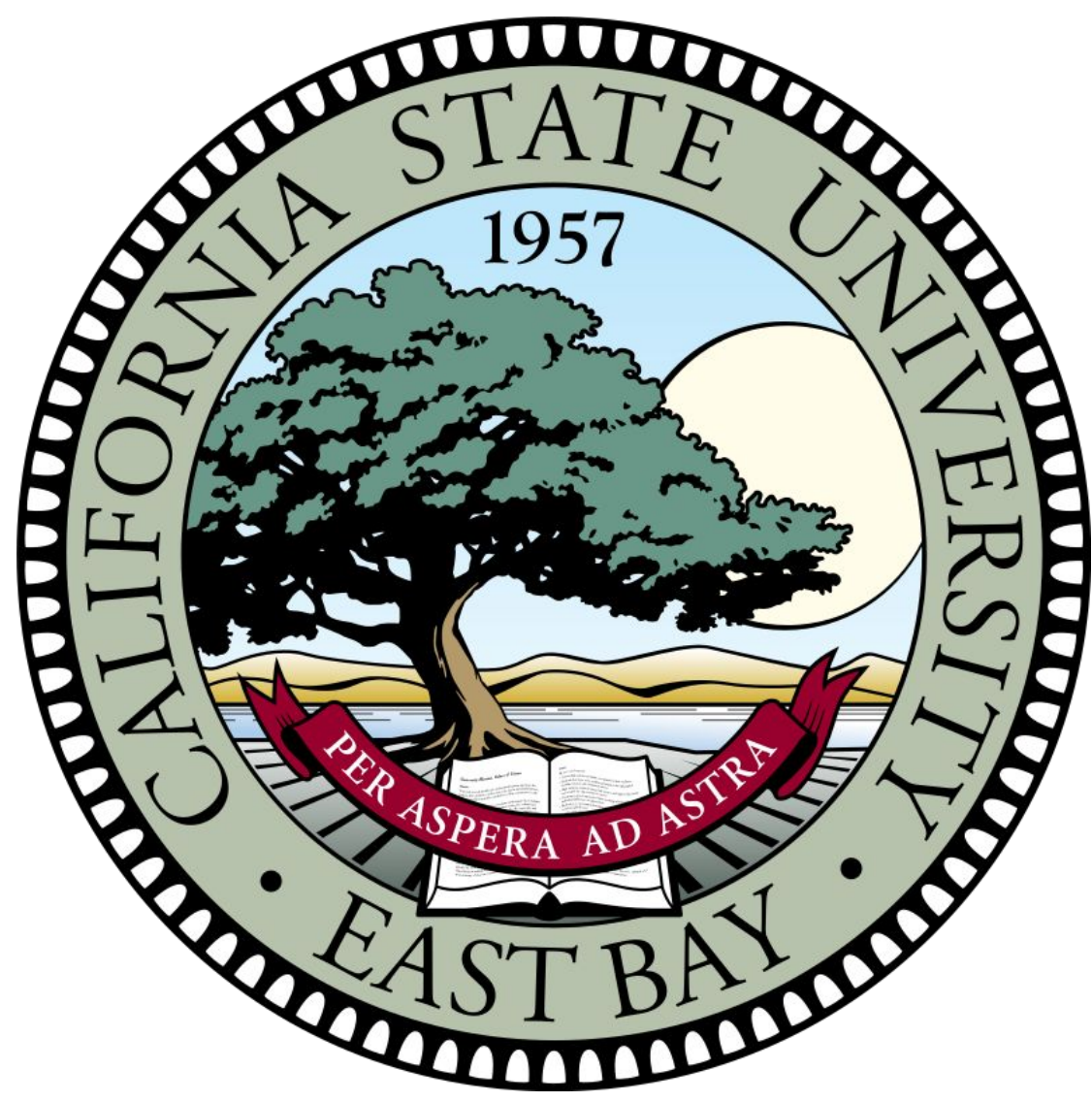




Effects of Vespa Amino Acid Mixture on Submaximal and Maximal Cycling Performance

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ABSTRACT

Introduction: The ability to increase fat utilization, VO_2max , and ventilatory threshold could dramatically improve exercise performance, especially among endurance athletes. Prior research suggests that the chronic use of a Vespa Amino Acid Mixture (VAAM) may increase fat metabolism and VO_2max among elderly women (Sasai 2011). VAAM consumption provides a unique combination of amino acids (tyrine, phenylalanine, proline, and alanine) that are effective at increasing Krebs's Cycle activity, thereby facilitating increased aerobic metabolism. **Purpose:** The purpose of this study was to determine if a single pre-exercise dose of VAAM increased fat metabolism, VO_2max , or ventilatory threshold during cycling exercise. **Methods:** In this single-blind pilot study, three highly active male cyclists (age 37.3 ± 10.1 years) completed two exercise tests separated by one week. Prior to each exercise test, in single-blind random order, subjects consumed either an 8 ounce drink containing 100mg of naturally derived VAAM (Vespa CV-25. Vespa Power Products LLC, Davis CA) or an 8 ounce isocaloric placebo. On a cycle ergometer subjects completed four 5-minute submaximal exercise stages, followed immediately by a VO_2max test. Fat metabolism (FM, kcal/min), maximal oxygen uptake (VO_2max , ml/kg/min), and ventilatory threshold intensity (VT, Watts) were measured. **Results:** The results of these tests demonstrated an increase in submaximal FM, VO_2max , and VT following the consumption of VAAM. **Conclusion:** The findings of this study indicate a potential improvement in aerobic exercise performance through increased fat metabolism, VO_2max , and VT intensity when consuming a single 100mg dose of VAAM prior to exercise compared to a placebo. Future investigations are needed with a greater number of subjects and women to better understand the effectiveness of VAAM as an ergogenic aid.

INTRODUCTION

Vespa Amino Acid Mixture (VAAM) obtained from the saliva of hornet larvae contains a unique peptide consisting of 17 amino acids. VAAM was introduced by Takashi Abe in 1995 during an investigation into the endurance capabilities of hornets. Animal studies (mice and rats) have demonstrated increased endurance capacity and fat metabolism following the administration of VAAM (Abe, 1995). Researchers concluded that despite the depletion of energy stores through strenuous exercise, the ingestion of VAAM resulted in higher levels of fatty acid oxidation, and aerobic metabolism compared to a placebo (Abe, 1995). The proposed mechanism for improved performance in these studies is based on an immediate and powerful activation of the tricarboxylic acid (TCA or Krebs's) cycle. It was determined that administration of VAAM simultaneously and powerfully activates the enzymatic reactions of the proline cycle, the alanine cycle, and the glycine cycle, all of which work together to activate the TCA cycle. Investigations on the effects of VAAM on humans during exercise is lacking. In 2011, a group of 12 women consumed VAAM daily for 12 weeks and experienced increased VO_2max and decreased abdominal fat compared to a placebo group. There are no published studies on the acute effects of VAAM on exercise performance.

Purpose: The purpose of this pilot study was to determine if a single dose of VAAM consumed pre-exercise increases fat metabolism, VO_2max , or ventilatory threshold during cycling exercise.

RESULTS

Table 1. VO_2max and Ventilatory Threshold Data.

	VO_2max (ml/kg)			Watts @ VT		
	Vespa	Placebo	%diff	Vespa	Placebo	%diff
Subject 1	61.87	58.68	5.4	295	260	13.5
Subject 2	59.63	56.69	5.2	355	355	0.0
Subject 3	58.89	56.66	3.9	325	300	8.3
MEAN	60.13	57.34	4.6	325	305	6.1

Table 2. Steady State Fat Metabolism Data.

	Fat Metabolism (kcal/min)											
	100 Watts			150 Watts			200 Watts			250 Watts		
	V	P	%diff	V	P	%diff	V	P	%diff	V	P	%diff
Sub 1	8.6	8.3	3.4	11.2	10.4	6.5	12.6	12.3	2.3	11.6	9.9	14.2
Sub 2	6.5	4.6	10.7	6.6	4.6	30.1	6.9	6.25	9.5	5.5	4.9	11.4
Sub 3	7.1	6.4	10.4	9.1	6.0	33.7	9.7	5.9	39.8	8.7	7.1	17.5
Mean	7.5	6.4	14.8	9.0	7.0	23.5	9.7	8.2	16.9	8.7	7.1	17.5

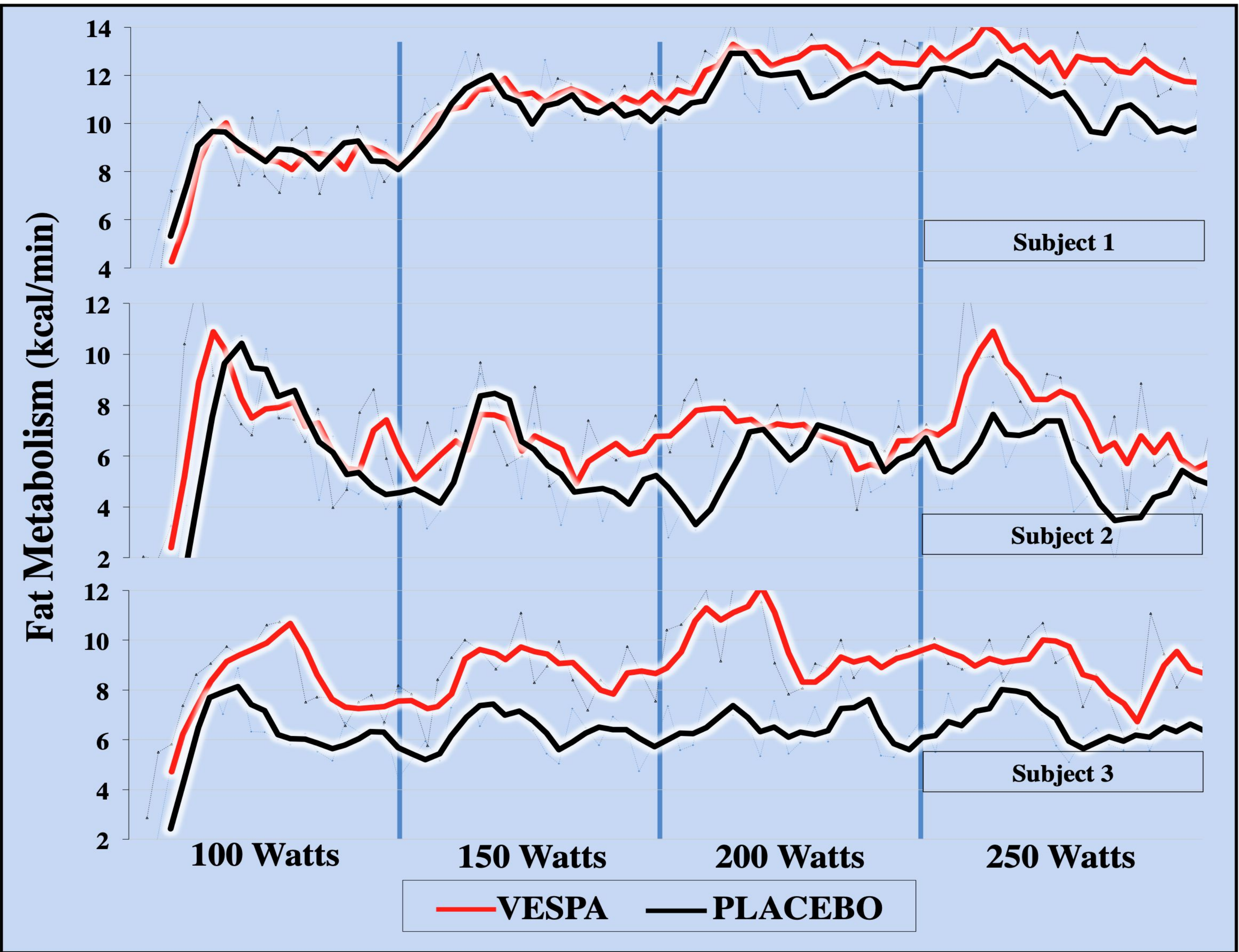
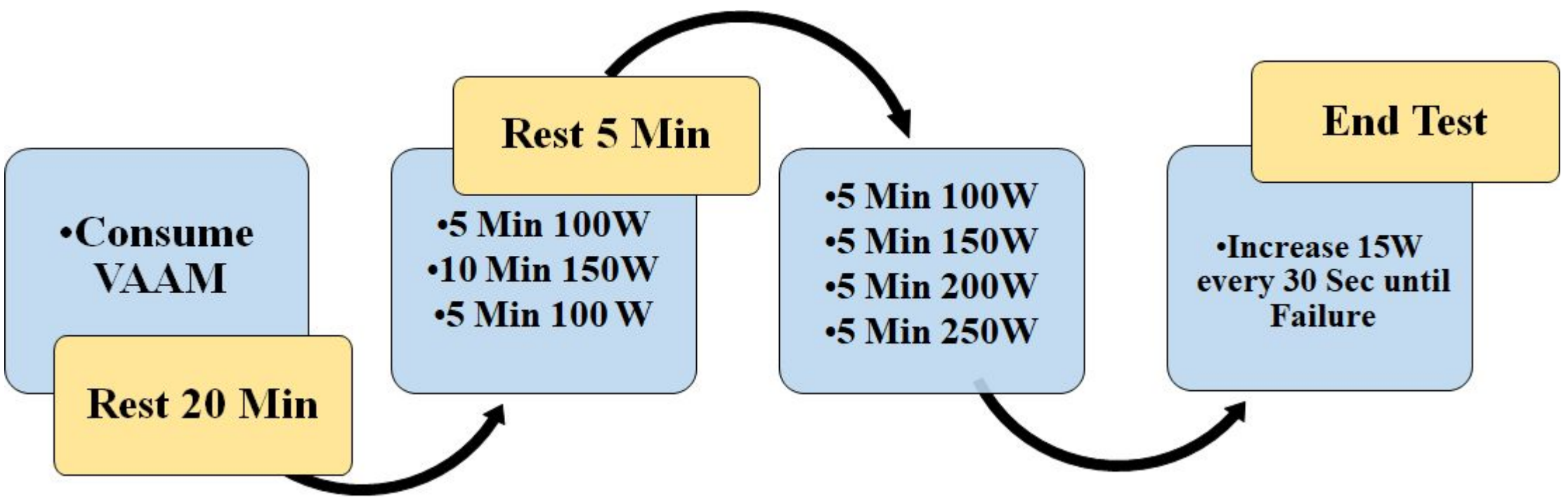


Figure 1: Fat metabolism (kcal/min) during four 5-minute stages of cycling exercise

METHODS

Participants: Three highly active male cyclists (age 37.3 ± 10.1 years), participated in this pilot study. All were free from injury and followed a consistent eating and exercise pattern throughout the week leading up to each test. They arrived for testing following a minimum twelve-hour fast. All subjects read and signed the informed consent form approved by the college's human subjects review board.

Procedures: Subjects completed two tests, separated by one-week in single blind fashion. Upon arrival to the lab, subjects' weight was obtained and they were fitted with a heart rate monitor sensor (Polar Electro Oy, Kempele, Finland). Subjects then consumed either an 100 mg VAAM drink (Vespa CV-25. Vespa Power Products LLC, Davis CA) or an isocaloric placebo (NUUN & Co, Seattle, WA) mixed in eight ounces of water. The exercise protocol was then completed on a Lode Excalibur cycle ergometer (Lode B.V., Groningen, The Netherlands). A Parvomedics TrueOne 2400 was used to obtain VO_2 , fat metabolism, and ventilatory threshold data.



DISCUSSION

This results of this experiment demonstrate that VAAM increased VO_2max , fat metabolism, and ventilatory threshold during cycling exercise. Ultra distance athletes may experience the greatest potential benefits from VAAM ingestion due to its effect on fat utilization, the primary metabolic pathway in high endurance activities. The observed increases in VO_2max and ventilatory threshold also have implications for improved performance across a wide range of endurance and mixed sport activities. Limitations to his study include the low number of subjects, limited number of trials, and a very specific demographic. Potential areas for further inquiry would be experimenting with varying dosages of VAAM, duration of potency of VAAM, and whether it is applicable to other athletes that are not aerobically trained. VAAM mixed with thermogenic supplements may result in increased fat loss, but this also needs to be further looked at.

CONCLUSION

The data demonstrated increased fat metabolism throughout the cycling exercise tests comparing the VAAM and placebo. The VAAM showed greater utilization of fat, especially when reaching maximal levels. Crossover concept was increased slightly, hence indicating a greater percent of fat metabolism. The VAAM, also resulted in increased VO_2max and intensity at which the ventilatory threshold occurred, indicating an increase in higher intensity exercise performance potential.

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Don't indent (tab) paragraphs.

Move the left side of the slide text boxes a little to the right. They are a bit too far into the left margin.

- ABSTRACT:
- Mention 3 body weights earlier in abstract. "The participants performed 3 GXT's using a custom protocol at either 100%, 75%, or 50% body weight on an AlterG treadmill, following a Latin Square design
- "it appears that training at a lower percentage of BW can lead to similar cardiopulmonary adaptations achieved at 100%, without the same level of stress (ON THE LOWER EXTREMITY?)
- INTRO
- Define LBPPT before using acronym.
- RESULTS
- Sounds picky, but the font size on your graphs (Title, axes labels, legends and markers) needs to be MUCH MUCH bigger. Those need to POP! This IS your entire results section that you are very proud of. Don't hide it. Make it so people are automatically drawn to it...
- Make those bar COLORS or textures, but the shades of gray can be improved I changed the first graph to reflect my suggestions. Just playing around with colors, etc. But you get the idea. I'd stick to one color, not that rainbow I got going on there.
- I like the pic of you...is there one with the mask on?
- DISCUSSION
- Good section. Can you begin with a positive finding instead of the vo2max? Just a rearrangement, not any new info.

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