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The Development of Wingate Normative-Reference Values for a Healthy Canadian Adult Population

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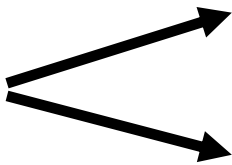
The Development of Wingate Normative-Reference Standards for a Healthy Canadian Adult Population

Olivia Morassutti & Professor Adriana Duquette
Department of Kinesiology, University of Windsor
UWill Discover Conference



University of Windsor

Background

- Wingate Anaerobic Test evaluates  Anaerobic power
Anaerobic capacity

Targets:



Athletic populations ^{1, 3, 5, 7}



Non-athletic populations ^{2, 4, 6}

- Lack of published data
- Lack of normative-reference standards



Purpose

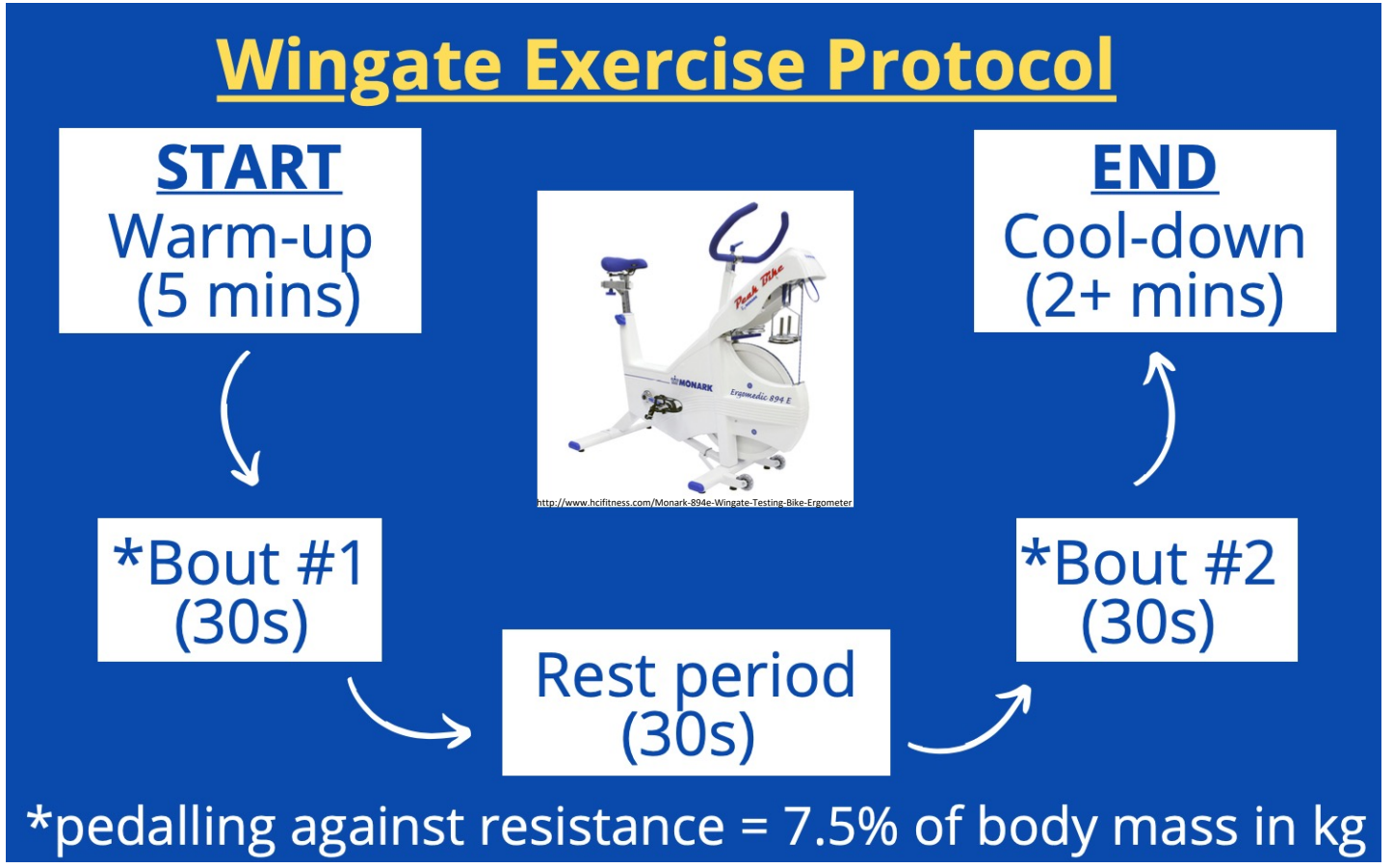
To develop Wingate normative-reference standards that are representative of the general young and healthy Canadian adult population



Methods

- Participants ($n=873$):

477 females ♀ ♂ 396 males

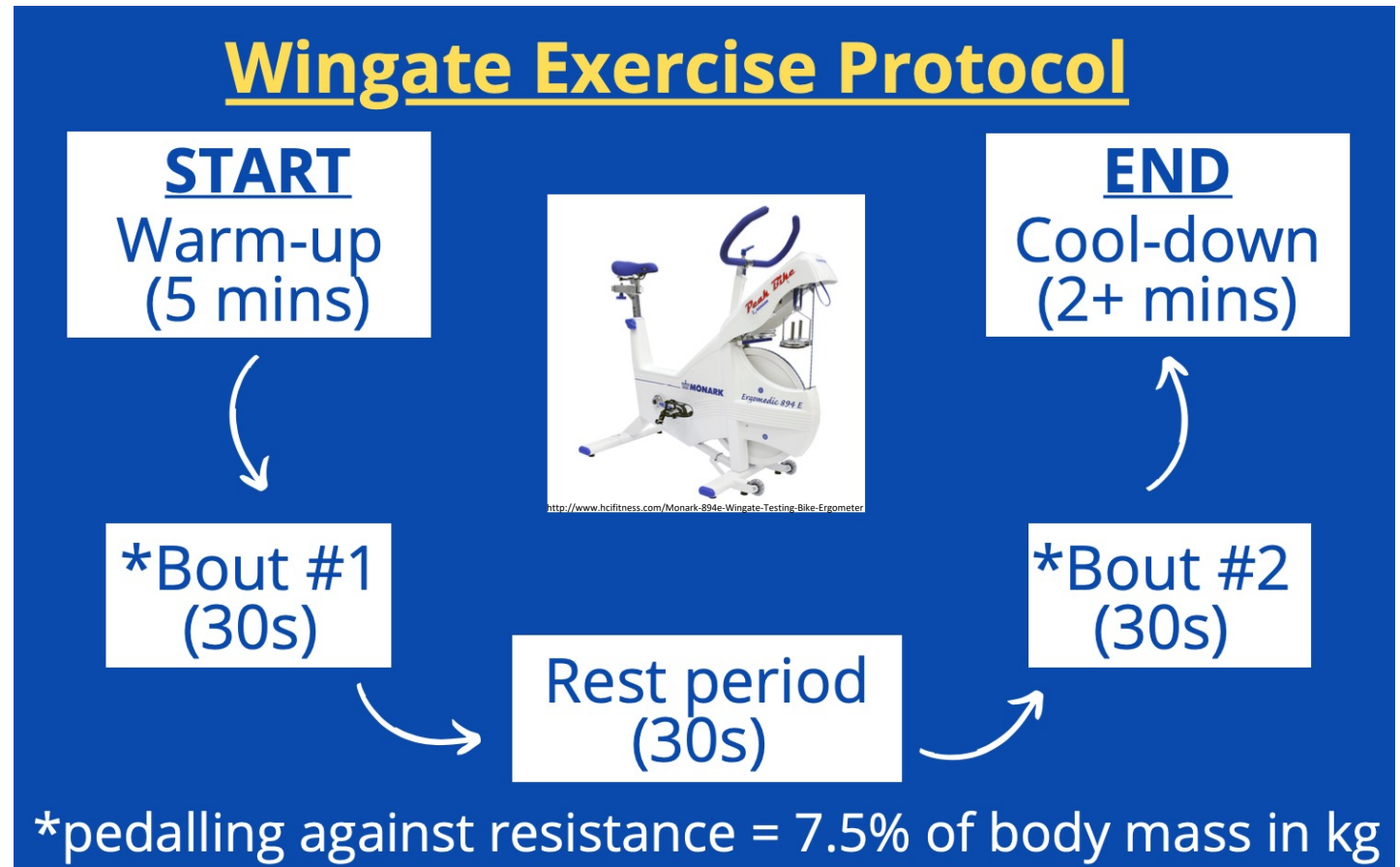


Methods

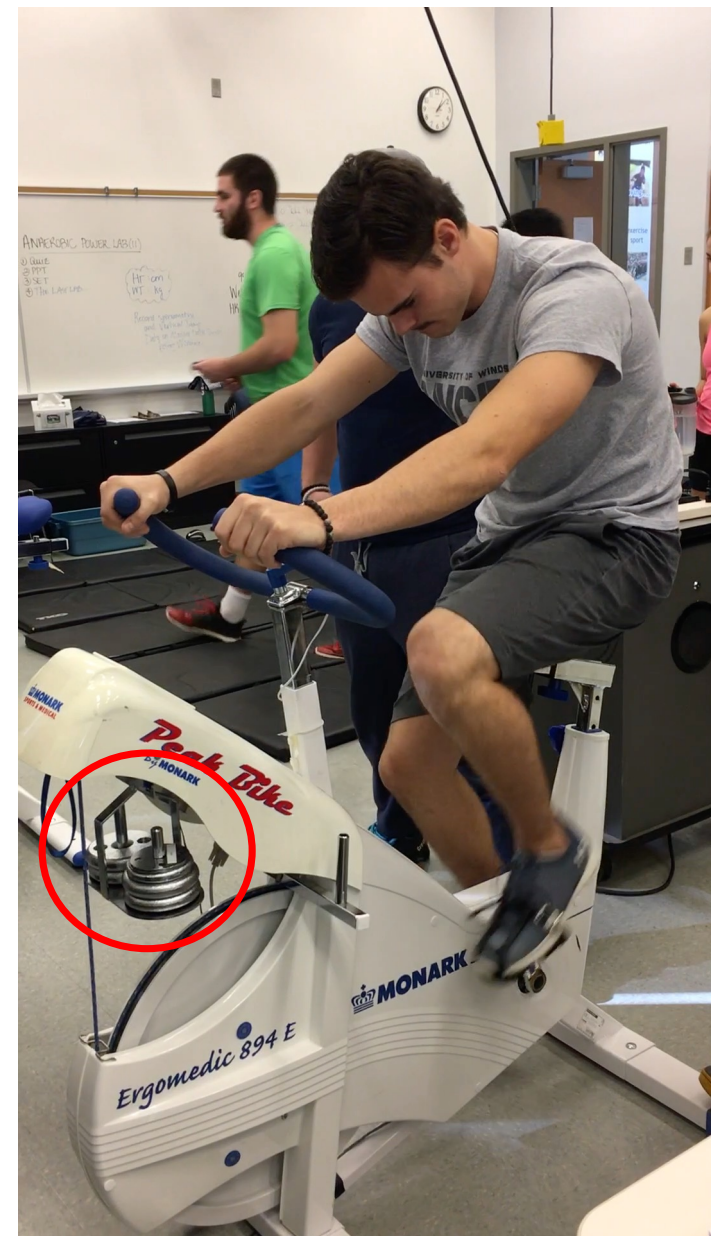
- Participants ($n=873$):

477 females ♀ 396 males ♂

- Kinesiology laboratory-based course (20-29 years)
- Data collected: 2010-2019



What does the Wingate anaerobic test look like?

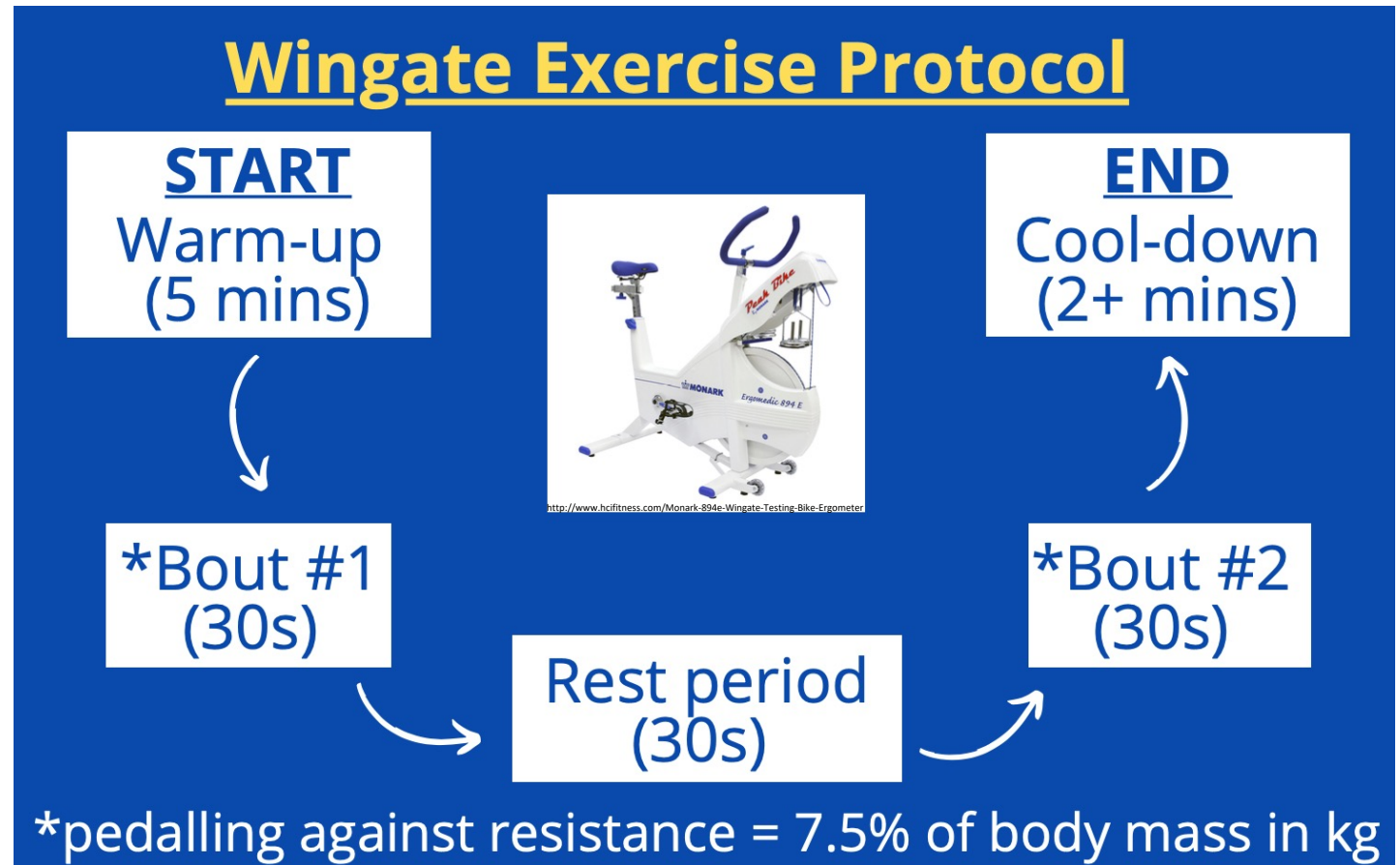


Methods

- Participants ($n=873$):







477 females ♀ 396 males ♂

- Kinesiology laboratory-based course (20-29 years)
- Data collected: 2010-2019
- Analyzed peak power (PP), mean power (MP), and fatigue index (FI)



Results





Trends:

- **Peak power:**  $>$ 
- **Mean power:**  $>$ 
- **Fatigue index:**  $>$ 



Results

Trends:

- **Peak power:**  $>$ 
- **Mean power:**  $>$ 
- **Fatigue index:**  $>$ 

Statistically significant differences
($p < 0.05$) between males and females



Absolute PP and MP



Relative PP and MP, FI



Results

Table 1. Wingate Percentile Rankings Sample Data

Measure	Male Percentiles			Female Percentiles		
	5th	50th	95th	5th	50th	95th
–						
PP (W)	619.67	923.57	1,269.00	368.64	560.14	845.86
PP (W/kg)	8.61	11.66	14.93	6.58	8.95	11.97
MP (W)	449.37	659.44	869.59	279.57	404.32	579.22
MP (W/kg)	6.41	8.21	9.49	4.69	6.40	8.24
FI (%)	42.01	58.05	73.39	40.85	55.75	69.07

- **Seven performance classifications:** poor, fair, below average, average, above average, excellent, elite



Discussion and Conclusions

Wingate normative-reference standards created:

- Percentile rankings
- Seven performance classifications



Target:

- Population consisting of general young and healthy Canadian adults

Allow for:

- Significant practical applications, including an effective method to assess anaerobic performance and health



References



University
of Windsor
Department of Kinesiology
Undergraduate Lab



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I would like to thank the participant from the video for their time, permission, and contribution.



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