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The effect of acute sodium bicarbonate and caffeine supplementation on 2000m rowing ergometer performance

- PARTICIPANT INFORMATION SHEET -

Purpose

- To determine the effect of acute sodium bicarbonate and acute caffeine loading on your 2000 m ergometer performance, when compared to a sodium bicarbonate-caffeine combination and a placebo trial.
- To determine the effect of acute sodium bicarbonate and acute caffeine loading on your blood levels of bicarbonate, lactate and acidity, when compared to a sodium bicarbonate-caffeine combination and a placebo trial.

Procedures

You will be required to complete 6 sessions, over a 3-week period. Each test will involve completing a 2000 m maximal rowing ergometer effort and sub-maximal warm-up. The 6 sessions will comprise two baseline tests and four performance tests. For these four performance tests you will receive a dose of gelatin capsules. When you arrive for your first baseline tests, your height and body mass will be measured, and these measurements will aid in determining the dosage of nutritional supplements you will receive. Throughout the testing period; you will be required to ingest a nutritional ergogenic aid, which will be either sodium bicarbonate, caffeine or a placebo contained in identical gelatin capsules. For the 24 hours prior to each testing session, dietary control is necessary to standardise your blood and urine acidity; and you will be provided with a food diary where you will record all the food and fluid ingested in the 24 hours prior to your first baseline test. You will then replicate this food and fluid intake for each of your five remaining exercise tests. You will also be required to abstain from consuming alcohol or caffeine-containing foods and beverages for the 48 hours prior to each test. A capillary blood sample will be taken from your fingertip before you ingest any supplements, immediately prior to your standardised warm-up and then two minutes after the completion of each 2000m ergometer test. You will also be asked to provide a urine sample prior to exercise testing and after the completion of each exercise test.

Measures

Performance Measures

For each exercise test, 2000m performance time, stroke rate, power output and 500m split time will be recorded.

Capillary blood samples

Blood acidity, bicarbonate and lactate concentration will be measured.

Urine samples

Urine pH will be measured.

Perceived Exertion

Immediately following the 2000m exercise test, a Rating of Perceived Exertion (RPE) will be taken. This is a scale marked 6 to 20 to indicate how hard you felt you were working.

Questionnaire

After you complete each performance test, you will be asked which treatment you thought you received (caffeine, sodium bicarbonate, caffeine-sodium bicarbonate combination, or placebo), and if you experienced any side-effects.

Risks

There is a risk that when you take sodium bicarbonate and caffeine, you will temporarily experience gastrointestinal side-effects such as nausea, vomiting and diarrhoea. However, based on previous research this is unlikely to occur for all participants, and you may not experience any adverse side effects at all. There is also a risk that after you complete the 2000 m ergometer efforts, as you may experience muscular soreness. However, this will not be different from what you would experience after maximal training sessions or competition. There is also a small risk of infection and bruising as a result of blood sampling. However, the risk will be minimised by the use of sterile equipment.

Benefits

You will receive feedback on your performance for each testing session, and after the completion of all testing. Throughout the project, you will also receive access to recovery and nutrition resources and information on nutritional ergogenic aids.

Confidentiality

Confidentiality of your identity and data will be maintained. All data will be de-identified, so that no-one can be connected with his/her data, and the safe-keeping of data will be ensured at all times. There will be no video or audio data collected for the purpose of this experiment.

Participant Rights

Participation in this research is voluntary and you are free to withdraw from the study at any time without prejudice. You can withdraw for any reason and you do not need to justify your decision. If you withdraw from the study and you are an employee or student at the University of Western Australia (UWA) this will not prejudice your status and rights as an employee or student of UWA. If you withdraw from the study and are a patient recruited from one of the affiliated clinics your treatment will not be prejudiced or affected in any way.

If you do withdraw we may wish to retain the data that we have recorded from you but only if you agree, otherwise your records will be destroyed.

Your participation in this study does not prejudice any right to compensation that you may have under statutes of common law.

If you have any questions concerning the research at any time please feel free to ask the researcher who has contacted you about your concerns. Further information regarding this study may be obtained from

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