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Video game to improve attention in athletes

Submission date	Recruitment status	[ ] Prospectively registered
16/01/2024	No longer recruiting	[ ] Protocol
Registration date	**Overall study status**	[ ] Statistical analysis plan
23/05/2024	Completed	[ ] Results
Last Edited	**Condition category**	[ ] Individual participant data
22/05/2024	Other	[ ] Record updated in last year

Plain English summary of protocol

Background and study aims
The purpose of this study is to analyze the effect of attention intervention through a video game on young soccer players.

Who can participate?
Players between 8 and 9 years old can participate.

What does the study involve?
The study involves the participation of young soccer players who improve their attention through a video game created for this purpose, and this is reflected in the improvement of soccer skills where the attention and decision mechanisms predominate.

What are the possible benefits and risks of participating?
Improvement of soccer skills
No risks.

Where is the study run from?
Universidad de Sevilla (Spain)

When is the study starting and how long is it expected to run for?
April 2020 to January 2021

Who is funding the study?
Investigator initiated and funded

Who is the main contact?
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Contact information

Type(s)
Public, Scientific, Principal Investigator

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
38760830

Study information

Scientific Title
Use of a video game to improve attention and attentional processes in athletes

Study objectives
Training attention through the use of the BallApp video game created for this purpose will have an effect on attentional aspects in athletes, specifically in soccer players, and on the mechanisms of attention and decision-making in soccer tasks.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 07/04/2020, SFC Ethics Committee (Ctra. de Utrera, Km. 1, Sevilla, 41013, Spain; +34 954 53 53 53; sevillafc@sevillafc.com), ref: 38760830

Study design
Interventional randomized controlled trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Fitness/sport facility

Study type(s)
Other

Participant information sheet
See outputs table

Health condition(s) or problem(s) studied
Improved attention in athletes

Interventions
Participants:
The study involved twelve young male soccer players, aged between 8 and 9 years old, from a club in Seville, Spain. The participants underwent training sessions three days a week, each lasting approximately 120 minutes.

The sample was divided into two groups: a control group (CG) and an experimental group (EG). Both groups were informed about their participation in a program aimed at enhancing their soccer skills. For the CG, the training involved watching videos of goals scored by the first team in previous seasons, followed by researchers posing questions to elicit responses. In search of a placebo effect, the Experimental Group (EG) was informed that the activity they were engaging in was attention training. This involved the visualization of videos showcasing goals scored by the first team in past seasons. After the video session, participants were required to answer questions related to the content (e.g., how many goals did the player with the number 9 score?). Alternatively, the EG engaged in attention training using a video game. The research adhered to the guidelines outlined in the Declaration of Helsinki, and informed consent was obtained from the responsible tutors of the players.

The sample calculation was convenience-based. For this, the subjects who participated in the study were players from a youth team belonging to a top-tier club in the Spanish Professional Football League. As an inclusion criterion, participants had to be 8 or 9 years old, falling into that category based on their age. Additionally, they should have been free from injuries that would have prevented them from participating in training or competitions. They were required to complete the training frequency of three times per week. If, during the six weeks, any player reduced their training frequency to once a week, they were withdrawn from the study. Finally, a simple randomization method was chosen to randomize the groups, using the toss of a coin.

Procedure:
The study spanned a duration of 6 weeks. Initially, all players underwent an evaluation of their decision-making skills in relation to football performance using the Game Performance Evaluation Tool (GPET) test. GPET is an assessment tool for performance in invasion sports, specifically in soccer. Subsequently, both groups were assessed based on their success in the video game, electromyographic (EMG) activity during the test, and sweat level. Throughout the study, all subjects maintained their regular training routine, consisting of 3 sessions per week and a competitive game. The intervention varied in that, on one hand, the control group (CG) attended a room twice a week where videos showcasing goals scored by the first team in past

seasons were shown during 15 minutes. Following each video, the investigators posed a question to elicit a response. On the other hand, the experimental group (EG) attended a room where attention training was conducted using a video game, with sessions lasting 15 minutes and taking place twice a week. Upon completion of the 6-week intervention, all players were reassessed regarding their decision-making abilities in relation to football performance using the GPET, as well as their performance in the video game, EMG activity, and sweat level during video game practice. Finally, an interview was conducted with the coaching staff to gauge the subjective attention levels of each footballer, assigning them a score ranging from 1 (very low attentional level) to 3 (optimal attentional level) in relation to competitive situations.

Intervention Type
Behavioural

Primary outcome measure
The mechanism of attention and decision making in soccer actions was evaluated at baseline and 6-weeks using the Game Performance Evaluation Tool (GPET) test.

All variables evaluated by GPET are described below and are classified according to two criteria. The first, according to whether the action is with or without the ball. The second, if the actions are actions where the decisional or execution mechanism predominates. For this purpose, all acronyms used have been "_with_ball" for variables with ball, "_without_ball" for variables without ball, "_D" for variables where the decisional mechanism predominates, and "_E" where the execution mechanism predominates. All variables evaluated by GPET are described below and are classified according to two criteria. The first, according to whether the action is with or without the ball. The second, if the actions are actions where the decisional or execution mechanism predominates. For this purpose, all acronyms used have been "_with_ball" for variables with ball, "_without_ball" for variables without ball, "_D" for variables where the decisional mechanism predominates, and "_E" where the execution mechanism predominates. Thus, the variables are the following:
1. This refers to situations where the player keeps the ball under control.
2. Pass. This is the action where the player successfully makes a pass to another teammate.
3. Dribbling. This is an action where the player gets away from his opponent, eliminating any possibility of the ball being taken away from him.
4. Shot. The player takes a shot at goal with the aim of scoring.
5. Losing_one's_defender. The player, by means of an attacking action, unmasks himself from his defender.
6. Fixing. The player, in an attacking action, fixes the defender, forcing him to occupy a specific position on the field.
7. Marking_with_ball. In a defensive action, the player marks the player who has the ball.
8. Defensive_blocking. In a defensive action, the player makes a tackle on the player with the ball, but does not fall to the floor.
9. Tackle. In a defensive action, the player falls to the ground to snatch the ball from the opponent.
10. Clearing_with_Ball. In a defensive action, the player clears the player with the ball, using a free space.
11. Making_without_ball. In a defensive action, the player marks another player of the opposing team who is not in possession of the ball.
12. Interception. In a defensive action, the player cuts off a play, preventing the ball from reaching its receiver.
13. Clearing_whitout_ball. In a defensive action, the player makes a clearance to the player who does not have the ball, using a free space.

Secondary outcome measures
There are no secondary outcome measures

Overall study start date
07/04/2020

Completion date
01/01/2021

Eligibility

Key inclusion criteria
1. 8 or 9 years old
2. Free from injuries that would have prevented them from participating in training or competitions.
3. They were required to complete the training frequency of three times per week. If, during the six weeks, any player reduced their training frequency to once a week, they were withdrawn from the study.

Participant type(s)
Healthy volunteer

Age group
Child

Lower age limit
8 Years

Upper age limit
9 Years

Sex
Both

Target number of participants
20

Total final enrolment
20

Key exclusion criteria
1. Having mental problems
2. Being injured

Date of first enrolment
08/04/2020

Date of final enrolment
09/04/2020

Locations

Countries of recruitment
Spain

Study participating centre
Sevilla Fútbol Club SAD
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Sponsor information

Organisation
Universidad de Sevilla

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Sponsor type
University/education

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ROR
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Funder(s)

Funder type
Other

Funder Name
Investigator initiated and funded

Results and Publications

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

Intention to publish date
01/04/2024

Individual participant data (IPD) sharing plan
The datasets generated and/or analyzed during the present study will be stored in the public access repository of the University of Seville. Currently, this is not available due to technical problems

IPD sharing plan summary
Stored in publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet			17/01/2024	No	Yes