

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	<input type="checkbox"/> Prospectively registered
		<input type="checkbox"/> Protocol
Registration date 27/05/2026	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
Last Edited 27/05/2026	Condition category Other	<input type="checkbox"/> Individual participant data
		<input checked="" type="checkbox"/> Record updated in last year

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)

Principal investigator, Public, Scientific

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Additional identifiers

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