# Post-exercise Hydration With Deep Sea Mineral Water on Exercise Performance

Sponsor:
University of Arizona
Information provided by (Responsible Party):
University of Arizona

**Purpose**

Kona Deep is bottled water extracted from a depth of 3000 feet off the cost of Kona, Hawaii. Kona Deep claims that this unique source provides water that is "naturally free of pathogens, chemicals and pollutants and rich in nutrients and minerals that are readily absorbed by the body". The investigators wish to examine Kona Deep's claim that this water is "beneficial to the human body" by testing the impact of drinking Kona Deep on exercise performance and recovery. Subjects will be exercised to a safe level of dehydration and then will be rehydrated with Kona Deep water, or commercially available bottled spring water or Gatorade as controls. Subjects will perform a simple exercise to evaluate peak power performance. This measurement will be compared between rehydration methods for significant differences.

| Condition | Intervention | Phase |
|---|---|---|
| Dehydration | | Phase 2 |
| Physical Exertion | Dietary Supplement: Kona Deep | |
| Salivary Osmolar Concentration | Dietary Supplement: Spring Water | |
| Urinary Osmolar Concentration | Dietary Supplement: Sports Drink | |

Study Type: Interventional
Study Design: Allocation: Randomized
Endpoint Classification: Efficacy Study
Intervention Model: Parallel Assignment
Masking: Open Label
Primary Purpose: Treatment
**Official Title:** The Impact of Post-exercise Hydration With Deep Sea Mineral Water on Exercise Performance, Rehydration and Recovery

Resource links provided by NLM:

MedlinePlus related topics: Dehydration Drinking Water Exercise and Physical Fitness Minerals
U.S. FDA Resources

Further study details as provided by University of Arizona:

Primary Outcome Measures:
Change in Salivary Osmolar Concentration during Exercise, Post-Exercise, Post-Rehydration [ Time Frame: 0-180 minutes ] [ Designated as safety issue: No ]
Saliva will be collected at regular intervals throughout the study protocol

Secondary Outcome Measures:
Change in Urinary Osmolar Concentration during Exercise, Post-Exercise, Post-Rehydration [ Time Frame: 0-180 minutes ] [ Designated as safety issue: No ]
Urine will be collected prior to, immediately following exercise and immediately following rehydration.

Change in Lower body muscle power Pre-Exercise, Post-Exercise, Post-Rehydration [ Time Frame: 0-180 minutes ] [ Designated as safety issue: No ]
Lower body muscle power will be determined prior to, immediately following exercise and immediately following rehydration. This will be executed using a Biodex Dynamometer to determine single leg extension and flexion torque.

Estimated Enrollment: 30
Study Start Date: July 2015
Estimated Primary Completion Date: November 2015 (Final data collection date for primary outcome measure)
Arms Assigned Interventions
Experimental: Kona Deep
Subjects will receive Kona Deep post-exercise
Dietary Supplement: Kona Deep
Subjects will receive Kona Deep post exercise
Other Name: Deep Seawater
Placebo Comparator: Spring Water
Subjects will receive commercially available Spring Water post-exercise

Dietary Supplement: Spring Water
Subjects will receive Spring Water post exercise
Active Comparator: Sports Drink
Subjects will receive commercially available Sports Drink post-exercise
Dietary Supplement: Sports Drink
Subjects will receive Sports Drink post exercise
Other Name: Gatorade

Detailed Description:
Exercise-induced dehydration is very common in athletes and regularly active individuals. Hypohydration, if sufficiently severe, can negatively impact physical performance and mental capacity. Development of an efficient rehydration therapy could prove beneficial in these circumstances. Multiple animal studies have shown the positive effects of desalinated deep-sea mineral water on various physiological conditions. The beneficial effects of deep-sea mineral water may be attributed to its unique mineral composition, particularly magnesium, which is highly abundant in deep-sea water. The investigators wish to evaluate whether a similar response occurs in post-exercise rehydration using deep ocean water from a different source. Kona Deep is marketed as Hawaiian glacier water drawn from a depth of 915 m off the Kona coast that is naturally rich in electrolytes and nutrients, and that is free of mercury, harmful bacterial, and pollutants, making it a desired drinking water source. Accordingly, the investigators will investigate whether subjects administered Kona Deep following an exercise challenge undergo more rapid rehydration and demonstrate higher peak power production compared to subjects administered commercially available liquids. Euhydrated subjects in this study will be exposed to an exercise-challenge protocol (stationary biking) under warm conditions (30°C) to accelerate dehydration. Dehydration will be measured as a body mass loss of 3-5% (maximum exercise time will be 180 minutes). A body mass loss of 3% is the minimal amount lost during a similar exercise-dehydration protocol but where significance was still observed in exercise performance, recovery, and physiological parameters. During the post-exercise recovery period, subjects will consume one of three liquids in a volume equivalent to 1.5 times the body mass lost. Rehydration measured by salivary and urinary osmolality and exercise recovery will be measured such as VO2 at 60% estimated maximal heart rate and peak power production by contraction of the knee extensors before exercise, immediately after exercise, and after the rehydration period.

Eligibility

Ages Eligible for Study: 20 Years to 25 Years

Genders Eligible for Study: Both

Accepts Healthy Volunteers: Yes

Criteria

Inclusion Criteria:

Non-smokers, BMI: 18.5-24.9, 20-25 years of age, physically active

Exclusion Criteria:

prescription medications, BMI > 24.9