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Core training effects on balance and physical performance in tennis players

Submission date
10/01/2025

Recruitment status
No longer recruiting

Registration date
25/01/2025

Overall study status
Completed

Last Edited
10/01/2025

Condition category
Other

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol
Background and study aims
Tennis is an entertaining sport that includes a combination of technical, tactical and physical fitness components. This study aims to investigate the effect of core training on anaerobic performance and some physical performance values of tennis players studying at university and training on certain days of the week.

Who can participate?
Students aged 18-23 years old who are studying at Sivas Cumhuriyet University

What does the study involve?
Participants in the study were allocated into the experimental group (15 males) and a control group (15 males). Height, body weight, flamingo balance test, vertical jump test, balance and pro-agility test were applied to the subjects as pre-test and post-test. The experimental group practised core training 3 times a week along with tennis training 3 days a week. The control group participated only in tennis training. The study was conducted for 6 weeks.

What are the possible benefits and risks of participating?

Where is the study run from?
Sivas Republic University Faculty of Sports Sciences, Türkiye

When is the study starting and how long is it expected to run for?
June 2023 to September 2023

Who is funding the study?
Sivas Republic University Faculty of Sports Sciences, Türkiye

Who is the main contact?
Dr Yaşar Köroğlu, yasrkoroğlu@cumhuriyet.edu.tr, korogluyasar38@gmail.com

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Study information

Scientific Title
The effects of core training on balance and some physical performance in tennis players

Study objectives
This study aims to investigate the effect of core training on anaerobic performance and some physical performance values of tennis players studying at university and training on certain days of the week. The hypothesis is that core training for tennis players improves athletes' performance.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 20/07/2023, Sivas Republic University Non-Interventional Clinical Research Ethics Committee (Sivas Cumhuriyet University Faculty of Medicine Dean's Office, Department of Medical History and Ethics TR-58140 Center/Sivas, Sivas, -, Türkiye; +90 346 487 20 92; gokaek2014@gmail.com), ref: 2023-07/30

Primary study design
Interventional

Study design
Single-center randomized controlled study

Study type(s)
Efficacy

Health condition(s) or problem(s) studied

Core training effect on anaerobic performance and physical performance values of tennis players studying at university and training on certain days of the week

Interventions

This is an experimental study. It aims to investigate how a 6-week core training program applied to tennis students studying at Sivas Republic University effects the performance of the athletes. 30 students between the ages of 18-23 who were studying at Sivas Cumhuriyet University, participated in the study as an experimental group (15 male) and a control group (15 male). Height, body weight, flamingo balance test, vertical jump test, balance and pro-agility test were applied to the subjects as pre-test and post-test. The experimental group practised core training 3 times a week along with tennis training 3 days a week. The control group participated only in tennis training. The study was conducted for 6 weeks.

Research Model

The research was designed as a pretest and posttest. The information on what core training was included and how it would be performed was provided in the first interview. Two measurements were taken from the individuals participating in the study pretest and posttest.

Data Collection Tools

Crunch:

Athletes wait readily lying in a supine position with knees bent and hands on the nape. Then they are asked to lift their bodies up and touch the knees with the elbows for 30 seconds. The repetitions that do not follow the rules are not accounted for. Crunches performed correctly for 30 seconds are recorded.

Flamingo Balance Test:

Athletes stand on the balancing beam and try to stay balanced for one minute. The foot balanced on is placed on the beam, and the other foot is held by hand and pulled to the hip. Timing is stopped when athletes lose balance or fall from the beam. Scoring is recorded as total balance achieved in one minute.

Vertical Jump Test:

Subjects are asked to stand with feet aligned with the pelvis and hands on both sides and achieve a 90-degree angle and squat, then jump quickly and as high as they can. They land on the designated spot. Those landing outside the spot repeat the test. Feet must be strained and knees must not be pulled to the chest when jumping high. The test was performed twice and the highest score was recorded.

Standing Long Jump Test:

Athletes are asked to leap forward from a designated spot with adjacent feet. The test was applied 3 times and the highest score was recorded.

Pro-Agility Test:

Cones are placed 4-57 meters on the right and left of the starting line. Athletes wait readily on the starting line. Timing starts when athletes are ready. The test ends when athletes reach the starting line by first touching the cone on the right, and then the cone on the left. The best score out of 3 test results was recorded.

Training Schedule:

The training was applied for 6 weeks and 3 days a week. The experimental group attended core training along with tennis practice. The control group only attended designated tennis practice. The training exercises included 10 separate exercises every week. A training plan including 2 sets

and 8 sets of repetitions was performed. While a five-second rest time was given between the repetitions, complete rest was given between tests.

Intervention Type
Behavioural

Primary outcome(s)
Core strength measured using a standardized core strength test (e.g., plank hold duration, sit-up count, etc.) at a pretest (before the 6-week training period) and posttest (after the 6-week training period)

Key secondary outcome(s)
The following secondary outcome measures are assessed at a pretest and posttest:
1. The number of crunches performed correctly in 30 seconds measured using data collected by counting the number of correct crunches at a pretest and posttest
2. Balance duration measured using the Flamingo Balance Test (total balance time in one minute)
3. Vertical jump height measured using the Vertical Jump Test (highest score recorded)
4. Standing long jump distance measured using the Standing Long Jump Test (highest score recorded)
5. Pro-agility performance measured using the Pro-Agility Test (best score out of 3 test results)

Completion date
20/09/2023

Eligibility

Key inclusion criteria
1. Students between the ages of 18-23 were included in the study.
2. Regularly participating in tennis training
3. Students studying at Sivas Cumhuriyet University Sports Sciences
4. The students participating in the study did not have any health problems
5. Exercises are limited to 6 weeks and 3 days a week
6. The subjects that make up the research group are limited to tennis specialization and students who have been playing tennis for at least two years

Participant type(s)
Learner/student

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Weeks

Upper age limit
23 Weeks

Sex
All

Key exclusion criteria
1. Any health problems
2. Individuals who smoke
3. Students who will not be able to participate in tennis training

Date of first enrolment
01/08/2023

Date of final enrolment
17/09/2023

Locations

Countries of recruitment
Türkiye

Study participating centre
Sivas Republic University
Faculty of Sports Sciences
Sivas
Türkiye
346

Sponsor information

Organisation
Sivas Cumhuriyet Üniversitesi

ROR
https://ror.org/04f81fm77

Funder(s)

Funder type
University/education

Funder Name
Sivas Cumhuriyet Üniversitesi

Alternative Name(s)
Sivas Cumhuriyet University, Cumhuriyet University, Cumhuriyet Üniversitesi

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
Türkiye

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be available upon request from Dr Yaşar Köroğlu, yasrkoroğlu@cumhuriyet.edu.tr, korogluyasar38@gmail.com. Necessary permission was obtained from individuals to work. There are no ethical or legal restrictions.

IPD sharing plan summary
Available on request