ISRCTN16744580 https://doi.org/10.1186/ISRCTN16744580

Comparing different training methods to improve speed and ball skills in female soccer players

Submission date
22/05/2025

Recruitment status
No longer recruiting

Registration date
29/05/2025

Overall study status
Completed

Last Edited
27/05/2025

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
Female soccer players need to be fast and skilful with the ball. We wanted to find out which training method works best to improve speed and ball control skills.

Who can participate?
Female college soccer players aged 18-25 years with at least 5 years of soccer experience, who are healthy and currently playing for their university team.

What does the study involve?
Players were divided into three groups. One group trained by pushing a weighted sled while sprinting. Another group did regular sprint training without weights. The third group played small soccer games. All groups trained twice a week for 6 weeks. We measured their speed and ball skills before and after training.

What are the possible benefits and risks of participating?
Benefits include improved fitness and sports performance. Risks are minimal as these are normal training activities that soccer players regularly do.

Where is the study run from?
Myongji University, Seoul, South Korea, in collaboration with a university in China where the training took place.

When is the study starting and how long is it expected to run for?
October 2022 to December 2023

Who is funding the study?
Investigator initiated and funded

Who is the main contact?
Prof. Buong-O Chun, tianbingwu@mju.ac.kr

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Protocol serial number
IRB No. MJU-2022-10-001-02

Study information

Scientific Title
Comparative effects of sled push-sprint, non-resistance sprint, and small-sided game training on speed, power, and dribbling performance in female college soccer players: a randomized controlled trial

Acronym
SPSSSG-RCT

Study objectives
Sled push-sprint training will be more effective than non-resistance sprint training and small-sided games in improving explosive power, sprint performance, and dribbling abilities in female college soccer players. Different training methods will have distinct effects on various performance parameters due to training specificity principles.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 25/10/2022, Institutional Review Board of Myongji University (34, Geobukgol-ro, Seodaemun-gu, Seoul, 03674, Korea, South; +82 (0)2 300 1458; paper@mju.ac.kr), ref: MJU-2022-10-001-02

Primary study design
Interventional

Study design
Parallel-group randomized controlled trial

Study type(s)
Treatment, Efficacy

Health condition(s) or problem(s) studied
Athletic performance/physical fitness

Interventions
This is a parallel-group randomized controlled trial with three arms comparing the effects of different training methods on performance parameters in female college soccer players. The study employed a pre-post intervention design with blinded outcome assessments over a 6-week training period. Computer-generated random number allocation was carried out using Microsoft Excel's random number generator function. Participants were randomly allocated to three training interventions over 6 weeks (twice weekly):
1. Sled Push-Sprint Training (SPS): Participants performed 20 m sprints while pushing a weighted sled (30% of body weight), 3 repetitions × 3 sets, with a 2-minute rest between repetitions and a 3-minute rest between sets.
2. Non-Resistance Sprint Training (NRS): Participants performed 20 m sprints without resistance, and the same volume and rest periods as the SPS group.
3. Small-Sided Games Training (SSG): Participants engaged in 4 v 4 soccer games on a 30 m × 20 m pitch, 4 games of 4 minutes each with 3-minute active recovery between games.

All groups maintained regular soccer training throughout the study period.

Intervention Type
Behavioural

Primary outcome(s)
1. Sprint performance measured at 5, 10 and 20 m distances using timing photocells (Brower Timing Systems). Time frame: Pre-intervention (baseline) and post-intervention (after 6 weeks).
2. Explosive power measured using the standing long jump test. Distance recorded in meters from the heel reference point. Time frame: Pre-intervention (baseline) and post-intervention (after 6 weeks).

Key secondary outcome(s)
1. T-test dribbling ability: Time to complete T-test course while dribbling a soccer ball. Time frame: Pre-intervention and post-intervention (6 weeks).
2. Directional dribbling ability: Time to complete the agility dribble test through 4 cones placed at 5 m intervals forming 100° angles. Time frame: Pre-intervention and post-intervention (6 weeks).

Completion date
31/12/2023

Eligibility

Key inclusion criteria
1. Female college soccer players with a minimum of 5 years of competitive soccer experience
2. Currently active members of the university soccer team
3. Participated in regular team training for at least the previous 6 months
4. Provided written informed consent for participation
5. No history of musculoskeletal injuries within the previous 6 months prior to the study
6. No medical condition that could affect ability to perform high-intensity sprint training
7. No regular participation in additional resistance training programs outside of team practice

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
20 Years

Upper age limit
25 Years

Sex
Female

Total final enrolment
29

Key exclusion criteria
1. History of musculoskeletal injuries within the previous 6 months prior to the study
2. Any medical condition that could affect ability to perform high-intensity sprint training
3. Regular participation in additional resistance training programs outside of team practice
4. Unable to provide written informed consent
5. Less than 5 years of competitive soccer experience
6. Not currently active members of the university soccer team
7. Did not participate in regular team training for at least the previous 6 months

Date of first enrolment
01/11/2022

Date of final enrolment
30/11/2022

Locations

Countries of recruitment
China

Study participating centre
Changzhou Institute of Textile and Garment
Changzhou Vocational Institute of Textile and Garment
No. 53 Gehu Road
Changzhou Jiangsu
Changzhou
China
213164

Sponsor information

Organisation
Myongji University

ROR
https://ror.org/00s9dpb54

Funder(s)

Funder type
Other

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan
Individual participant data will be made available to researchers upon reasonable request after publication of the main findings from Prof. Buong-O Chun (tianbingwu@mju.ac.kr). Data will be anonymized and provided in accordance with institutional policies and ethical guidelines. Requesters will need to provide a methodologically sound proposal and agree to data use terms that ensure participant privacy and confidentiality.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Study website	Study website	11/11/2025	11/11/2025	No	Yes