ISRCTN10147263 https://doi.org/10.1186/ISRCTN10147263

Can special vision and reaction training improve visual skills and volleyball performance in male university volleyball players?

Submission date
27/05/2026

Recruitment status
No longer recruiting

Registration date
27/05/2026

Overall study status
Completed

Last Edited
09/11/2026

Condition category
Other

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

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Principal investigator, Public, Scientific

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Study information

Scientific Title
Effects of Combined Stroboscopic Glasses and Reaction Light Training on Visual Abilities and Sport-Specific Performance in Collegiate Male Volleyball Players

Study objectives

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 12/01/2026, Hunan Normal University Biomedical Research Ethics Committee (School of Physical Education, Hunan Normal University, Changsha, 410012, China; no telephone number provided; ethics@hunnu.edu.cn), ref: 2026264

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Blinded (masking used)

Control
Active

Assignment
Parallel

Purpose
Sport-specific performance and visual-motor training intervention

Study type(s)

Health condition(s) or problem(s) studied
Visual-motor ability and sport-specific performance in healthy collegiate male volleyball players undergoing combined stroboscopic glasses and reaction light training.

Interventions
Participants in the experimental group received combined visual training in addition to regular volleyball training. The intervention consisted of stroboscopic glasses training and reaction light training. The programme lasted 8 weeks, with 3 sessions per week and 30 minutes per session. Each session included approximately 15 minutes of reaction light training and 15 minutes of stroboscopic visual training. The training followed a progressive four-phase model, moving from simple stationary tasks to more complex volleyball-specific tasks involving footwork, ball recognition, trajectory judgment, and defensive reception.

Participants in the control group continued regular volleyball training and completed the same or highly similar volleyball-related tasks within the same time frame, but without using stroboscopic glasses or reaction light devices. Instead, cues were provided through coach commands, hand gestures, or fixed markers.

Randomisation process
After baseline testing, participants were randomly allocated to either the experimental group or

the control group by an independent third-party staff member who was not involved in the intervention or outcome assessment. Randomisation was performed using a computer-generated random sequence in Microsoft Excel. The experimental group received combined stroboscopic glasses and reaction light training in addition to regular volleyball training, whereas the control group continued regular volleyball training and completed the same or highly similar volleyball-related tasks without the stroboscopic glasses or reaction light devices.

Intervention Type
Behavioural

Primary outcome(s)
1. Visual abilities measured using Senaptec Sensory Station system. The outcomes included reaction time (RT), eye-hand coordination (EHC), and Go/No-Go decision-making ability (GNG) at baseline and immediately after the 8-week intervention

Key secondary outcome(s)

Completion date
01/05/2026

Eligibility

Key inclusion criteria
1. Aged 18–25 years
2. Official members of a collegiate men’s volleyball team
3. Normal or corrected-to-normal vision
4. Able to complete all intervention and testing procedures

Healthy volunteers allowed
Yes

Age group
Adult

Lower age limit
18 Years

Upper age limit
25 Years

Sex
Male

Total final enrolment
30

Key exclusion criteria
1. History of concussion, vestibular dysfunction, or sports injury within the previous 3 months
2. Any neurological, visual, or balance disorders
3. Failure to complete all intervention or testing procedures

Date of first enrolment
12/01/2026

Date of final enrolment
30/04/2026

Locations

Countries of recruitment
China

Sponsor information

Organisation
Hunan Normal University

ROR
https://ror.org/053w1zy07

Funder(s)

Funder type

Funder Name
Hunan Normal University

Alternative Name(s)

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
China

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		07/08/2026	09/11/2026	Yes	No