

Relax Far-Infra Red Saunas

The 2022 Proof of Concept Trials

Exercising Nutritionally. LLC

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Summary Overview

This presentation is a summation of a series of experimental trials to figure a potential approach to a funded pilot study that could lead to an IRB approved funded study.



Who We Are

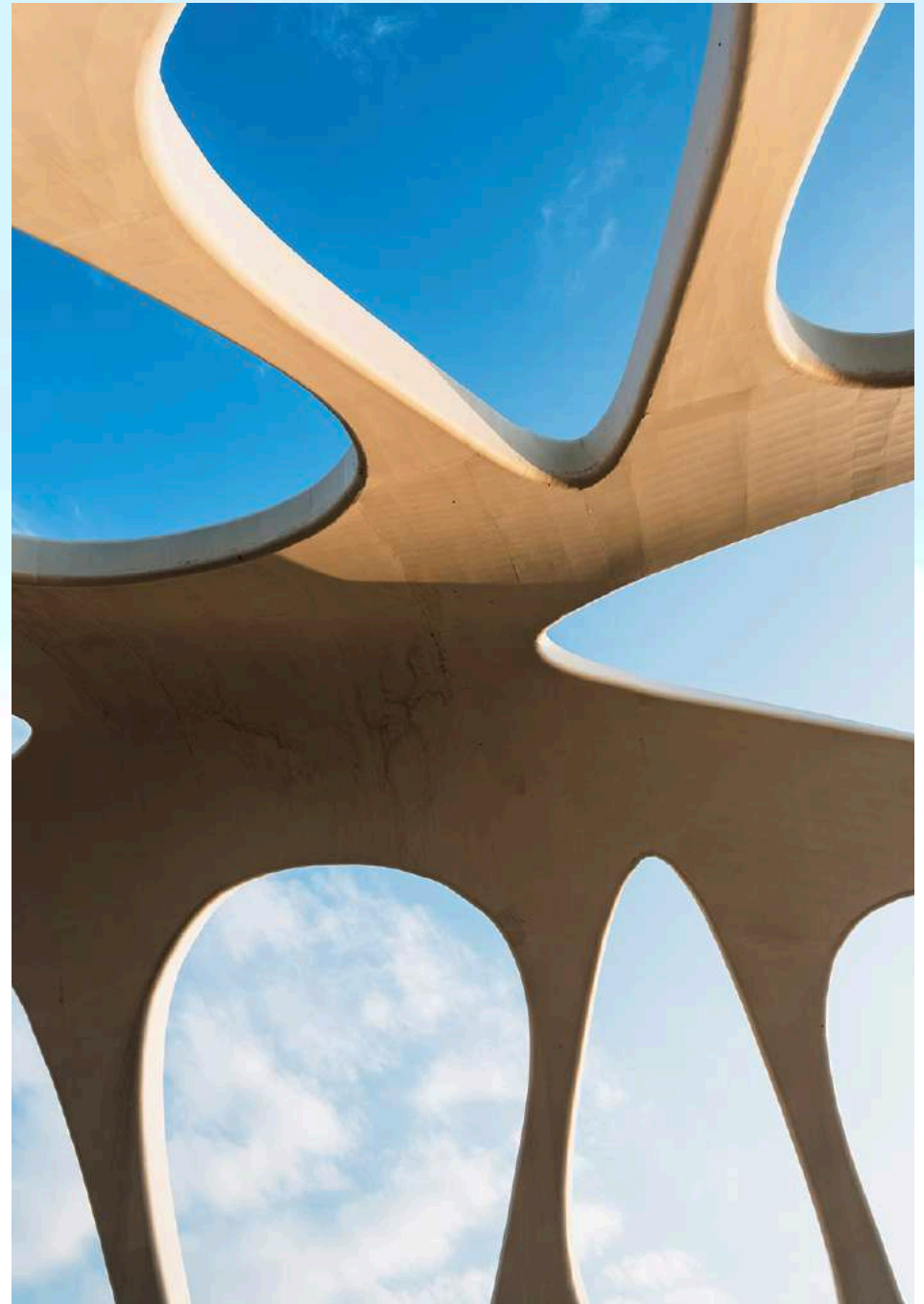
Exercising Nutritionally, LLC

- Exercising Nutritionally, LLC is a clinical research and education company promoting healthy living and aging.
- We focus on developing clinical research programs for evidence based preventive wellness and enhancing human performance.
- Research projects focus on the role that nutrition and physical activity play in helping prevent and treat lifestyle related diseases on the molecular, biochemical, and physiological levels.
- Populations include children, adults, and senior populations.
- Exercising Nutritionally helps other companies research new preventive health applications that would lead to FDA application claims approval. A major strength of Exercising Nutritionally, LLC research projects is we develop collaborations with clinical university based research environments fostering relationships with some of the top clinical research groups in Chicago and the United States.

Our Company

Collaborations

- HumanN Corporation
- HumanAMP Corporation
- Garmin Corporation
- Red Bull USA
- Vector 450
- The Chicago Bulls
- COSMED Corporation
- KORR Medical
- Moxy Monitors
- American Diabetes Association

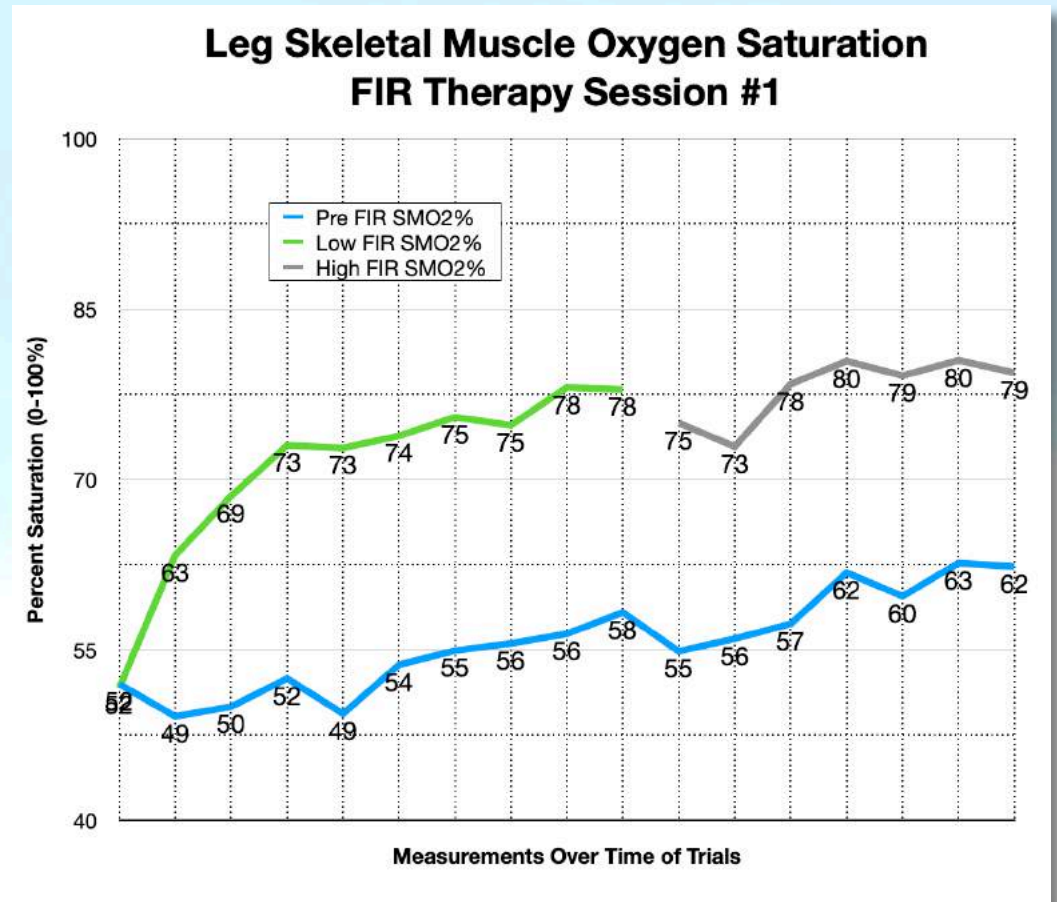


Far-Infrared Phase One

Phase One Objectives

Initially, we conducted a Moxy monitor leg oxygen saturation (SMO2%) trial under three conditions.

- No Far Infra-red (FIR) treatment while sitting in the unit but not turned on.
- FIR treatment set on level one.
- FIR treatment set on level two.



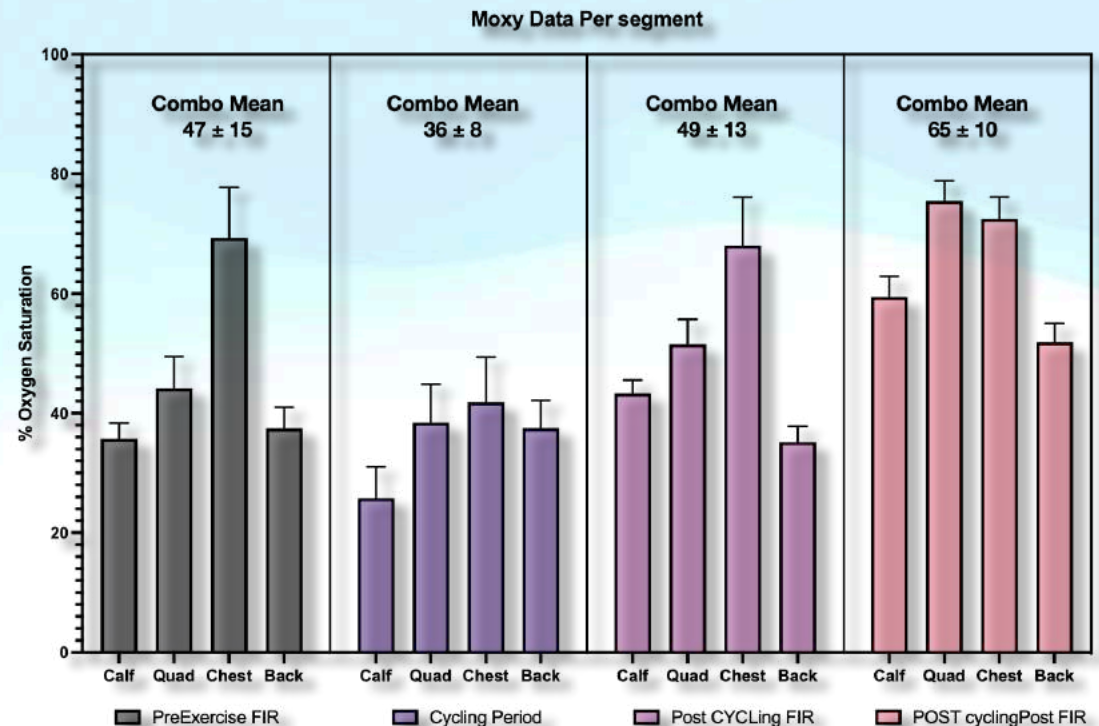
This results suggest that provided the time in the Relax Sauna is long enough, both the single FIR and dual FIR levels lead to similar muscle oxygenation levels. Future research is needed comparing 30 mins at each FIR level on separate trials to verify.

Far-Infrared Phase Two

Phase Two Objectives

In this phase, we looked at how muscle oxygenation changed under four conditions over 4-distinct locations (Calf, Quads, Chest, & Back).

- Far-Infrared (15-mins) treatment prior to a cycling workout (45-mins);
- During cycling at steady-state tempo riding and immediately post-cycling Far-Infrared treatment for 20-mins;
- The after-effect of infrared treatment on the body in supine rest with light blanket on the test subject for a total of 30-mins.



This data shows during far-infrared treatment muscle oxygenation was greatest for the chest sensor followed by the quads, calf, and back. An interesting finding is that although FIR treatments were at seated rest, the post treatment oxygenation saturation values were greatest during the 30-min period following all treatment and exercise in the supine position.

Far-Infrared Phase Three

Phase Two Objectives

The main goal was to determine what effects FIR treatments had under seated resting conditions in following areas:

- Resting metabolic oxygen uptake response
- Cardiac Output, Stroke Volume, Heart Rate
- Whole-body oxygen saturation
- Systemic Vascular Resistance

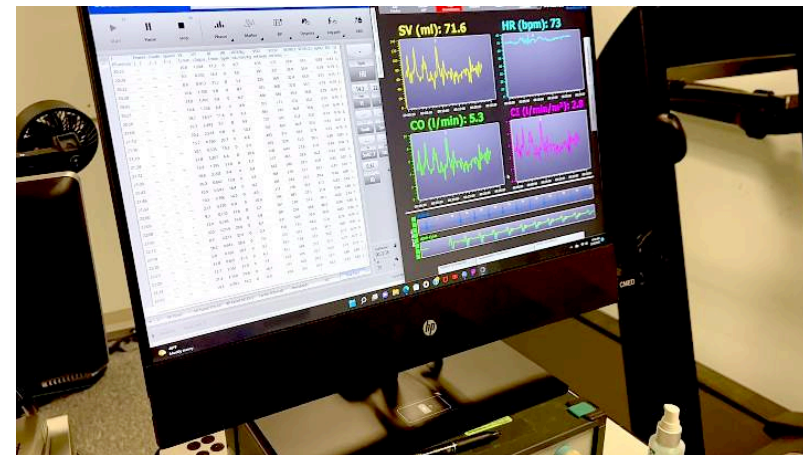


Data Collection Details For Phase Three

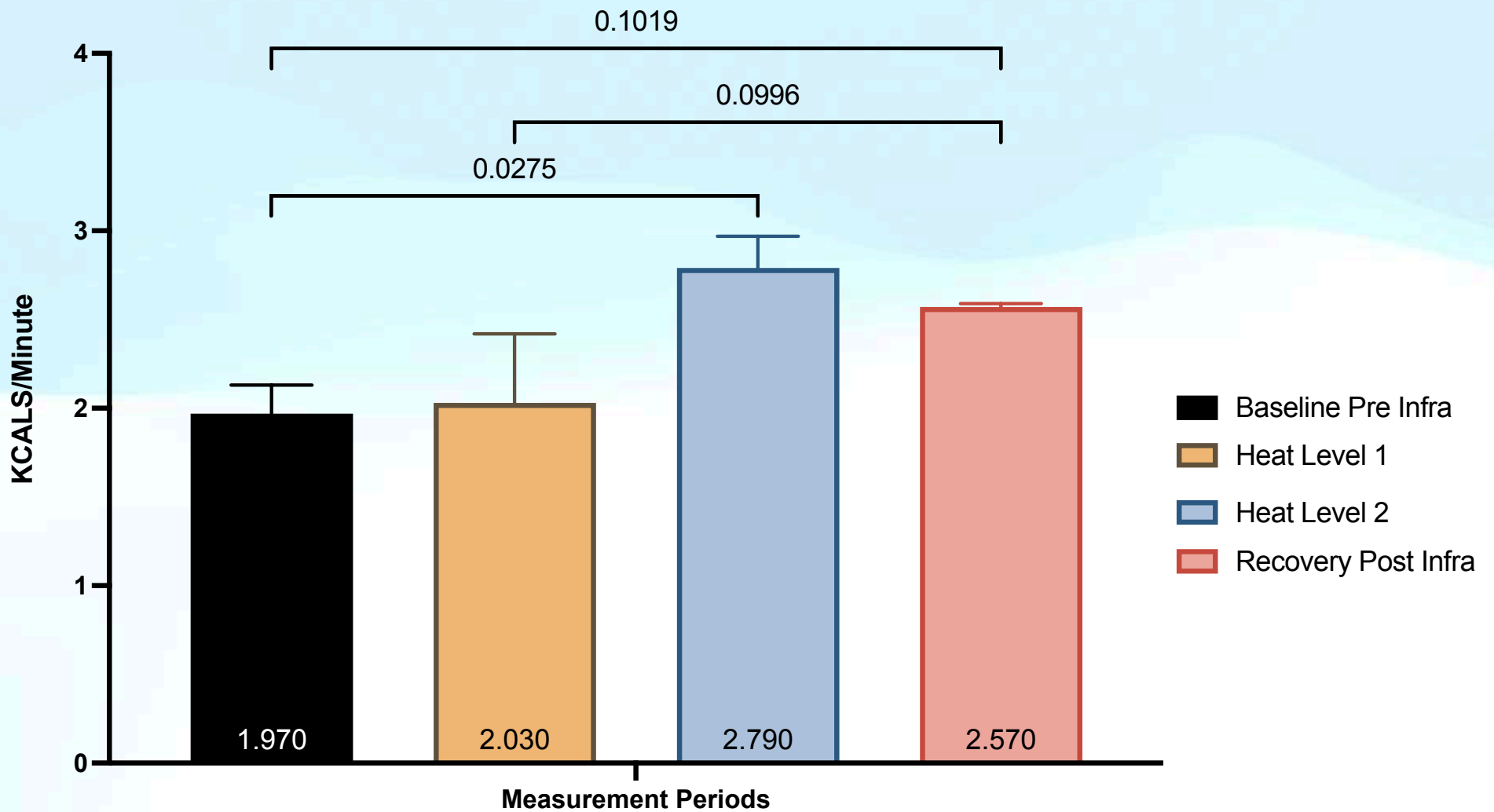
Pre Testing

Instrumentation Set-Up And Systems Calibration	Seated Rest In Sauna Only	Baseline		Heat Level 1		Heat Level 2		Recovery	
		RMR, Moxy, Cardiac Function, PWA	RMR, Moxy, Cardiac Function, PWA	RMR, Moxy, Cardiac Function, PWA	RMR, Moxy, Cardiac Function, PWA	RMR, Moxy, Cardiac Function, PWA	RMR, Moxy, Cardiac Function, PWA	RMR, Moxy, Cardiac Function, PWA	RMR, Moxy, Cardiac Function, PWA
	Washout: -10 to 0	0-5m	10m	15m	25m	30m	40m	45m	55m

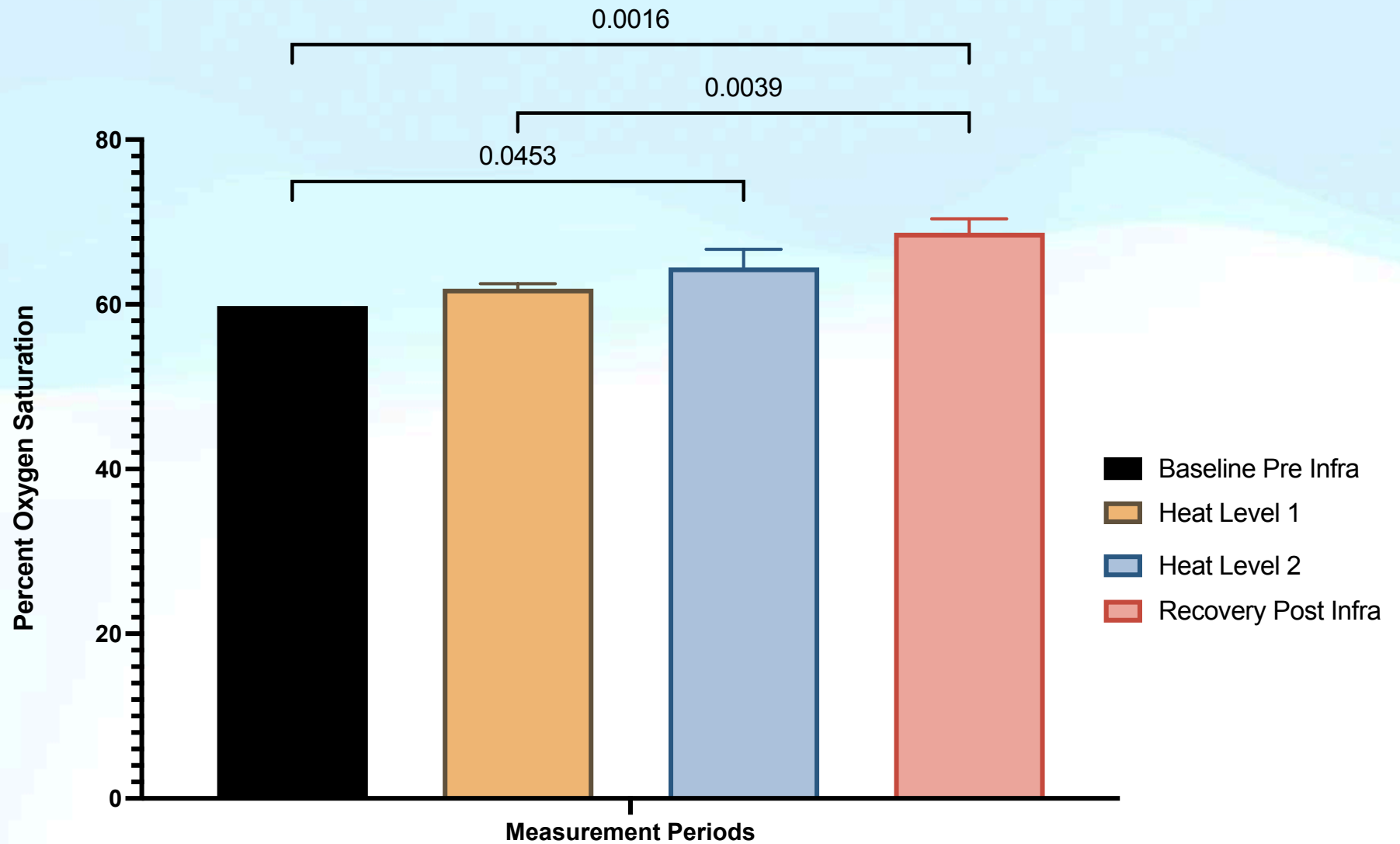
Note: Aortic pulse wave (Aortic PWA) will be collected to potential increase the value of the IRB approved project. In our beet nitrate blood pressure work, we have observed when blood nitrate increases, we observe an improvement in aortic compliance measures. And improvements in Moxy measured regional oxygenation saturations. This area to our knowledge has not been formally studied to date used in FIR sauna research.



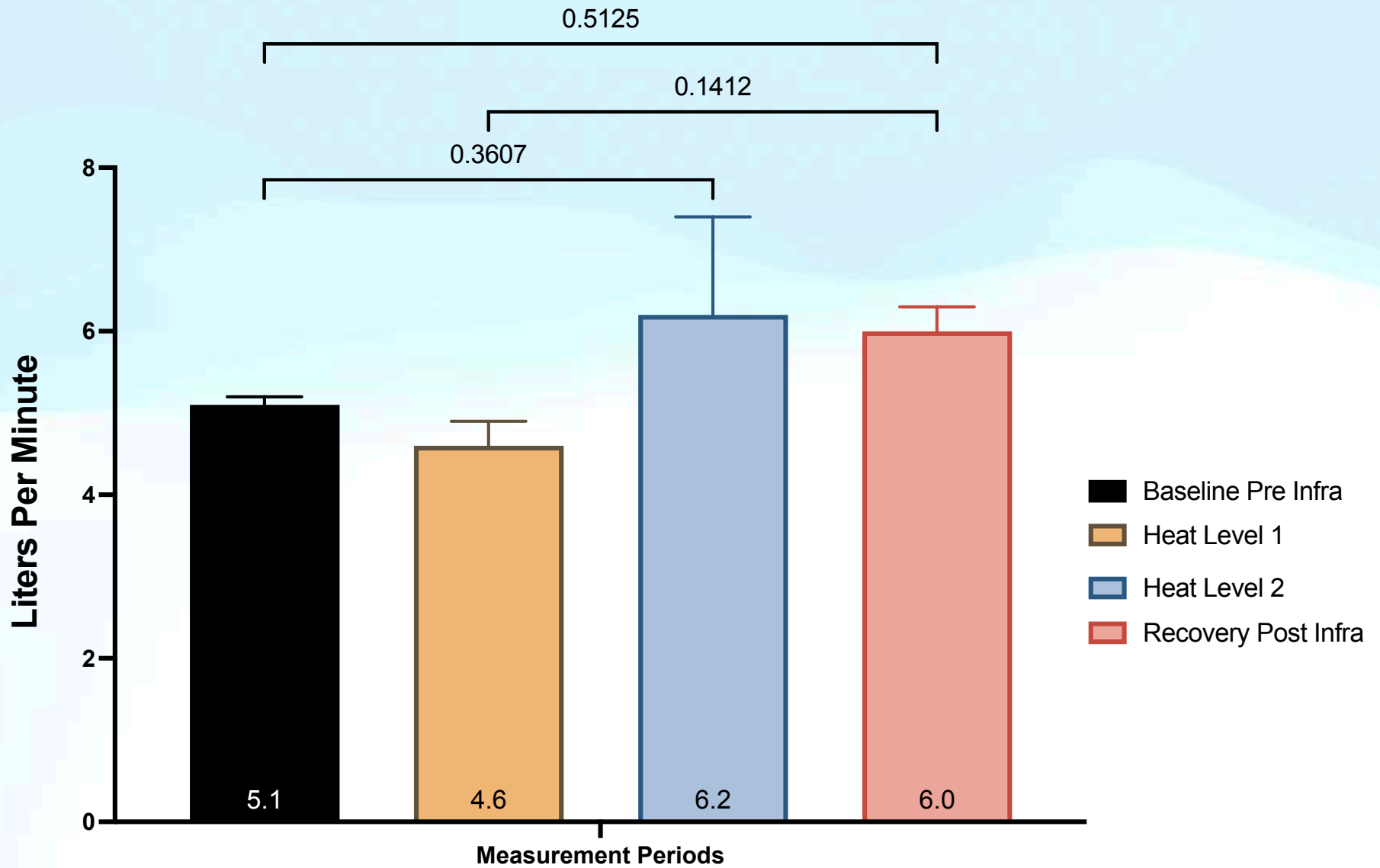
Whole Body Energy Expenditure



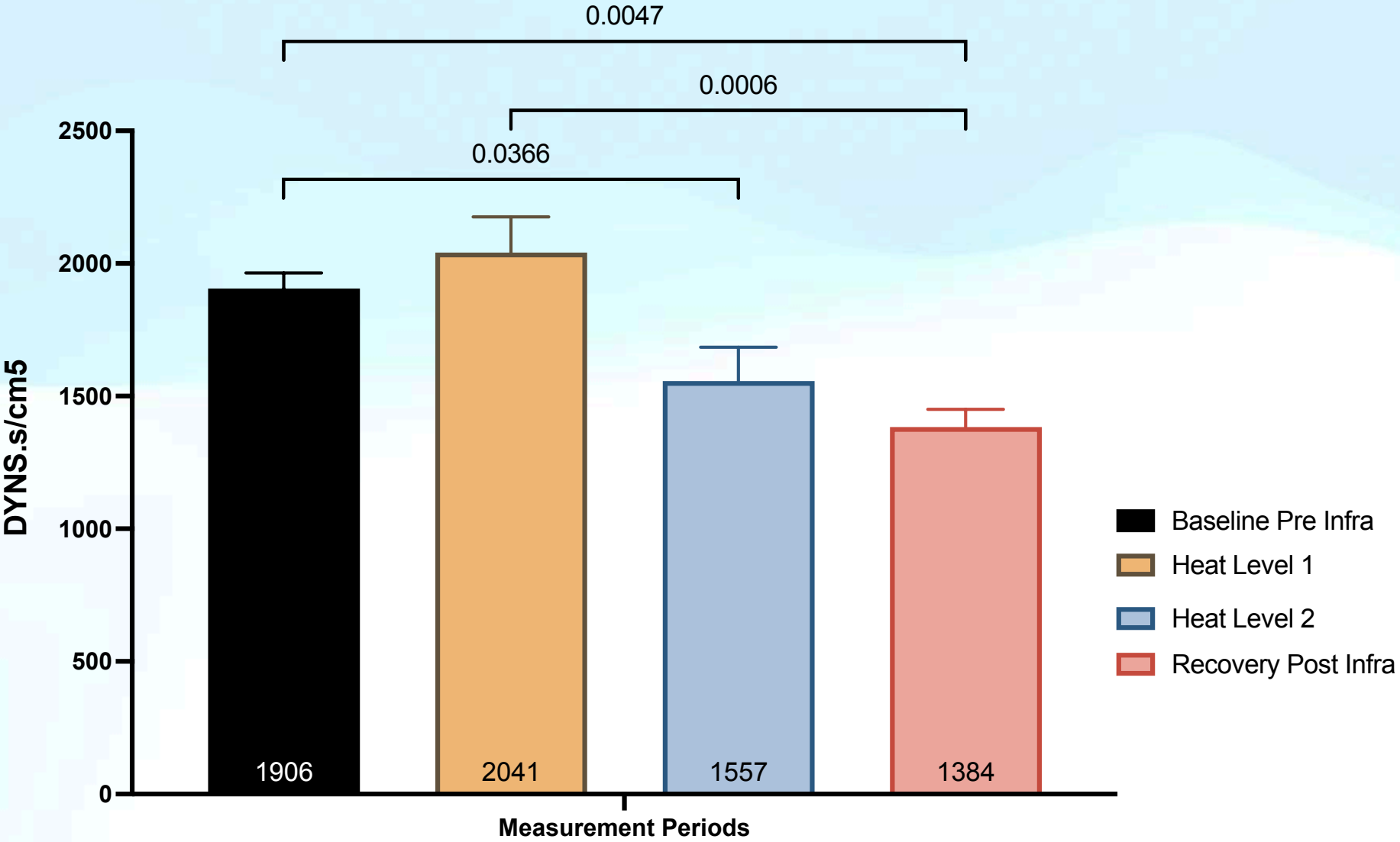
Skeletal Muscle Oxygenation (SMO2)



Cardiac Output Changes



Systemic Vascular Resistance



Changes in Systemic and Aortic Blood Pressure

	SBP	DBP	ASBP	ADBP
Baseline	142.0	97.0	130.0	97.5
Heat Level 1	147.3	92.3	132.7	92.7
Heat Level 2	133.0	91.3	124.3	92.0
Recovery	135.0	94.0	125.0	93.0
	-5.6%	-4.5%	-4.1%	-5.1%

Results and Conclusions

- Whole body muscle oxygenation and kcal expended per minute increased 8.1% and 20.1% from baseline, respectively.
- At the same time, cardiac output (+10.2%), systemic vascular resistance (-13.9%), and heart rate (+12.6%) significantly changed across the measurements periods compared to baseline.
- These combined results show that FIR had a measurable positive effects on both cardiovascular function and metabolic thermogenic responses leading to enhanced body oxygenation and regional blood flow to allow whole body thermoregulatory cooling.
- Not presented in the graphs above was a similar respiratory whole body response showing ventilation increasing 20%, tidal volume increasing 29.6% with a lower respiratory frequency of 13.1%.
- These data suggest that during the FIR trial intervention, the subject was breathing more deeply and provide an enhance oxygen exchange at lung and pulmonary capillary.
- Thus, leading to a more efficient breathing and oxygen exchange pattern that would be similar a deeper meditation like breathing response despite the high thermal stress load on the body.

Summary

- FIR had positive effects on regional muscle oxygenation, acute energy expenditure, cardiac function, and can lower acutely both peripheral and aortic blood pressure by reducing whole body systemic vascular resistance and during and following the FIR intervention trial.
- Future investigations should verify these results with 5-10 subjects using the current testing protocol plus a longer post exercise recovery period 60-90 minutes to more accurately look at the post thermogenic effects of FIR therapy to see if it is similar to light to moderate intense exercise thermogenic effects on metabolism.