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Sports, exercise and health science
Higher level
Paper 1B

28 April 2026

Zone A afternoon | **Zone B** afternoon | **Zone C** afternoon

Session number

1 hour 45 minutes [Paper 1A and Paper 1B]

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Instructions to students

- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Answer all questions.
- Answers must be written within the answer boxes provided.
- A calculator is required for this paper.
- A clean copy of the **SEHS data booklet** is required for this paper.
- The maximum mark for paper 1B is **[25 marks]**.
- The maximum mark for paper 1A and paper 1B is **[65 marks]**.



Answer **all** questions. Answers must be written within the answer boxes provided.

1. Researchers studied the effects of self-talk (ST) training on the anxiety, self-efficacy and performance of junior sub-elite athletes. 117 athletes were randomly assigned to the following groups:

- **Control group:** received no ST training
- **Short-term ST training experimental group:** received one week of ST training
- **Long-term ST training experimental group:** received eight weeks of ST training

Anxiety was assessed pre-training and post-training and at a review session. **Table 1** provides the mean and standard deviation (SD) for anxiety at each assessment.

Table 1: Mean and standard deviation (SD) for anxiety

	Pre-training		Post-training		At review session	
	Mean	SD	Mean	SD	Mean	SD
Control group	5.92	2.41	6.80	2.68	6.59	2.52
Short-term ST training group	6.59	2.52	5.85	2.49	5.66	1.67
Long-term ST training group	7.12	2.66	6.15	1.99	6.36	2.59

- (a) Calculate the reduction in mean anxiety from pre-training to post-training for the long-term ST training group.

[1]

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- (b) Suggest a null hypothesis and an alternative hypothesis for this study.

[2]

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(This question continues on the following page)



(Question 1 continued)

(c) Evaluate the use of questionnaires to quantify anxiety.

[3]

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(d) Explain **one** benefit of randomly assigning the participants to groups.

[2]

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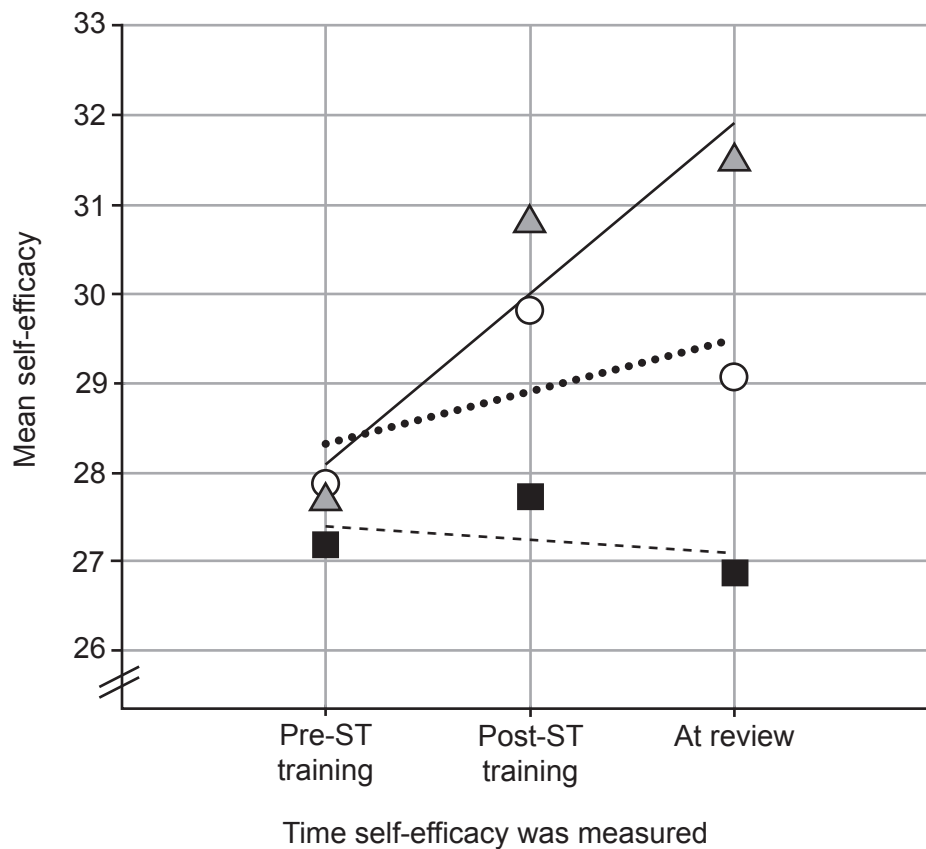


2. **Figure 1** shows the effects of the self-talk (ST) training on self-efficacy.

Figure 1: Effects of the ST training on self-efficacy

Key:

■ Control group ○ Short-term ST training group ▲ Long-term ST training group
 --- Control group Short-term ST training group — Long-term ST training group



- (a) Compare the self-efficacy of the experimental groups pre-ST training.

[1]

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(This question continues on the following page)



(Question 2 continued)

Table 2 provides the p values for the control group and the experimental groups.

Table 2: p values for the control group and the experimental groups

	Pre-training to post-training	Pre-training to review session	Post-training to review session
Control group	$p > 0.05$	$p > 0.05$	$p > 0.05$
Short-term ST training group	$p = 0.04$	$p > 0.05$	$p > 0.05$
Long-term ST training group	$p < 0.001$	$p < 0.001$	$p > 0.05$

(b) Explain the statistical significance of the ST training on the self-efficacy of the athletes. [3]

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(c) Interpret the impact of the ST training on the self-efficacy of the athletes. [2]

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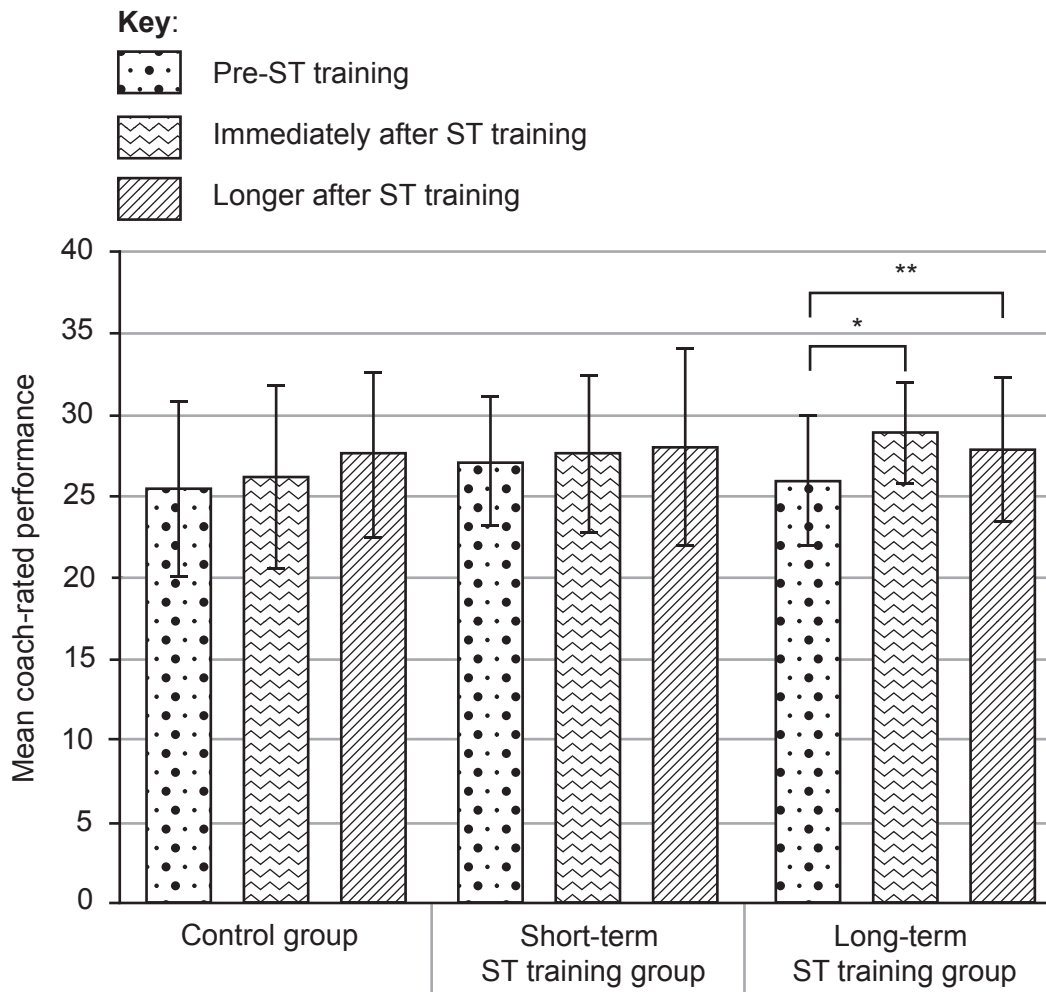
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3. Coaches rated the performance of the athletes. **Figure 2** shows the mean performance ratings. The error bars represent standard deviation (SD).

Figure 2: Effects of self-talk (ST) training on coach-rated performance



* $p < 0.001$ between pre-ST training and post-ST training

** $p = 0.01$ between pre-ST training and review session

(This question continues on the following page)



(Question 3 continued)

- (a) Discuss the hypothesis that ST training improves performance.

[3]

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- (b) The coaches were not informed that the athletes were assigned to groups. Explain this aspect of study design.

[2]

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- (c) Performance can be measured by recording times. Suggest **three** ways of reducing errors when collecting time data.

[3]

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4. **Table 3** shows the mean and standard deviation (SD) for the age, years in sport and physical conditioning per week of each participant in the self-talk (ST) study.

Table 3: Mean and SD for the age, years in sport and physical conditioning per week of each participant in the ST study

	Total sample (<i>n</i> = 117)	Short-term ST training group (<i>n</i> = 36)	Long-term ST training group (<i>n</i> = 38)	Control group (<i>n</i> = 30)
Age / years	16.0 (1.8)	15.7 (1.9)	15.7 (1.5)	16.3 (1.6)
Years in sport	8.7 (2.8)	8.4 (3.1)	8.8 (2.7)	8.9 (2.5)
Physical conditioning sessions per week	8.9 (3.3)	9.1 (3.7)	9.1 (3.2)	8.2 (3.4)
Hours of physical conditioning per week	16.2 (6.2)	15.8 (5.9)	16.8 (6.7)	16.2 (5.6)

- (a) Describe the relevance of standard deviation in this data table.

[2]

- (b) 13 participants withdrew before completing the ST training programme. Suggest **one** reason why the researchers included the data from those 13 participants in the data analysis.

[1]

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References:

Walter, N., Nikoleizig, L. and Alfermann, D., 2019. Effects of Self-Talk Training on Competitive Anxiety, Self-Efficacy, Volitional Skills, and Performance: An Intervention Study with Junior Sub-Elite Athletes. *Sports (Basel)*, 7(6). [online] Available at: <https://pmc.ncbi.nlm.nih.gov/articles/PMC6628429/> [Accessed 27 March 2025]. Source adapted.

