

The Relevance of AI-powered Analytics as a Strategic Tool for Injury Prevention in Training, Treatment, and Communication Management

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Abstract

Today's complex sports-related injuries and the limited prevention mechanisms call for more intelligent, data-informed strategies in physical education (PE). The purpose of this research was to explore the relevance of AI-powered analytics as a strategic tool for injury prevention across training, treatment, and communication management in PE. There is a notable research gap regarding the incorporation of AI-powered analytics into educational and sports management frameworks. The authors aimed to identify key measures, benefits, and limitations of AI applications through secondary research study. Using the PRISMA approach, a thorough systematic literature review was conducted. The authors focused only on peer-reviewed articles between 2021 and 2025 from Web of Science, Scopus, and Google Scholar databases. Out of 514 initial articles, 42 met the inclusion criteria. The results showed that AI-powered tools support injury prediction with up to 87% accuracy, optimize training loads by up to 25%, and reduce rehabilitation time.

Keywords: Artificial Intelligence, AI Analytics, Injury prevention Management, Management, Communication, Treatment Management