

Functional training for youth tennis players

Submission date 24/07/2024	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 26/07/2024	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 10/03/2025	Condition category Other	☐ Individual participant data

Plain English summary of protocol

Background and study aims

Previous evidence has shown that the duration of functional training varies, and it is not possible to determine from existing studies the optimal choice of different duration of functional training interventions for skills performance and movement quality of young tennis players. Therefore, this study's purpose is to explore the effect of functional training on the skills performance and movement quality of young tennis players and to evaluate the optimal choice of functional training programs for different durations (6/12 weeks functional training) on the skills performance and movement quality of young tennis players.

Who can participate?

Young male tennis players aged 14 to 18 years old

What does the study involve?

The whole experiment period is 12 weeks, three times a week, 60 minutes each time.

What are the possible benefits and risks of participating?

The information obtained from this study will help determine whether functional training can safely and effectively improve the skills and movement quality performance of young tennis players. By participating in this experiment, the participants may improve the movement quality and tennis technical performance of the players.

Where is the study run from?

School of Physical Education, Huzhou University

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

June 2021 to September 2021

Who is funding the study?

Department of Education of Zhejiang Province

Who is the main contact?

Wensheng Xiao, 03218@zjhu.edu.cn

Contact information

Type(s)

Public, Principal investigator

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Additional identifiers

Protocol serial number

JKEUPM-2020-283

Study information

Scientific Title

Effects of functional training on skills performance and movement quality among young male tennis players: a cluster randomized control trial

Study objectives

Previous evidence has shown that the duration of functional training varies, and it is not possible to determine from existing studies the optimal choice of different duration of functional

training interventions for skills performance and movement quality of young tennis players. Therefore, this study's purpose is to explore the effect of functional training on the skills performance and movement quality of young tennis players and to evaluate the optimal choice of functional training programs for different durations (6/12 weeks functional training) on the skills performance and movement quality of young tennis players.

Ethics approval required

Ethics approval required

Ethics approval(s)

Approved 15/06/2021, Universiti Putra Malaysia Ethics Committee (UPM Serdang, Selangor Darul Ehsan, 43400, Malaysia; +603-9769 1000; pspk@upm.edu.my), ref: UPM/TNCPI/RMC/1.4.18.2

Primary study design

Interventional

Study design

Cluster randomized control trial

Study type(s)

Other

Health condition(s) or problem(s) studied

Effect of functional training on improving movement quality and technical performance of young tennis players

Interventions

This study will be designed and reported in accordance with the CONSORT declaration and will be conducted as a Cluster Randomized Controlled Trial (CRCT) since the group (centers) will be used as the unit of randomization and not the individual. With the help of the tournament staff, the training bases of young tennis players will be selected from 11 representative teams, and the lottery method will be used to select the functional training group (FTG) and control training group (CTG).

The FTG will receive a program based on Santana's Racket Sports Program, whereas the CTG will follow the standard training program. Before the experiment and meeting, there will be an orientation period with the participants to introduce the training and measurement process and to demonstrate the functional and standard training programs. Both groups will be trained every Monday, Wednesday, and Friday from 4-5 pm. Researchers plan to collect the participants' training logbooks weekly and encourage them to adhere to the intervention. The definition of intervention adherence is attendance at 80% of the prescribed sessions. Additionally, the FTG select two physical education students with rich functional training research as the coach who conducts all the intervention sessions, and the CTG will be managed by two tennis coaches from the experiment site.

Experiment data will be collected at pretest (before intervention), posttest 1 (6 weeks after intervention), and posttest 2 (12 weeks after intervention). This study will select ITF physical fitness and ITN On Court Assessment as the test program, and "Functional Movement Screening: The Use of Fundamental Movements as an Assessment of Function - Part 1 and 2" for the research on young male tennis players. The selected tennis skills and functional movement test

indexes will be used for related variable data collection. During the test, each group will be divided into three groups (7, 7, 8) for testing, with a total of 6 testers. The FTG data will be collected on Saturday, and the CTG data will be collected on Sunday. All the testers will be majoring in physical education, and two testers will have a level 2 certificate of functional testing. The skills and functional movement test will be conducted from 3 to 6 pm. Additionally, the tester will be trained three times before the test. The tennis skills consist of four aspects (GD: groundstroke depth; VD: volley depth; GA: groundstroke accuracy; SA: serve assessment); The functional movement screen consists of seven basic movement patterns (DS: deep squat; HS: hurdle step; ILL: in-line lunge; SM: shoulder mobility; ASLR: active straight leg raise; TSPU: trunk stability push-up; RS: rotary stability).

Intervention Type

Behavioural

Primary outcome(s)

An assessment of function measured using the International Tennis Federation (ITF) physical fitness and International Tennis Number (ITN) On Court Assessment functional movement screening at pretest (before intervention), posttest 1 (6 weeks after intervention), and posttest 2 (12 weeks after intervention)

Key secondary outcome(s)

There are no secondary outcome measures

Completion date

05/09/2021

Eligibility

Key inclusion criteria

1. Volunteering participation
2. Young male tennis players
3. Aged 14-18 years old

Participant type(s)

Learner/student, Other

Healthy volunteers allowed

No

Age group

Child

Lower age limit

14 Years

Upper age limit

18 Years

Sex

Male

Total final enrolment

44

Key exclusion criteria

1. Injury-free
2. No history of sports injuries (i.e., knee, elbow, or shoulder injury) for at least one year
3. Must follow the arrangement of the experiment organizer

Date of first enrolment

16/06/2021

Date of final enrolment

17/06/2021

Locations**Countries of recruitment**

China

Study participating centre

Youth Tennis Reserve Training Base in Jiaxing

Youquan Road, Nanhu District

Jiaxing City

China

314050

Sponsor information**Organisation**

Department of Education of Zhejiang Province

ROR

<https://ror.org/05gj07w56>

Funder(s)**Funder type**

Government

Funder Name

Department of Education of Zhejiang Province

Alternative Name(s)

Zhejiang Provincial Department of Education, Department of Education, Zhejiang Province, Zhejiang Province Department of Education, Education of Zhejiang Province, Department of Education of the Zhejiang Province, , ZPDE

Funding Body Type

Government organisation

Funding Body Subtype

Local government

Location

China

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 Wensheng Xiao (03218@zjhu.edu.cn).

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		08/03/2025	10/03/2025	Yes	No