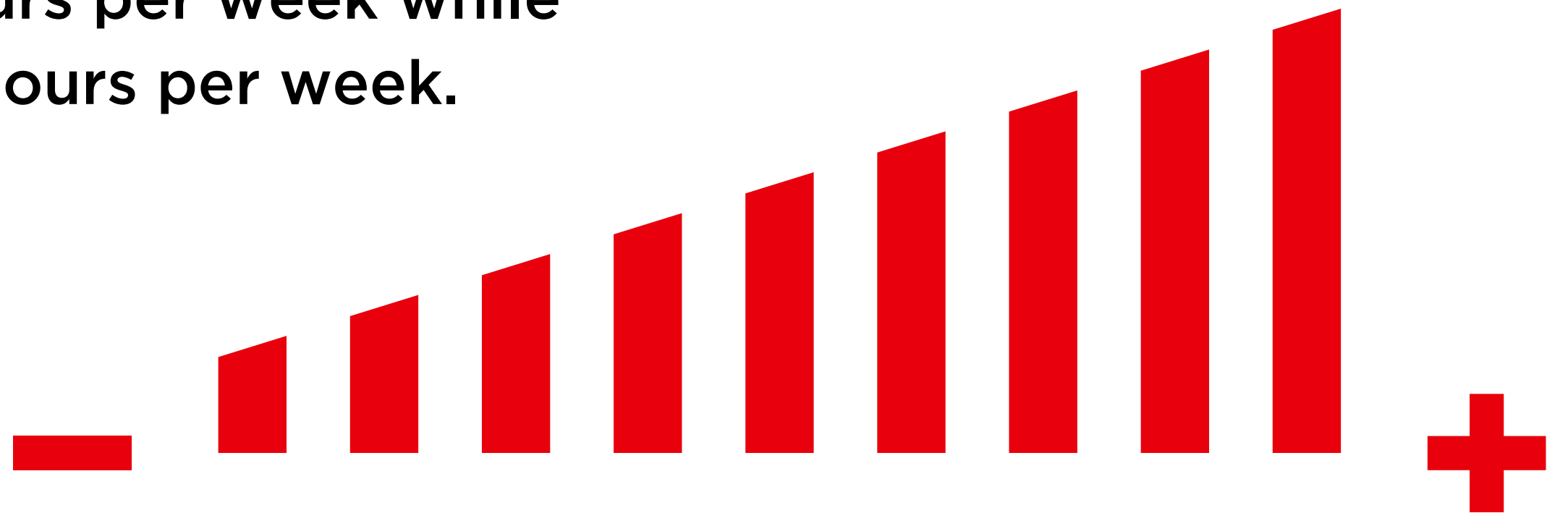
Arne, G., Stephen, S., & Eike, E. (2009). Training methods and intensity distribution of young world-class rowers. International journal of sports physiology and performance, 4(4), 448-460.

Tran, J., Rice, A. J., Main, L. C., & Gastin, P. B. (2015). Profiling the training practices and performance of elite rowers. International journal of sports physiology and performance, 10(5), 572-580.
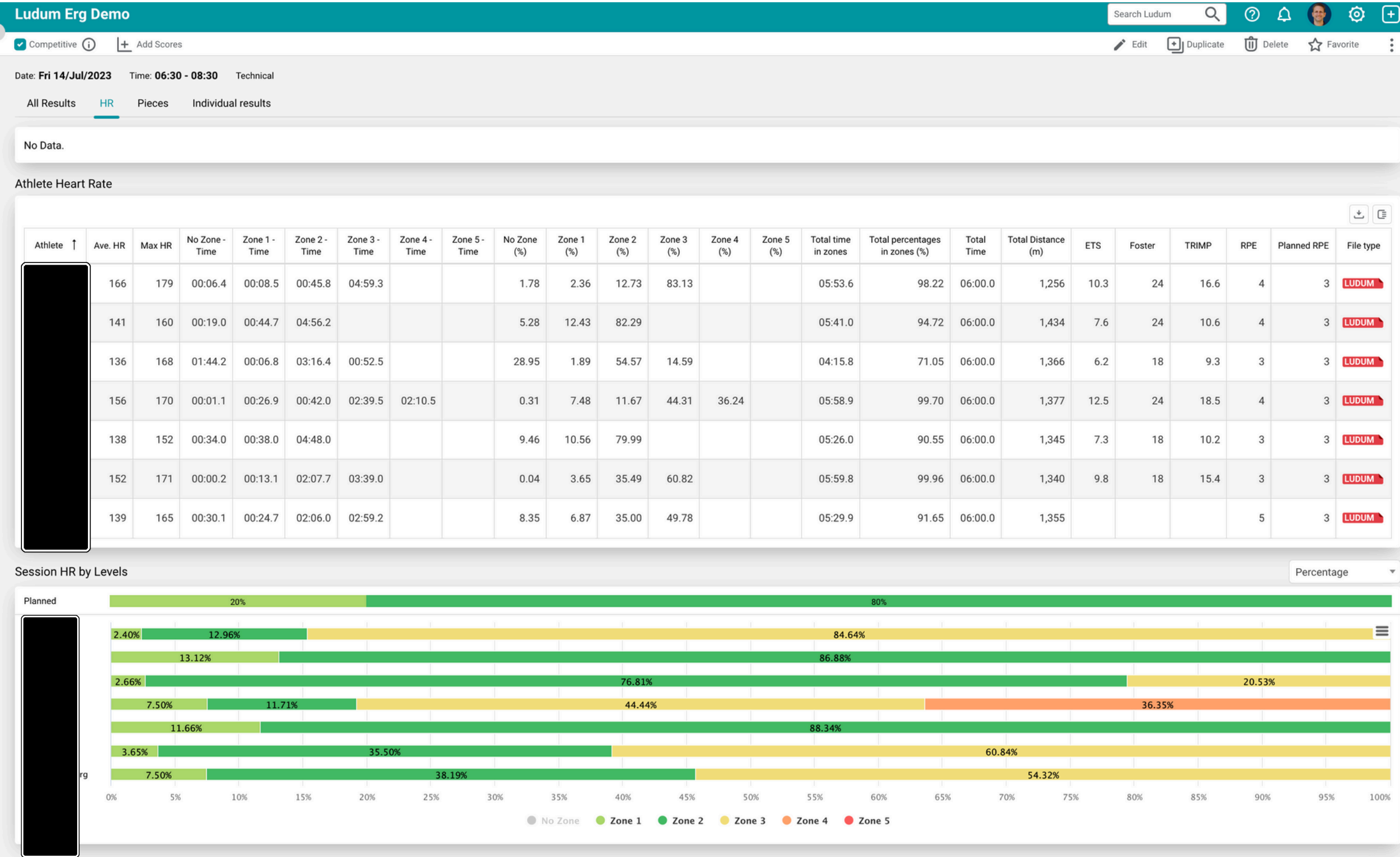
KU Women's Rowing

Currently, KU Women's Rowing utilizes a rowing management software system: Ludum

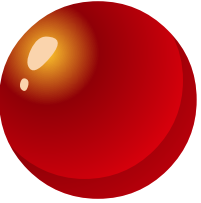This allows them to track daily heart rate data on-water and on the rowing ergometer.
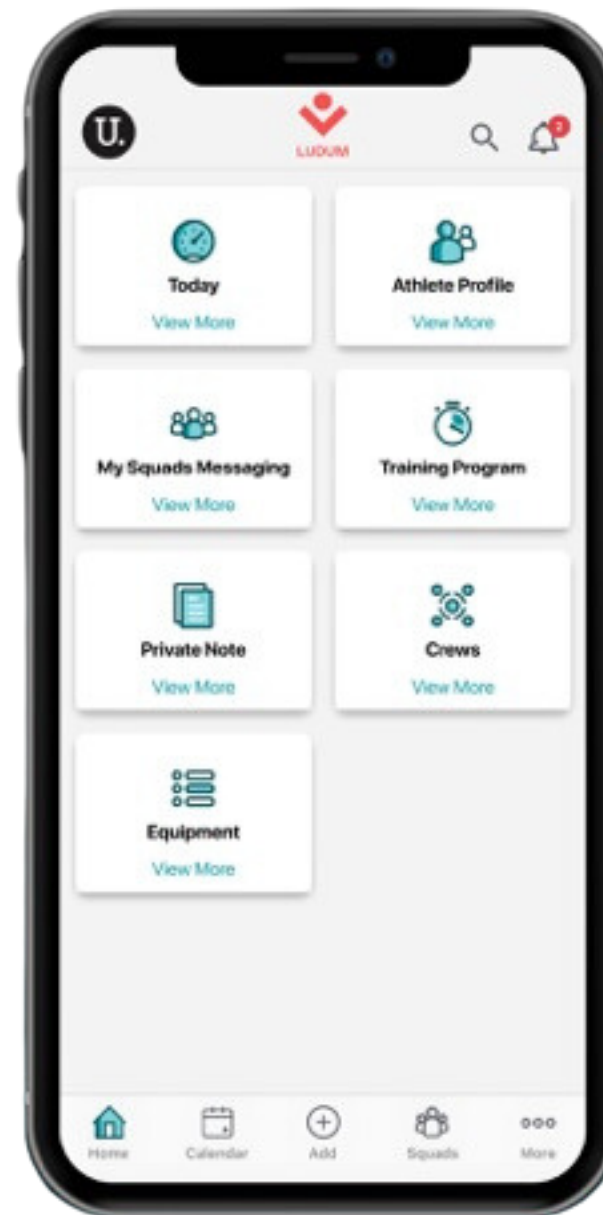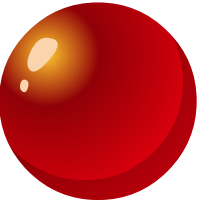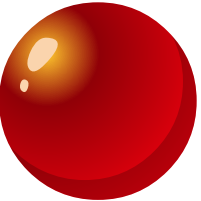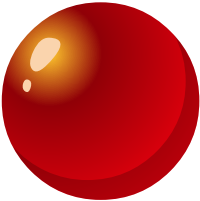
KU Women's Rowing

While the platform allows tracking of individualized heart rate zones, it does not have a field based, rowing specific monitoring test.

Purpose

- The purpose of the 5-minute HRR app is to provide rowers and coaches with a field-based athlete monitoring tool that can be easily and efficiently implemented with large teams.

- This will allow coaches to monitor training load and if athletes are regressing in performance. This can help avoid injury/illness but also optimize performance

- The concept of this app came from my work with USRowing's Chief High Performance Officer. He uses the test with elite rowers, however they also have no streamlined way to capture and visualize the data.

5-Minute HRR Test

- Rowers perform 5-minutes on the rowing ergometer at 50% of their 2k watts.

- Variables collected include: Heart Rate at 5′, Heart Rate Recovery at 1 and 2′ and RPE. All other variables are calculated from these.

- The 5-minute test was originally used with soccer players during their warm-up.

Thorpe, R. T., Strudwick, A. J., Buchheit, M., Atkinson, G., Drust, B., & Gregson, W. (2015). Monitoring fatigue during the in-season competitive phase in elite soccer players. International journal of sports physiology and performance, 10(8), 958-964.

5-Minute HRR Test

5-Minute Heart Rate Recovery (HRR) Test

Instructions

Welcome to the 5' Minute Heart Rate Recovery (HRR) Test app.

Follow the steps below to complete your test:

1. Go to the 'Athlete Profile' tab to enter your profile details.
2. Navigate to the '5' HRR Test' tab to input your heart rate readings.
3. View your results under the 'Individual Results' tab.
4. For team or crew data, go to the 'Team/Crew Results' tab.

Ensure that your maximum heart rate is accurate and within a valid range (0–250 bpm).

| Athlete Profile | 5' HRR Test | Individual Results | Team/Crew Results |

Name

Joseph DeLeo

Sex

Male ▼

Date of Birth (Year-Month-Day)

1985-09-02

Date format: yyyy-mm-dd

Rowing Discipline

Classic (Openweight/Lightweight) ▼

Maximum Heart Rate (bpm)

187

❤ Submit

Athlete Profile Screen

5-Minute HRR Test

5-Minute Heart Rate Recovery (HRR) Test

Instructions

Welcome to the 5' Minute Heart Rate Recovery (HRR) Test app.

Follow the steps below to complete your test:

1. Go to the 'Athlete Profile' tab to enter your profile details.
2. Navigate to the '5' HRR Test' tab to input your heart rate readings.
3. View your results under the 'Individual Results' tab.
4. For team or crew data, go to the 'Team/Crew Results' tab.

Ensure that your maximum heart rate is accurate and within a valid range (0–250 bpm).

Athlete Profile | 5' HRR Test | Individual Results | Team/Crew Results

Select Your Name

Joseph DeLeo ▼

Today's Date (Year-Month-Day)

2024-12-12

Average Watts for 5'

260

HR at 5-minutes

143

HRR at 1-minute

93

HRR at 2-minutes

77

Rate of Perceived Exertion

0 — [1] — 10

0 1 2 3 4 5 6 7 8 9 10

Very, Very Easy

❤ Submit HRR Data

Trend Analysis Placeholder

5' HRR Data Entry Tab

5-Minute HRR Test

Data View for 'Current Date'

5-Minute HRR Test

Data View for '7-Day Rolling Average'
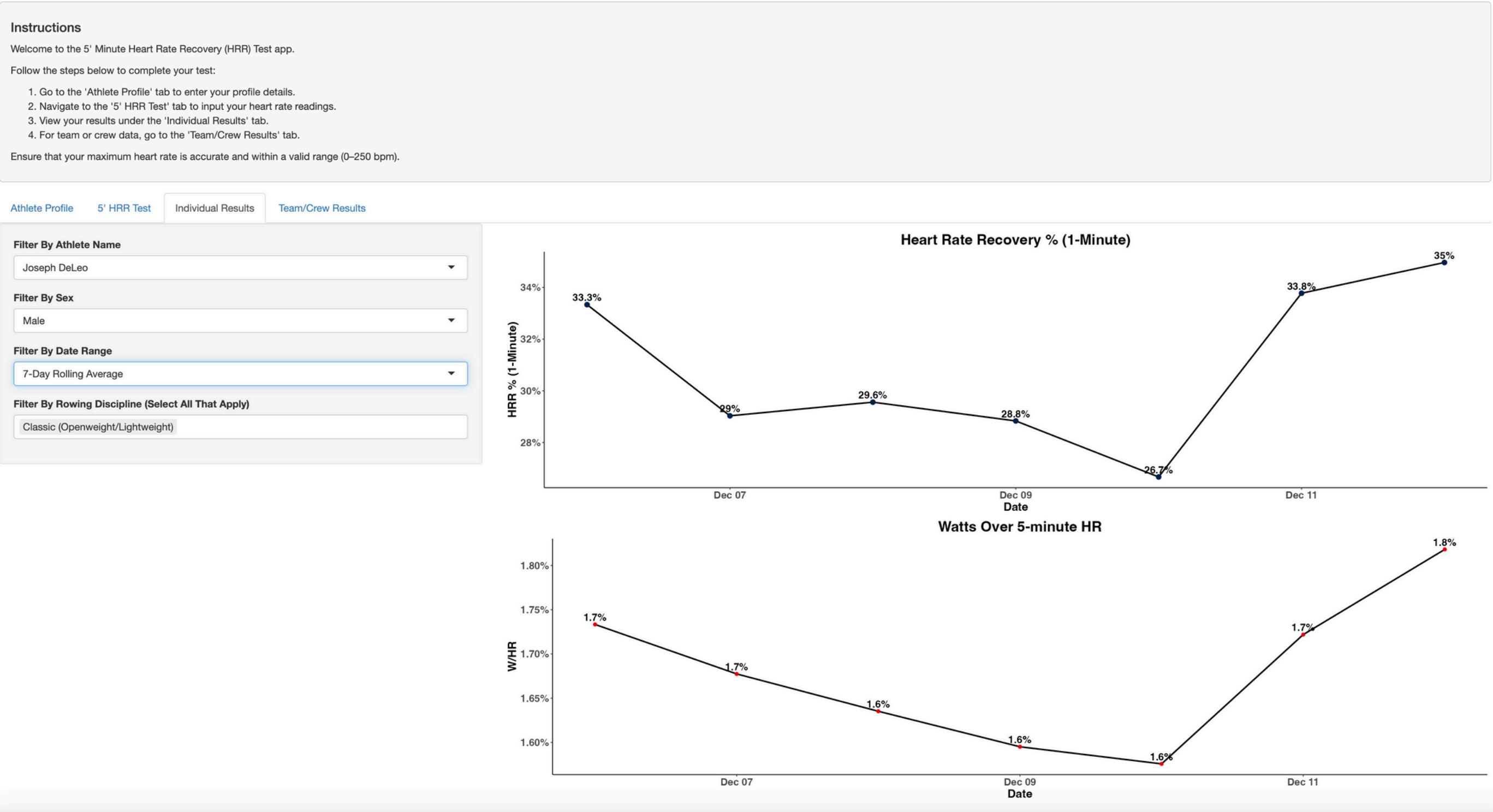
Limitations

- Current app version saves data but it is only stored during the current session.

- Team/Crew tab was not built out.

Future Directions

- Enhance visualizations for individual and team/crew tabs.

- Connect to external database to allow for data storage and athlete's to create a username/password.

- Conduct pilot testing prior to engage in a study with KU Women's Rowing and USRowing.

Git Repository

https://github.com/JMDeLeo/data824.git