

The effect of ingesting a caffeine-enhanced sport drink on resting energy expenditure and blood pressure in females.

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Abstract

Purpose: The purpose of the study was to determine the acute effects of ingesting a thermogenic drink on changes in resting metabolism and blood pressure in recreationally active females. For this particular study, we looked at the immediate effects of Redline Princess, a ready to drink supplement created by VPX. **Background:** The effects of caffeine-enhanced drinks on resting energy expenditure and blood pressure have not been studied extensively in recreationally active females. The purpose of this study was to evaluate the effects of a thermogenic supplement, Redline Princess, on resting energy expenditure, resting blood pressure, and resting heart rate. In addition, the effect of the pre-exercise drink on subjective feelings of fatigue and vigor was also explored. **Methods:** Six recreationally active females (age 24.50 ± 2.17 years; height, 162.56 ± 8.27 cm; weight 55.80 ± 7.44 kg), who were apparently healthy and recreationally active individuals, reported to the Resting Metabolic Laboratory for two separate testing sessions to participate in a randomized, double-blind crossover design. While in a fasted state, the participants were provided with either 240 ml of a caffeine-enhanced sport drink, Redline Princess (SUP), or 240 ml of a placebo (PL). Resting energy expenditure (REE), resting blood pressure (RBP), and resting heart rate (RHR) were assessed at 1-hour, 2-hour, and 3-hours post ingestion. A Profile of Moods State (POMS) questionnaire was completed each hour to assess fatigue and vigor. A two-day wash-out period was required between sessions. Data were analyzed by two-factor (group x time) ANOVA using SAS version 9.1.3. **Results:** The Redline Princess supplementation did result in a significant increase ($p = 0.045$) in REE when compared to the placebo at 60 minutes: ($1.07 \pm .15$ vs. $.96 \pm .20$ kcal/min), 120 minutes ($1.02 \pm .16$ vs. $.94 \pm .19$ kcal/min), and at 180 minutes ($1.03 \pm .15$ vs. $.95 \pm .20$ kcal/min) post-ingestion. An Analysis Under the Curve (AUC) indicated Redline was greater than placebo ($p = 0.03$). No significant differences were observed for BP, HR, fatigue or vigor ($p > 0.05$) for either group. **Conclusion:** In this study, Redline Princess did have an acute significant impact on resting energy expenditure more than the placebo for several hours after ingestion in fully rested states. In addition, ingestion of this supplement did not cause a significant difference resting heart rate, resting blood pressure. Subjective feelings of fatigue and vigor were not significantly impacted in recreationally active females for this particular study.

Introduction and Purpose

Redline Princess is an ergogenic aid that provides women with energy (caffeine), control appetite sensation and an improvement in mood. In many acute clinical human trials, similar thermogenic drinks have shown a positive stimulation of resting energy expenditure [1 - 3]. With an increase in energy expenditure at rest, more energy is being expended. Furthermore, several research studies have demonstrated that short-term thermogenic drink ingestion does not result in adverse health effects [1-5]. Redline Princess also contains Beta-Phenylethylamine HCl (PEA) has shown to make one more aware of their surroundings and giving a better sense of well-being and satisfaction. PEA, when absorbed in the body at high levels, depression can be relieved [6]. The purpose of the study was to determine the acute effects of ingesting a thermogenic drink on changes in resting energy expenditure, resting heart rate and resting blood pressure in recreationally active females. The effects of Redline Princess have not been studied in any population to date.

Subjects

Table 1: Subject Characteristics

	N	Age (years)	Height (cm)	Weight (kg)
Recreationally Active Women	6	24.50 ± 2.17	162.56 ± 8.27	55.80 ± 7.44

Methods

Table 2: Testing Procedures

Minute 0-30	Rest
Minute 30	Resting RHR, RBP / POMS
Minute 40-60	Metabolic Hood
Minute 60	1 serving of con/pla
Minute 60-90	Rest
Minute 90	1 serving of con/pla RHR, RBP / POMS
Minute 100-120	Metabolic Hood
Minute 120-150	Rest
Minute 150	RHR, RBP / POMS
Minute 160-180	Metabolic Hood
Minute 180-210	Rest / Dietary Recall / Side effects Questionnaire
Minute 210	RHR, RBP / POMS
Minute 220-240	Metabolic Hood

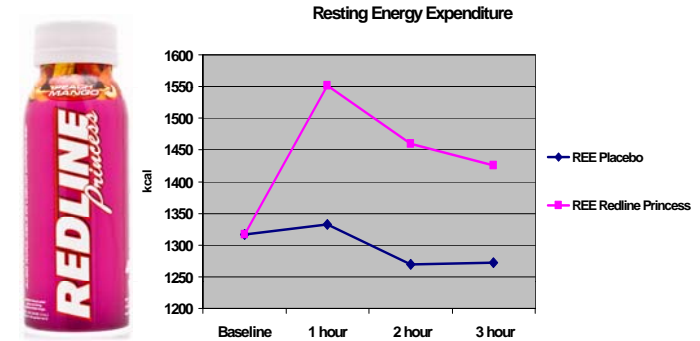
A double blind crossover research design was used during this investigation. The study required subjects to make three separate visits to the Resting Metabolic Laboratory. On the initial orientation visit, subjects completed the informed consent, health history questionnaire, subject information sheet, and a Profile of Moods State (POMS) questionnaire. Body composition was assessed by a 3-site skin fold measurement and the Bod Pod (Life Measurement, Inc); resting heart rate, resting blood pressure and height/weight was recorded. On the second and third visit, the subjects underwent the testing procedures (Table 2). During the resting period, the subjects were allowed to either read or write. Subjects were not permitted to sleep. After the second visit, the subjects returned to the laboratory two to seven days later to for their final visit. Subjects were encouraged to return to the laboratory at the same time of day as the first testing session. At the conclusion of each testing session, the subject completed a 24-hour dietary recall and a caffeine side-effects assessment. Variables addressed were: dizziness, headache(s), fast or racing heart rate, heart skipping or palpitations, shortness of breath, nervousness, blurred vision, as well as a self-report of other unusual or adverse effects. This questionnaire also assessed both the frequency of occurrence for each variable, as well as severity of these variables at the time of completing the questionnaire. Data was analyzed by two-factor (group x time) ANOVA using SAS version 9.1.3

Results

The Redline Princess supplementation did result in a significant increase ($p = 0.045$) in REE when compared to the placebo at 60 minutes: ($1.07 \pm .15$ vs. $.96 \pm .20$ kcal/min), 120 minutes ($1.02 \pm .16$ vs. $.94 \pm .19$ kcal/min), and at 180 minutes ($1.03 \pm .15$ vs. $.95 \pm .20$ kcal/min) post-ingestion. Analysis Under the Curve (AUC) indicated Redline was greater than Placebo ($p = 0.03$). No significant differences were observed for RBP or RHR for either group. No significant differences were observed for fatigue or vigor ($p > 0.05$) for either group.



Figure 1: Comparison of Redline Princess to Placebo



Conclusions

In this study, Redline Princess did have an acute significant impact on resting energy expenditure more than the placebo for several hours after ingestion in fully rested states. In addition, ingestion of this supplement did not cause a significant difference in resting heart rate and resting blood pressure. Subjective feelings of fatigue and vigor were not significantly impacted in recreationally active females for this particular study.

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