



Use of Information and Communication Technologies and Health Behaviours in Elite Combat Sport Athletes

İsa Göçmen, Antanas Ūsas 

Lithuanian Sports University, Kaunas, Lithuania

Background and Aim. The rapid integration of Information and Communication Technologies (ICT) and wearable sensors have transformed elite sports management. However, the impact of multi-dimensional ICT engagement on the unique psychophysiological ecosystem of elite combat athletes remains under-researched. This study aims to investigate the association between ICT usage patterns and interconnected health behaviours, specifically focusing on sleep quality, pre-competition stress, and nutritional adherence during weight-cutting phases.

Methods. This cross-sectional study investigated 65 elite combat athletes ($N = 65$; 76.9% male, 23.1% female), predominantly international-level competitors (86.2%) across different disciplines. The cohort had a mean age of 26.8 ± 4.4 years and 9.2 ± 3.8 years of elite experience. Data were collected through structured, self-administered digital questionnaires of four validated scales: IPAQ-SF (physical activity), PSQI (sleep), PSS-10 (stress), and REAP-S (nutrition), integrated with a Composite ICT Engagement Index (CIEI).

Results. Statistical analysis revealed a moderate positive correlation between pre-competition weigh-in stress and sleep difficulty ($r_s = .370, p < .01$), while the PSS-10 scale showed high internal consistency ($\alpha = .783$). Furthermore, high CIEI scores were significantly associated with frequent digital nutrition tracking ($p < .05$) and elevated perceived application pressure ($r_s = .516, p < .001$). Additionally, bedtime screen time was found to correlate with post-competition binge eating behaviour ($r_s = .370, p = .002$), and the frequency of vigorous physical activity was strongly linked to nocturnal awakenings ($r_s = .436, p < .009$).

Conclusions. Digital tools provide essential nutritional structure but simultaneously trigger a monitoring paradox that disrupts sleep in elite combat athletes. Findings suggest that excessive ICT reliance may impair recovery by intensifying application-related pressure and exacerbating weight-cut-induced stress.

Keywords: Combat sports; sleep quality; pre-competition stress; wearable technology; digital health engagement

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Informed Consent Statement: This study was approved by the Ethics Committee of Lithuanian Sports University (No. 52614). All participants provided written informed consent prior to participation. The study was conducted in accordance with the Declaration of Helsinki.

