SITUAZIONI CON CARICHI DI LAVORO AD ALTO RISCHIO & PREVISIONE DEGLI INFORTUNI MUSCOLARI NEI GIOCATORI DI FOOTBALL AUSTRALIANO

Marcus J Colby, Brian Dawson, Peter Peeling, Jarryd Heasman, Brent Rogalski, Michael K Drew, Jordan Stares

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ABSTRACT

Obiettivi: L'obiettivo di questo studio era quello di valutare l'effetto di diversi scenari di carico ad alto rischio (HSR) per la prevenzione degli infortuni muscolari nei giocatori di football Australiano.

Metodi: Per un totale di 3 stagioni, 60 giocatori sono stati monitorati durante le singole sessioni di allenamento utilizzando il metodo RPE e le tecnologie GPS. Il carico di lavoro è stato quantificato in termini di sRPE, distanza totale, distanza sprint e velocità massima. Successivamente sono stati definiti diversi scenari di carico ad alto rischio (HSR) (*alti rapporti ACWR, alti cambi percentuali di settimana in settimana, elevati carichi cronici, valore massimo di carico acuto e di carico cronico*). Valori di HRS cumulativi sono stati calcolati sulle 8 settimane precedenti all'infortunio. I dati relativi alle lesioni muscolari sono stati registrati in maniera sistematica. I modelli di regressione di Poisson (univariati e multivariati) sono stati applicati per determinare i tassi di incidenza delle lesioni (IRR), tenendo in considerazione gli effetti del volume del carico di lavoro pre-season e dell'esperienza di gioco dei singoli calciatori. Le prestazioni del modello predittivo per l'infortunio sono state valutate calcolando l'area sotto la curva (AUC).

Risultati: Dai risultati si evince che un'esposizione moderata (11-12 sessioni) alle velocità di corsa elevate (>85% velocità massima) contribuisce ad un'incidenza di infortuni inferiori rispetto ad esposizioni molto basse (0-8 sessioni) o molto elevate (>15 sessioni) nell'arco di 8 settimane di allenamento. Carichi cronici molto bassi (per tutte le variabili del carico di lavoro) nell'arco di 1 settimana sono stati associati ad un aumento del rischio di lesione, identificando la riduzione nella distanza sprint percorsa come la variabile che predice maggiormente gli infortuni.

Conclusioni: Esposizioni minime agli sforzi ad alta velocità (velocità massima e distanza sprint) sono state associate ad un maggior rischio di lesioni muscolari. Ridotti carichi di lavoro ad alta intensità possono essere correlati ad un rischio maggiore di lesioni muscolari nel football Australiano; il carico di lavoro svolto in pre-campionato e l'esperienza di gioco non hanno influito sull'incidenza degli infortuni.

REPEATED EXPOSURE TO ESTABLISHED HIGH RISK WORKLOAD SCENARIOS IMPROVES NON-CONTACT INJURY PREDICTION IN ELITE AUSTRALIAN FOOTBALLERS

Marcus J Colby, Brian Dawson, Peter Peeling, Jarryd Heasman, Brent Rogalski, Michael K Drew, Jordan Stares

To assess the effect of multiple high-risk scenario (HRS) exposures on non-contact injury prediction in elite Australian footballers. Design: Retrospective cohort study. Methods: Sessional workload data (session-rating of perceived exertion; GPS-derived distance, sprint distance, maximum velocity) from one club (n= 60 players) over 3 seasons were collated; several established HRS were also defined. Accumulated HRS sessional exposures were calculated retrospectively (previous 1-8 weeks). Non-contact injury data was documented. Univariate and multivariate Poisson regression models determined injury incidence rate ratios (IRR) while accounting for moderating effects (pre-season workload volume, playing experience). Model performance was evaluated using receiver operating characteristics (area under curve: AUC). Results: Very low (0-8 sessions: IRR=5.76, 95% CI=1.69-19.66) and very high (>15 sessions: IRR=4.70, 95% CI=1.49-14.87) exposures to >85% of an individual's maximal velocity over the previous 8 weeks were associated with greater injury risk compared to moderate exposures (11-12 sessions), and displayed the best model performance (AUC=0.64). A single session corresponding to a very low chronic load condition over the previous week for all workload variables was associated with increased injury risk, with sprint distance (IRR=3.25, 95% CI=1.95-5.40) providing the most accurate prediction model (AUC=0.63). Conclusions: Minimal exposure to high velocity efforts (maximum speed exposure, sprint volume) was associated with the greatest injury risk. Being under-loaded may be a mediator for non-contact injury in elite Australian football. Pre-season workload and playing experience were not moderators of this effect.

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