



SPORT & TECHNOLOGY

SPGM



SEAM OR SWING?

WEARABLES,
MACHINE
LEARNING AND
EMOTIONS

THE IMPACT OF
TECHNOLOGY
ON SPORTS

NEWS, NEWS, NEWS

News of the professorship

The residual limb in the spotlight - prosthetic technology at the Chair of Sports Equipment and Materials. The latest scanning methods and research on amputees in our laboratories in Garching do not leave it to chance whether amputees can pursue their beloved sports.



SEAM OR SWING? IDENTIFYING THE MOST EFFECTIVE TYPE OF BOWLING VARIATION FOR FAST BOWLERS IN MEN'S INTERNATIONAL 50-OVER CRICKET



by Saumya Mehta, Ashwin Phatak, Daniel Memmert, Samuel Kerruish & Mikael Jamil

This study analyzed 13,176 deliveries by international fast bowlers to explore the link between delivery types and their effectiveness. Chi-Squared analyses found significant associations between delivery type and runs conceded ($p < 0.001$) and wickets taken ($p < 0.001$). Seam movement outperformed swing in producing dot balls and wickets. Specifically, "seam-away" deliveries were best for dot balls, and "seam-in" for wickets. "Away-swingers" resulted in more dot balls, while "in-swingers" led to more wickets. "Off-cutters" and "slower balls" yielded fewer dot balls but more wickets, requiring bowlers to weigh risk versus reward. No-movement deliveries had no significant impact on runs conceded but resulted in fewer wickets. Lateral movement is crucial, with seam movement superior to swing.

Read the publication [here](#)

WEARABLES AND MACHINE LEARNING FOR IMPROVING RUNNERS' MOTIVATION FROM AN AFFECTIVE PERSPECTIVE



by Sandra Baldassarri, Jorge García de Quirós, José Ramón Beltrán & Pedro Álvarez

This paper explores the use of wearable technology to monitor and leverage athletes' emotions in real-time during training. Emotions are often overlooked in sports tech solutions. The study introduces a wearable device and machine learning models that analyze runners' electrodermal activity to deduce their emotions. Integrated into the DJ-Running project, this technology enhances runners' motivation by selecting and playing music tailored to their emotional state, thus optimizing training quality and athlete well-being.

Read the publication [here](#)

THE IMPACT OF TECHNOLOGY ON SPORTS – A PROSPECTIVE STUDY



by Nicolas Frevel, Daniel Beiderdeck & Sascha L. Schmidt

The rapid advancement of technology and digitalization has reshaped the role of technology in sports over the past two decades. With human performance limits reached in many areas, future progress will increasingly rely on technology. This impacts athletes, sports managers, and sports consumers. Using the SportsTech Matrix framework, this study, based on a Delphi-based prospective approach with input from 92 experts, explores the future impact of technology in sports by 2030. Experts foresee significant technology-driven improvements in athlete performance, changes in how sports content is consumed by consumers, and a need for new managerial profiles. This research offers insights for sports decision-makers and suggests possible future scenarios.

Read the publication [here](#)