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A warm-up program to prevent injuries in basketball

Submission date
09/09/2021

Recruitment status
No longer recruiting

Registration date
15/09/2021

Overall study status
Completed

Last Edited
28/09/2022

Condition category
Injury, Occupational Diseases, Poisoning

[X] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Given the high incidence rates and long-term consequences associated with ankle and anterior cruciate ligament (ACL) injury, there has been extensive research on injury prevention programs in basketball players but the findings have been ambiguous. The aim of this study is to assess the effectiveness of a specifically designed five-phase warm-up protocol at reducing the risk of basketball-related injuries.

Who can participate?
Officially registered basketball teams in Switzerland with players aged 16 years and over with more than 2 years' experience in organized basketball training and competition

What does the study involve?
Eligible basketball teams will be randomly allocated to a control or intervention group. The intervention is designed to include balance, flexibility, strength, plyometrics and agility drills, replicating a basketball-specific workload. Teams from the control group will be instructed to perform their usual warm-up routine, including light aerobic exercises, basketball and team drills, and dynamic stretching. Injuries are reported (via e-mail) by the coach or other contact person (therapist, medical doctor) on a weekly injury report form (standardized questionnaire) for one basketball season from October 2021 to May 2022.

What are the possible benefits and risks of participating?
A specifically designed training program can be effective in reducing the risk of injury in basketball players. Prevention of basketball injuries can be beneficial to basketball players, teams, the Swiss Basketball Federation, health insurance companies, and society. There is a mild risk of injury if proper form and technique are not used. The risks will be minimized by focusing on proper technique, movement awareness, body positioning and basketball-specific activity demands, along with using trained technicians (e.g. strength and conditioning coaches) as well as research participants who have experience with neuromuscular training.

Where is the study run from?
University of Basel (Switzerland)

When is the study starting and how long is it expected to run for?
August 2021 to May 2022

Who is funding the study?
Swiss Government (Switzerland)

Who is the main contact?
Dr Oliver Faude
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Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
2

Study information

Scientific Title
A neuromuscular warm-up program to prevent injuries in basketball - a cluster-randomized controlled trial

Acronym
IPPB

Study objectives
A specifically designed training program can be effective in reducing the incidence rate of injury in basketball players.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 24/08/2021, Ethikkommission Nordwest- und Zentralschweiz (Hebelstrasse 53, 4056 Basel CH, Switzerland; +41 (0)61 268 13 50; eknz@bs.ch), ref: 2021-01668

Study design
Two-arm single-center cluster-randomized controlled trial

Primary study design
Interventional

Secondary study design
Cluster randomised trial

Study setting(s)
Other

Study type(s)
Prevention

Participant information sheet
No participant information sheet available

Health condition(s) or problem(s) studied
Injury prevention in basketball

Interventions

All teams will be randomly allocated to a control or intervention group in a 1:1 ratio. The researcher who conducts the randomization will not be involved in the intervention, and recruitment will be completed before randomization. Computer-generated cluster randomization will be conducted using Research Randomizer software (https://www.randomizer.org/).

A specifically designed five-phase (20 min) neuromuscular warm-up protocol will be integrated within the regular training routines. At the beginning of the season, each coach will obtain an exercise manual including a detailed description of the setup, all the exercises (including different difficulty levels), and additional background information concerning posture corrections and proprioception. Intervention components are designed to include running (running straight ahead, running high-knees, running glute-kick, hip out, hip in, leg crossovers), plyometrics, balance, strength (walking lunge, double leg jump – double-leg landing, single-leg jump to double leg jump, double leg jump – highest point catch – double-leg landing, single-leg jump – highest point catch – single-leg landing, double leg jump – two-handed pass, wall sit, ball release core rotations, plank, side plank) and agility drills (mirror forwards and backwards, mirror side shuffle), replicating a basketball-specific workload as recommended from the literature. Teams from the control group will be instructed to perform their usual warm-up routine, including light aerobic exercises, basketball and team drills, and dynamic stretching.

Intervention Type
Behavioural

Primary outcome measure
Incidence rate of lower extremity injuries, reported (via e-mail) by the coach or other contact person (therapist, medical doctor) on a weekly injury report form (standardized questionnaire). The observation period will comprise one basketball season from October 2021 to May 2022

Secondary outcome measures
Incidence rate of:
1. Overall injuries
2. Severe injuries (lay-off time of more than 28 days)
3. Joint-ligament injuries
4. Muscle injuries
5. Ankle injuries
6. Knee injuries
7. Upper extremity injuries

Reported (via e-mail) by the coach or other contact person (therapist, medical doctor) on a weekly injury report form (standardized questionnaire). The observation period will comprise one basketball season from October 2021 to May 2022

Overall study start date
24/08/2021

Completion date
31/05/2022

Eligibility

Key inclusion criteria

1. ≥16 years of age
2. >2 years' experience in organized basketball training and competition immediately prior to participation in the study
3. Officially registered teams

Participant type(s)
Healthy volunteer

Age group
Mixed

Sex
Both

Target number of participants
124

Total final enrolment
130

Key exclusion criteria
Teams will be excluded if:
1. Regular training takes place less than twice per week
2. Teams already apply an injury prevention program or a structured warm-up focusing on neuromuscular control (apart from light aerobic exercise, basketball and teams drills, and dynamic stretching)

Date of first enrolment
15/09/2021

Date of final enrolment
08/10/2021

Locations

Countries of recruitment
Switzerland

Study participating centre
University of Basel
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Sponsor type
University/education

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ROR
https://ror.org/02s6k3f65

Funder(s)

Funder type
Government

Funder Name
Swiss Government

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer-reviewed journal

Intention to publish date
30/09/2022

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from Dr Emilija Stojanovic (stojanovic.emilija@yahoo.com). All of the individual participant data collected during the trial will be available after deidentification and immediately after publication with no end date to anyone who wishes to access the data for any purpose.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Basic results		17/05/2022	18/05/2022	No	No
Protocol file	version 2	13/09/2021	28/09/2022	No	No