



Amateur Soccer Heading and Acute Elevations in Blood-Based p-Tau217 and S100B

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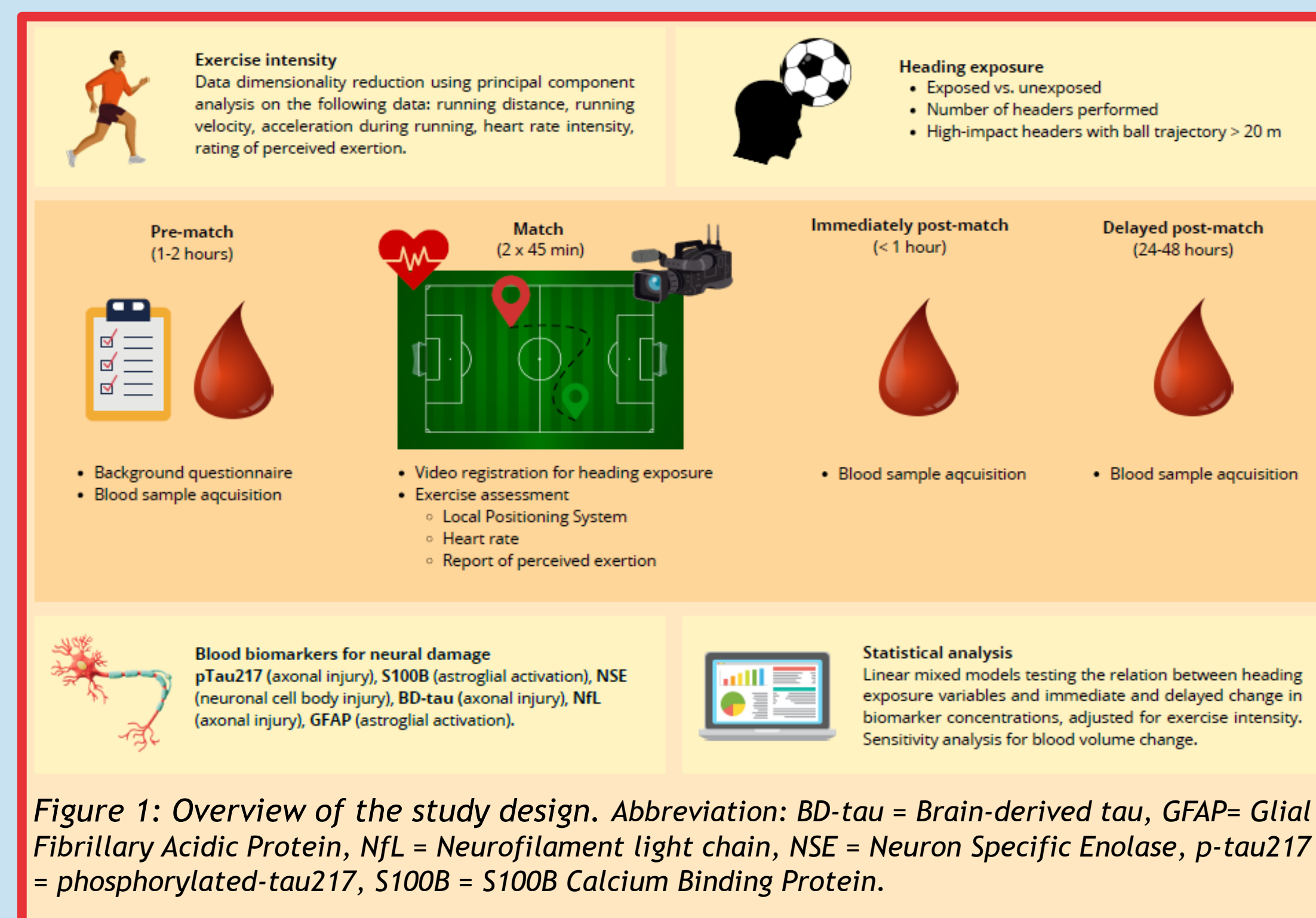
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Background

Former professional soccer players have increased risk of neurodegenerative disease¹⁻⁴, potentially due to cumulative exposure to repetitive head impacts such as heading.^{5,6} However, the acute effects of heading on neural integrity remain unclear.

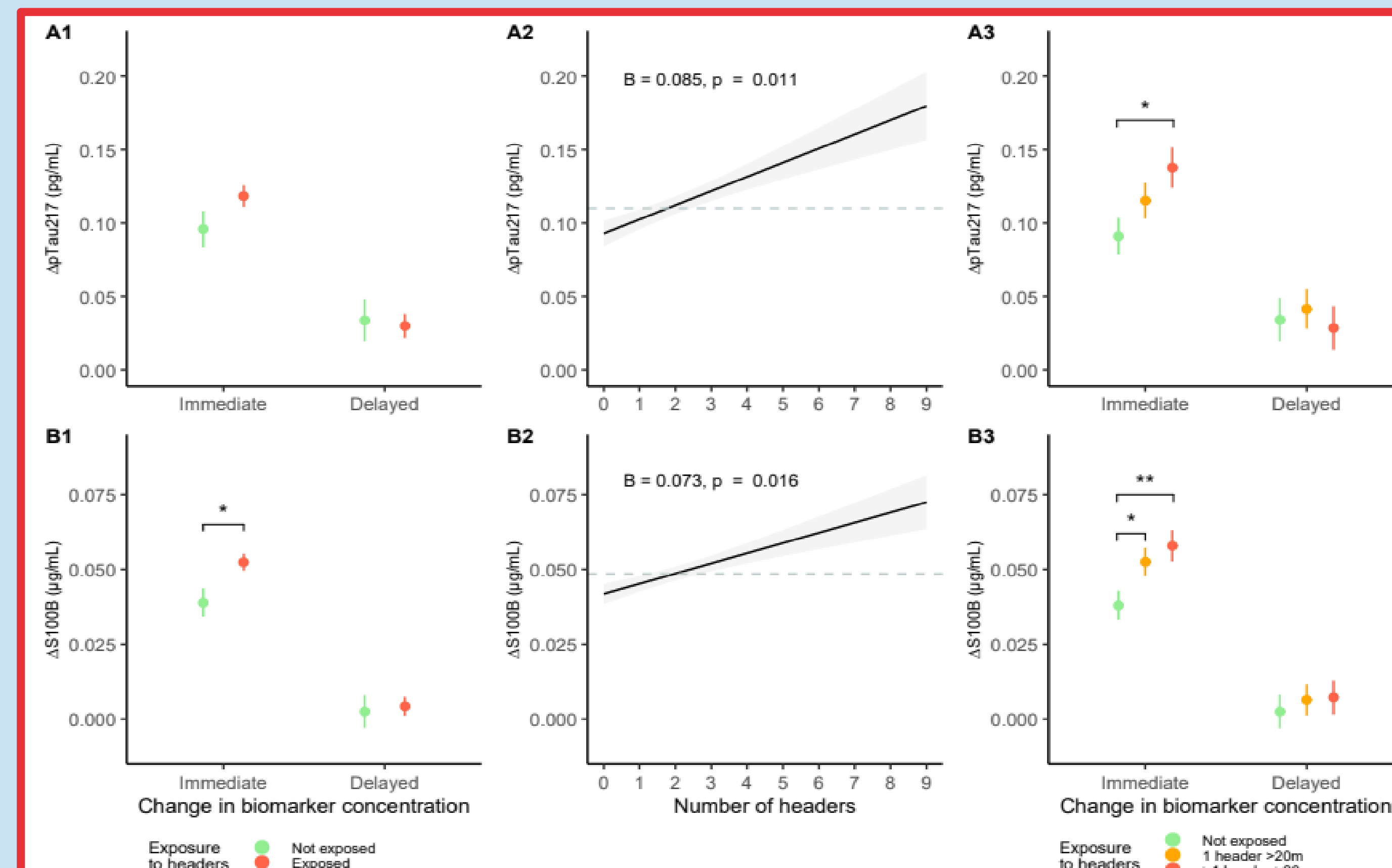
Aim

To assess the acute association of real-life heading with blood biomarkers of neural damage before and after soccer matches.



Results

- 302 players (mean [SD] age, 24.6 [5.2] years) were included
- Players exposed to heading showed significantly greater immediate post-match increases in S100B concentration compared with unexposed players (Fig. 2 B1)
- Number headers was associated with greater increases in S100B and p-tau217 concentration (Fig. 2 A2 and B2)
- High-impact headers were also associated with greater increases in p-tau217 and S100B concentration compared with no exposure (Fig 2 A3 and B3)
- Observed biomarker elevations normalized within 24 to 48 hours.
- No other significant associations were found.



Methods

- Prospective population-based case-control study
- Male higher-level amateur soccer players participated in organized matches
- See Fig. 1 for the study design

Conclusion

This study shows that soccer heading was associated with **acute increases** in blood biomarkers of neural damage, including evidence for **dose-response relationships**. These findings suggest that amateur-level heading may acutely affect neural integrity.