

Study of acute ATP supplementation to increase athletic performance

| | | |
|--|--|--|
| Submission date 07/07/2021 | Recruitment status No longer recruiting | <input type="checkbox"/> Prospectively registered |
| Registration date 08/07/2021 | Overall study status Completed | <input type="checkbox"/> Protocol |
| Last Edited 05/01/2022 | Condition category Nutritional, Metabolic, Endocrine | <input type="checkbox"/> Statistical analysis plan |
| | | <input checked="" type="checkbox"/> Results |
| | | <input type="checkbox"/> Individual participant data |

Plain English summary of protocol

Background and study arms

Acute ATP supplementation has been shown to increase athletic performance, but the minimal effective and optimal doses are currently unknown. This study investigates the effects of three different doses of ATP (400 mg, 200 mg, and 100 mg) on exercise performance.

Who can participate?

Healthy men with at least 1 year of resistance training experience.

What does the study involve?

The study involves four training sessions of four sets of resistance training exercises separated by one week each. Participants are randomly allocated to consume either 100 mg, 200 mg, or 400 mg of ATP or a matching placebo (maltodextrin) 30 minutes before the resistance exercise tests. The total number of repetitions performed for each set is used to analyze performance, and perceived exertion is measured at the end of each session of exercise using a 0 to 10 point scale.

What are the possible benefits and risks of participating?

Any exercise includes the risk of injury. The risk of injury is reduced by appropriate warm-ups, familiarization with the exercise and supervision through trained personnel.

Where is the study run from?

Federal University of Piauí (UFPI) (Brazil)

When is the study starting and how long is it expected to run for?

January 2019 to April 2021

Who is funding the study?

TSI Group, Ltd (USA)

Who is the main contact?

Prof. Dr. Fabrício E. Rossi
fabriciorossi@ufpi.edu.br

Contact information

Type(s)

Scientific

Contact name

Prof Fabricio Rossi

Contact details

Immunometabolism of Skeletal Muscle and Exercise Research Group

Laboratory of Muscle Performance

Department of Physical Education

Federal University of Piauí (UFPI)

“Ministro Petrônio Portella” Campus

Teresina, Piauí

Brazil

64049-550

+55 (0)86 3215 5861

fabriciorossi@ufpi.edu.br

Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

Protocol serial number

AcuteATPBrazil19

Study information

Scientific Title

Dose-ranging study of acute ATP supplementation to improve athletic performance

Acronym

AcuteATPPerformance

Study objectives

Acute supplementation with 400 mg ATP 30 minutes prior to exercise has been shown to increase athletic performance. However, the optimal and minimal effective dose of ATP to increase exercise performance is currently unknown. Therefore, this study aims to assess the effect of different doses of acute ATP disodium supplementation on exercise performance compared to placebo.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Approved 26/02/2019, the ethics committee of the Federal University of Piauí (Ministro Petrônio Portella Campus, Ininga, Terezina –PI, Brazil; +55 (86) 3237-2332; cep.ufpi@ufpi.br), ref: 3.169.545

Study design

Double-blind placebo-controlled randomized crossover multiple-dose single-center interventional trial

Primary study design

Interventional

Study type(s)

Other

Health condition(s) or problem(s) studied

Sports nutrition

Interventions

Subjects complete five experimental trials, each separated by 1 week. All trials are performed at the same time (morning) to ensure chronobiological control and are separated by a week. The one rep maximum (1RM) test for half-squats is determined during the first visit. On the following four visits, each subject randomly consumes either 100 mg, 200 mg, or 400 mg of ATP (PEAK ATP®, TSI USA LLC, Missoula, MT, USA) or a matching placebo (maltodextrin). The supplement or placebo is ingested 30 minutes prior to the resistance exercise tests. After that, the participants complete four sets of half-squats until momentary muscular failure with a load corresponding to 80% of the 1RM and 2 minutes of rest between sets. The total number of repetitions performed is recorded for each set and is used to analyze performance and the rate of perceived exertion is measured at the end of each session of exercise using the 0 to 10 point scale.

Intervention Type

Supplement

Primary outcome(s)

1. Number of set 1 repetitions (n) of half-squats until momentary muscular failure with a load corresponding to 80% of the 1RM, recorded by researchers at visits 2, 3, 4 and 5
2. Number of set 2 repetitions (n) of half-squats until momentary muscular failure with a load corresponding to 80% of the 1RM, recorded by researchers at visits 2, 3, 4 and 5
3. Number of set 3 repetitions (n) of half-squats until momentary muscular failure with a load corresponding to 80% of the 1RM. recorded by researchers at visits 2, 3, 4 and 5
4. Number of set 4 repetitions (n) of half-squats until momentary muscular failure with a load corresponding to 80% of the 1RM, recorded by researchers at visits 2, 3, 4 and 5
5. Number of total repetition (n) of half-squats until momentary muscular failure with a load corresponding to 80% of the 1RM, calculated from the sum of set 1, 2, 3, and 4 repetitions at visits 2, 3, 4 and 5
6. Total weight lifted (kg) calculated from the total repetition and the individual 1RM at visits 2, 3, 4 and 5
7. Rate of perceived exertion measured using the visual analogue score (VAS) at visits 2, 3, 4, and 5

Key secondary outcome(s)

There are no secondary outcome measures

Completion date

30/04/2021

Eligibility**Key inclusion criteria**

1. Age 18–35 years
2. Male
3. Healthy and free of disease (as reported by the health screening questionnaire)
4. Physically active with at least 1 year of resistance training experience at a frequency of 3 days per week and 60 minutes per day and a relative 1RM of 1.5 to 2.0 kg/body weight

Participant type(s)

Healthy volunteer

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 years

Upper age limit

35 years

Sex

Male

Total final enrolment

24

Key exclusion criteria

1. Any individual diagnosed with or being treated for cardiac, respiratory, circulatory, musculoskeletal, metabolic, obesity (defined as body mass index >30 kg/m² and body fat greater than 30%), immune, autoimmune, psychiatric, hematological, neurological, or endocrinological disorder or disease were not allowed to participate in the current study.
2. Not used any dietary supplements for at least 6 months before the study
3. Not use any other ergogenic substances or supplements during the study
4. No change in their regular diet and exercise patterns
5. No caffeine consumption 12 hours before each experimental test.

Date of first enrolment

01/03/2019

Date of final enrolment

28/02/2021

Locations

Countries of recruitment

Brazil

Study participating centre

Universidade Federal do Piauí (UFPI)

Immunometabolism of Skeletal Muscle and Exercise Research Group

Laboratory of Muscle Performance

Department of Physical Education

UFPI Campus Universitário Ministro Petrônio Portella

Teresina, Piauí

Brazil

64049-550

Sponsor information

Organisation

TSI Group, Ltd

Funder(s)

Funder type

Industry

Funder Name

TSI Group, Ltd

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request from Prof. Dr. Fabrício E. Rossi (fabriciorossi@ufpi.edu.br). Based on the inquiry, the purpose for the inquiry and the intended use, Prof. Rossi will decide what to share at that point.

IPD sharing plan summary

Available on request

Study outputs

Output type

[Results article](#)

Details

Date created

08/12/2021

Date added

05/01/2022

Peer reviewed?

Yes

Patient-facing?

No