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Assessment of the impact of supplements containing nitrates on the exercise capacity and cognitive functions of football players

Aim: To assess the effect of the natural form of supplement containing nitrates on the exercise capacity and cognitive function of football players regarding the exercise intensity and player's position on the pitch.

Introduction:

The Australian Institute of Sport has classified food nitrates as permitted and placed them in Group A - products belonging to this group have "strong scientific evidence for use in specific sporting situations using evidence-based protocols.

Nitric oxide affects exercise performance through several mechanisms: reduced fatigue during exercise, increased delivery of nutrients and oxygen to working muscles, and increased excretion of metabolic byproducts of high-intensity exercise. Considering the effect of nitric oxide on vasodilation and blood flow, it also has a beneficial effect on muscle contractions during high-intensity interval training.

What is known:

- It is evidenced that the effectiveness of nitrates depends on many factors, e.g. **age, diet, health condition, physical fitness, intensity and duration of training, dose and duration of supplementation.**

What is not known:

- There is **little literature** describing the protocol of usage and the effect of supplements containing nitrates on exercise capacity and cognitive functions in football.

Practical application of the results:

- Improvement in nutrition and training decision-making for better performance on the pitch
- Improvement of cognitive function;
- Improvement of muscle strength, coordination and endurance;
- Recommendations /administration protocols for football players

Materials and Methods:

Material: 50 adult male football players aged between 18 and 35 years old randomly selected to one of 2 groups: supplemented with beetroot juice or placebo group.

Methods and Tools:

- ✓ body composition analysis by Tanita
- ✓ level of physical activity assesment by IPAQ
- ✓ nutrition analysis by anthropometric measurements and dietary assessment (24-hour recall)
- ✓ cognitive function by Trail Making Test, MoCA Test
- ✓ physical fitness by Loughborough Intermittent Shuttle Test, Cooper Test
- ✓ muscle strength by Dynamometer measurement
- ✓ socio-demographic and training data along with the player's position on the pitch

Procedure:

- ➢ dietary supplement in the form of beetroot juice at the dose recommended according to AIS protocol administered to the football players for a period of 14 days

Endurance, fitness tests and cognitive function tests will be carried out 3 times: **at the beginning** of the study, **after 14-day supplementation** and **after 1 month**, in order to observe the persistence of the effect of the supplement.

Currently working on:

- Searching for and establishing cooperation with a foreign Scientific Institution in order to participate in the **NAWA-STER program, co-tutelle or other form of international exchange**
- Consent and opinion of the **Bioethics Committee – during evaluation**
- A scientific **meta-analysis** article – **in progress** (should be submitted at the end of May)
- Participation in at least one conference/symposium/meeting/congress (including international ones)