

PRESTAZIONI DI GIOCO NEI GIOVANI CALCIATORI DELLE SQUADRE D'ELITE NEL 4vs4. SMALL SIDES GAMES: L'INFLUENZA DEI FEEDBACK DEGLI ALLENATORI.

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ABSTRACT

Lo scopo di questo studio è stato quello di determinare, attraverso una distinzione dei feedback dati dagli allenatori ai giocatori, la differenza che si può ottenere nelle risposte fisiologiche, nella percezione dello sforzo (RPE, *Rate of Perceived Exertion*, *Grado di percezione dello sforzo*) e nell'intensità fisica degli *Small-Sides Games* (SSG).

Sono stati analizzati 16 giovani calciatori che hanno svolto una partita a campo ridotto 4vs4 durante la quale l'allenatore ha fornito feedback ridotti, normali o insistenti.

I parametri fisiologici analizzati sono stati la frequenza cardiaca registrata durante le esercitazioni, la concentrazione di lattato nel sangue e lo sforzo percepito (RPE).

I dati di movimento, come la distanza totale percorsa, il numero di sprint effettuati e il rapporto tra lavoro e recupero sono stati misurati da sistemi GPS a 5 Hz.

Infine, le prestazioni del gioco come il volume e l'indice di efficacia sono stati stimati utilizzando una procedura di valutazione da parte dello staff.

I risultati ottenuti attraverso l'analisi dell'esercitazione svolta con un feedback insistente non hanno evidenziato differenze nella risposta fisiologica degli atleti, ma hanno evidenziato un aumento dell'RPE ed una diminuzione della prestazione tecnica nel gioco.

Dai risultati raccolti si può concludere quindi che fornire un feedback troppo insistente non influenza i valori fisiologici del giocatore poiché lo SSG risulta essere già una tipologia di esercitazione ad alta intensità, ma può variare i valori di RPE e la prestazione tecnica espressa nell'esercizio proposto. È consigliato, quindi, non eccedere con i feedback durante lo svolgimento degli SSG in modo tale da non compromettere le prestazioni dei giocatori.

APPLICAZIONI PRATICHE

Il principale risultato pratico ottenuto da questa analisi è che l'intensità del feedback fornito dall'allenatore non determina variazioni della risposta fisiologica del giocatore in termini di aumento della frequenza cardiaca poiché gli *Small-Sides Games* risultano essere un'esercitazione ad alta intensità. Al contrario, fornire un feedback troppo insistente ai giocatori causa l'aumento dell'RPE e un abbassamento della prestazione tecnica nell'esecuzione dell'esercizio richiesto.

ELITE YOUTH SOCCER PLAYER'S PHYSIOLOGICAL RESPONSES, TIME-MOTION CHARACTERISTICS, AND GAME PERFORMANCE IN 4 VS 4. SMALL-SIDED GAMES: THE INFLUENCE OF COACH FEEDBACK.

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ABSTRACT

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The purpose of this study was to determine the impact of mild vs. strongly pushed coach feedback on the physiological response, ratio of perceived exertion (RPE), and time-motion characteristics in soccer training with small-sided games (SSGs).

Sixteen elite youth soccer players (aged 17.2 \pm 0.7 years, V_{O2max} 62.1 \pm 3.8 ml $kg^{-1} min^{-1}$) played two 4 vs. 4 small-sided games each. In random order, the coach provided a mild, unobtrusive, or a strongly pushed feedback throughout the game. Physiological measurements included heart rate expressed in mean values and intensity zones, blood lactate concentration, and RPE. The distance traveled, number of sprints, and work:rest ratio were captured by global positioning systems at 5 Hz. Game performance, such as volume of play and efficacy index, was estimated using the Team Sports Assessment Procedure.

No differences were found for the physiological response and time-motion characteristics, but effect sizes demonstrated an increase in RPE (+0.4, $p = 0.27$) and a decrease in game performance (e.g., volume of play, 22.5, $p = 0.08$) under pushed feedback. Although a pushed feedback raises RPE, it negatively affected the players' game performance, without necessarily provoking higher physiological responses.

These results should help coaches to understand that modifying the type of feedback provided during SSG does not impact the physiological response if SSG are already played with high intensity but that the feedback affects RPE and game performance. To keep a better game performance, soccer coaches are encouraged to provide smooth feedback during SSG.

PRACTICAL APPLICATIONS

The main practical relevance of the study findings is that a strongly pushed feedback provided by the coach does not change the physiological response in terms of an increased HR given that SSG are played with 4 players and at high intensity.

On the contrary, a strongly pushed feedback increases the RPE and negatively affects the players' game performance, reducing the success rate of actions on the ball. According to the findings, coaches should be encouraged to provide only mild feedback, at least during soccer training with SSGs. This approach would provide a high stimulus for developing soccer-specific endurance capacities and for successful actions on the ball. Furthermore, the lower RPE when mild feedback is given will improve the tolerance of high training loads and training frequency.

The physiological response could possibly be raised by a strongly pushed feedback in less physiologically demanding SSG, although a deterioration of game performance can still be expected. However, future studies should investigate other SSG formats with different types of coaches' feedback and include measures of game performance.

REFERENCES

1. Aguiar, MV, Botelho, GM, Goncalves, BS, and Sampaio, JE. Physiological responses and activity profiles of football small-sided games. *J Strength Cond Res* 27: 1287–1294, 2013.
2. Batterham, AM and Hopkins, WG. Making meaningful inferences about magnitudes. *Int J Sports Physiol Perform* 1: 50–57, 2006.
3. Borg, G. *Borg's Perceived Exertion and Pain Scales*. Champaign, IL: Human Kinetics, 1988.
4. Brandes, M, Heitmann, A, and Muller, L. Physical responses of different small-sided game formats in elite youth soccer players. *J Strength Cond Res* 26: 1353–1360, 2012.
5. Castellano, J, Casamichana, D, and Dellal, A. Influence of game format and number of players on heart rate responses and physical demands in small-sided soccer games. *J Strength Cond Res* 27: 1295–1303, 2013.
6. Clemente, FM, Wong del, P, Martins, FM, and Mendes, RS. Acute effects of the number of players and scoring method on physiological, physical, and technical performance in small-sided soccer games. *Res Sports Med* 22: 380–397, 2014.
7. Fanchini, M, Azzalin, A, Castagna, C, Schena, F, McCall, A, and Impellizzeri, FM. Effect of bout duration on exercise intensity and technical performance of small-sided games in soccer. *J Strength Cond Res* 25: 453–458, 2011.
8. Gore, C. *Physiological Tests for Elite Athletes*. Champaign, IL: Human Kinetics, 2000.
9. Gré'haigne, JF, Richard, JF, and Griffin, LL. *Teaching and Learning Team Sports and Games*. New York, NY: Routledge, 2005.
10. Hill-Haas, SV, Coutts, AJ, Dawson, BT, and Rowsell, GJ. Timemotion characteristics and physiological responses of small-sided games in elite youth players: The influence of player number and rule changes. *J Strength Cond Res* 24: 2149–2156, 2010.
11. Hill-Haas, SV, Dawson, B, Impellizzeri, FM, and Coutts, AJ. Physiology of small-sided games training in football: A systematic review. *Sports Med* 41: 199–220, 2011.
12. Hill-Haas, SV, Dawson, BT, Coutts, AJ, and Rowsell, GJ. Physiological responses and time-motion characteristics of various small-sided soccer games in youth players. *J Sports Sci* 27: 1–8, 2009.
13. Hodgson, C, Akenhead, R, and Thomas, K. Time-motion analysis of acceleration demands of 4v4 small-sided soccer games played on different pitch sizes. *Hum Mov Sci* 33: 25–32, 2014.
14. Johnston, RJ, Watsford, ML, Pine, MJ, Spurrs, RW, Murphy, AJ, and Pruyn, EC. The validity and reliability of 5-Hz global positioning system units to measure team sport movement demands. *J Strength Cond Res* 26: 758–765, 2012.
15. Kelly, DM and Drust, B. The effect of pitch dimensions on heart rate responses and technical demands of small-sided soccer games in elite players. *J Sci Med Sport* 12: 475–479, 2009.
16. Mallo, J and Navarro, E. Physical load imposed on soccer players during small-sided training games. *J Sports Med Phys Fitness* 48: 166–171, 2008.
17. Owen, A, Twist, C, and Ford, P. Small-sided games: The physiological and technical effect of altering pitch size and player numbers. *Insight* 7: 50–53, 2004.
18. Rampinini, E, Impellizzeri, FM, Castagna, C, Abt, G, Chamari, K, Sassi, A, and Marcora, SM. Factors influencing physiological responses to small-sided soccer games. *J Sports Sci* 25: 659–666, 2007.
19. Sampaio, J, Garcia, G, Macas, V, Ibanez, S, Abrantes, C, and Caixinha, P. Heart rate and perceptual responses to 232 and 333 small-sided youth soccer games. *J Sports Sci Med* 6: 121–122, 2007.
20. Scott, MT, Scott, TJ, and Kelly, VG. The validity and reliability of global positioning systems in team sport: A brief review. *J Strength Cond Res* 30: 1470–1490, 2016.
21. Smith, MR, Coutts, AJ, Merlini, M, Deprez, D, Lenoir, M, and Marcora, SM. Mental fatigue impairs soccer-specific physical and technical performance. *Med Sci Sports Exerc* 48: 267–276, 2016.
22. Tessitore, A, Meeusen, R, Piacentini, MF, Demarie, S, and Capranica, L. Physiological and technical aspects of "6-a-side" soccer drills. *J Sports Med Phys Fitness* 46: 36–43, 2006.
23. Torres-Ronda, L, Goncalves, B, Marcelino, R, Torrents, C, Vicente, E, and Sampaio, J. Heart rate, time-motion, and body impacts when changing the number of teammates and opponents in soccer smallsided games. *J Strength Cond Res* 29: 2723–2730, 2015.
24. Williams, K and Owen, A. The impact of player numbers on the physiological responses to small sided games. *J Sports Sci Med* 6 (Suppl 10): 100, 2007.