

# **Running for Hyrox: What Every Hybrid Athlete Needs to Know**

Presented by: Dr. Richard Bucciarelli, PhD

Wednesday, March 4<sup>th</sup>, 2026

# A BIT ABOUT ME...

**Dr. Richard Bucciarelli, PhD**

Doctorate in Human Health & Nutritional Sciences  
President, Speed Training Lab + High Performance Centre®

**Professional Sports Scientist**

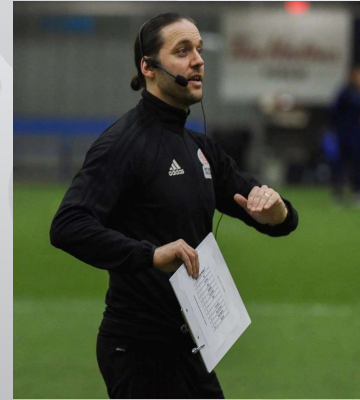
**University Lecturer & Researcher**

**High-Performance Coach**

**Entrepreneur & Founder**

**Former Athlete**

**Proud Husband & Father**



# OVERVIEW

- 1. The Science of Hyrox**
- 2. Aerobic Fitness**
- 3. Let's Get Moving!**

# ***BUT FIRST...***

- To understand the science, you must think ***like a scientist***

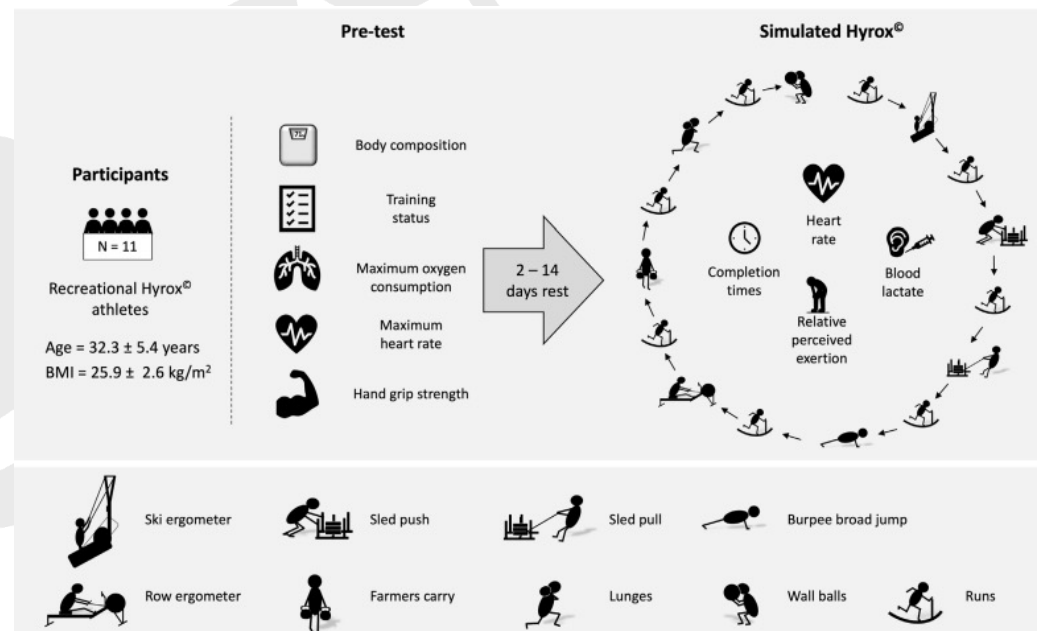
...so, what  
does this  
**MEAN?**



# 1. The Science of Hyrox

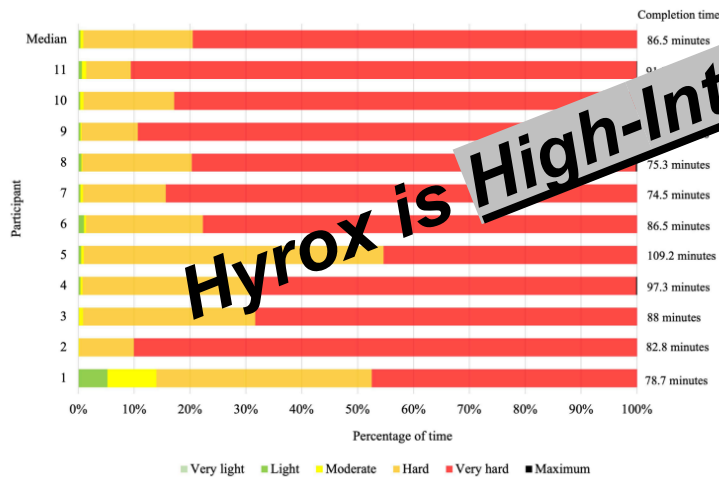
# The Science of Hyrox

- Brandt et al., 2025
- The Study:
  - 11 recreational Hyrox participants
  - Pre-Hyrox fitness tests
  - Perform simulated Hyrox
  - Check for Spearman's "p" correlations

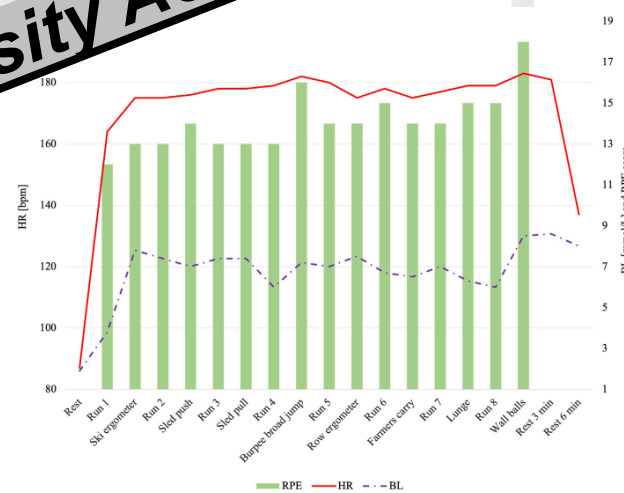


# The Science of Hyrox

- (Brandt et al. 2025): The Results:
  - Participants spent 40-80% of their time in “Zone 4” / “Very Hard” (80-90% Max)
  - Participants had blood lactate >7mmol/L (“hyperlactemia”)



**Hyrox is High-Intensity Aerobic Exercise!**



...so, what does this MEAN?

# The Science of Hyrox

- (Brandt et al. 2025): The Results:
  - The strongest correlate ( $\rho = -0.71$ ) of Hyrox performance was  $VO_2$  Max
  - The next strongest correlate ( $\rho = -0.68$ ) was endurance training volume
  - The next strongest correlate ( $\rho = 0.67$ ) was body fat percentage

	Full Hyrox		Runs		Exercise stations	
	Spearman's $\rho$	p	Spearman's $\rho$	p	Spearman's $\rho$	p
VO <sub>2</sub> max	-0.71	0.01	0.73	0.01	-0.11	0.74
Body mass	0.02	0.96	-0.11	0.75	0.48	0.14
BMI	0.01	0.83	-0.16	0.65	0.28	0.4
Body fat percentage	0.67	0.03	0.68	0.02	0.12	0.72
Muscle mass percentage	-0.03	0.94	-0.07	0.83	0.21	0.53
Hand grip strength	0.09	0.79	-0.03	0.94	0.53	0.09
Endurance training volume	-0.68	0.04	-0.63	0.07	-0.43	0.25
Resistance training volume	0.34	0.31	0.29	0.39	0.35	0.3

**The Fitter you Are, the better you perform!**

...so, what does this MEAN?

## 2. Defining Aerobic Fitness

# What is “Aerobic Fitness”?

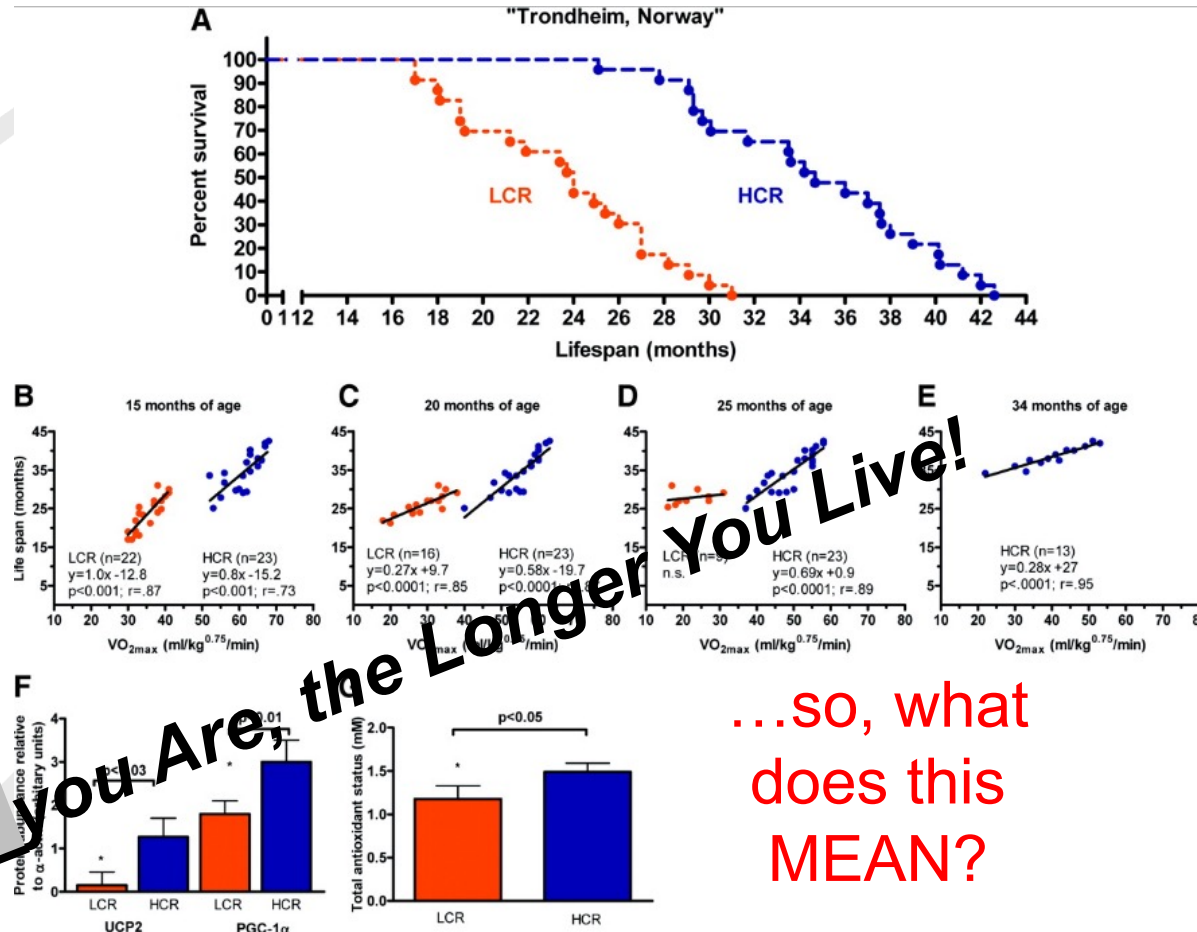
- Our body’s ability to transport and use *Oxygen* ( $O_2$ )
- Can be measured as “maximal oxygen consumption” or “ $VO_2$ Max”
- The single, BEST predictor of longevity in humans (Strasser & Burtscher, 2018)



# Aerobic Fitness and Longevity

From Koch et al. (2011)

- Animal model
- Bred mice for “High Capacity Running” (HCR) or “Low-Capacity Running” (LCR)
- Aerobic fitness is strongly associated with greater lifespan



**The Fitter you Are, the Longer You Live!**

...so, what does this MEAN?

# Aerobic Fitness and Longevity

From Chen et al. (2025):

- **Cardiorespiratory Fitness (CRF)** = 10% decrease in Hazard Ratio

**The Fitter you Are, the Longer You Live!**

**Table 2**  
Associations of CRF and Muscle Strength With Health Span Termination Using Cox Regression Models

Comparisons	No. of Participants	No. of Events	HR of Health Span Termination (95% CI)	
			Model 1	Model 2
<b>Tertiles of CRF</b>				
Low (Reference)	15,358	4801	1.00 (ref)	1.00 (ref)
Medium	15,507	4305	0.91 (0.87–0.95)	0.93 (0.89–0.97)
High	15,671	3935	<b>0.86 (0.82–0.90)</b>	<b>0.90 (0.86–0.94)</b>
CRF (continuous)			0.93 (0.91–0.95)	0.96 (0.94–0.98)
<b>Tertiles of muscle strength</b>				
Low (Reference)	15,488	4641	1.00 (ref)	1.00 (ref)
Medium	15,494	4349	0.93 (0.89–0.97)	0.93 (0.89–0.97)
High	15,499	4051	0.86 (0.83–0.90)	0.87 (0.84–0.91)
Muscle strength (continuous)			0.94 (0.92–0.95)	0.96 (0.94–0.98)

Model 1: adjusted for sex, smoking status (never, previous, current), employment (unemployed, employed), Townsend Deprivation Index, alcohol consumption (never, previous, currently <3 times/wk, currently ≥3 times/wk), dietary factors (red meat consumption, fruit and vegetable intake, salt intake, fish intake), MVPA (min/d), ethnicity and medication use (on cholesterol, blood pressure, or diabetes), with mutual adjustment for CRF and muscle strength.

Model 2: adjusted for all confounders in model 1 with an additional adjustment for PhenoAgeAccel.

...so, what does this MEAN?

# 3. How To Train To Improve Aerobic Fitness

# Aerobic Training: Where Do I Start?

## F.I.T.T Principle:

- 1. Frequency:**
  - Minimum of 3 days per week
  - Maximum of 6 days per week
- 2. Intensity:**
  - “Low” = 40-50%
  - “Moderate” = 50-70%
  - “High” = 70-90%
  - “Maximal” = 100%
- 3. Time:**
  - 20-90 minutes
  - Inverse relationship between time and intensity
- 4. Type:**
  - Walking
  - Running
  - Cycling
  - Swimming
  - Other cardiovascular machines
  - Sports



# Aerobic Training: Where Do I Start?

## Quantifying “Intensity”:

1. **Rating of perceived Exertion (RPE)**
2. **Age Predicted Maximal Heart Rate (APMR)**
  - $APMR = 208 - (0.7 \times \text{age})$
  - **Training Heart Rate (THR) =**  
 $(\% \text{ desired Intensity}) \times APMR$
3. **Heart Rate Reserve (HRR)**
  - $HRR = (APMR - \text{Resting Heart Rate/RHR})$
  - **Training Heart Rate (THR) =**  
 $(HRR \times \% \text{ desired Intensity}) + RHR$

1 - 10 Borg Rating of Perceived Exertion Scale	
0	Rest
1	Really Easy
2	Easy
3	Moderate
4	Sort of Hard
5	Hard
6	
7	Really Hard
8	
9	Really, Really, Hard
10	Maximal: Just like my hardest race



# Aerobic Training: Where Do I Start?

## • Quantifying “Training Load”:

- WHAT are we Tracking?
  - *Training Load* (TL)
    - Calculated based on the following formula:

$$TL = V * I$$

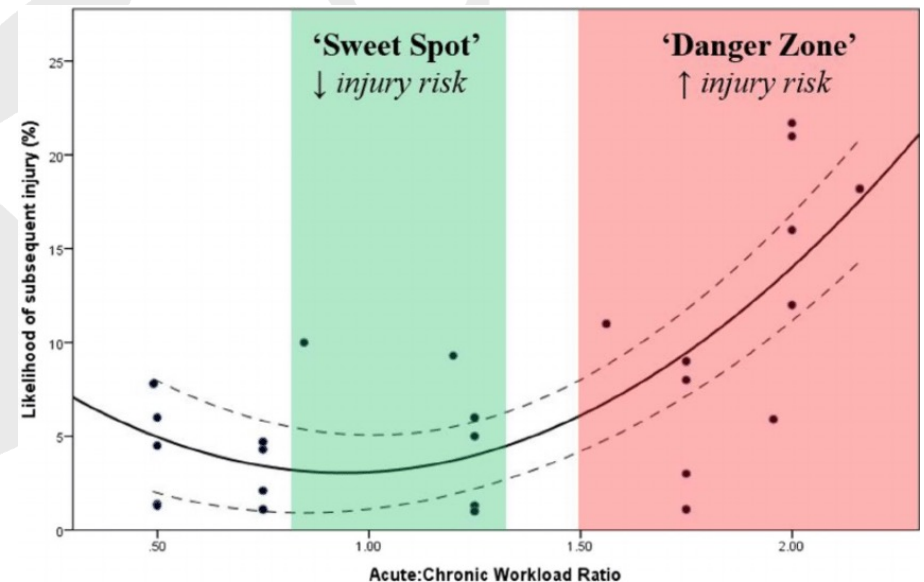
- Where “V” = training time (in minutes)
- And “I” = intensity (0-10 RPE)

1 - 10 Borg Rating of Perceived Exertion Scale	
0	Rest
1	Really Easy
2	Easy
3	Moderate
4	Sort of Hard
5	Hard
6	
7	Really Hard
8	
9	Really, Really, Hard
10	Maximal: Just like my hardest race

# Aerobic Training: Where Do I Start?

## • Quantifying “Training Load”:

- WHAT are we Tracking?
  - Acute:Chronic Workload Ratio (ACWR)
    - Calculated as the *ratio* between:
      - Acute Training Load (TL today)
      - Chronic Training Load (TL from last 3 weeks)



# Aerobic Training: Where Do I Start?

- **Can be trained in the following ways:**

1. **Long, Slow Distance (LSD)**

- 30-60 minutes
- 60-70% intensity (“Zone 2”)

2. **Fartlek Training**

- 20-40 minutes
- Periodically/randomly alternate between fast and slow intensities
- Increase intensity by increasing speed or incline

3. **High-Intensity Interval Training (HIIT)**

- Intervals of periods of time, 30 seconds to 4 minutes in duration
- Work-to-rest ratio (WRR) of 1:1
- Intensity of intervals is 75-95%
- Typically 4-10 repetitions/intervals

4. **Sprint Interval Training (SIT)**

- Intervals of short-duration (5-20 seconds)
- Intervals of maximal intensity (95-100%)
- Typically 5-15 repetitions/intervals



# 3. Let's Get Moving!

**THANK YOU!**  
**QUESTIONS?**

**Email: [richard@speedtraining.ca](mailto:richard@speedtraining.ca)**  
**Web: [speedtraining.ca](http://speedtraining.ca)**  
**Instagram: [@speedtraining.ca](https://www.instagram.com/speedtraining.ca)**