Processing speed in youth football players

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Introduction:
Processing speed is the response efficiency in stimulus processing tasks (Lezak, 2004). Optimal levels of this capacity are required to perform efficiently in different sport settings. Indeed, expert athletes have shown superior processing speed capacities in wide range of general cognitive tasks (Voss et al., 2010, for a review).

Methods
Two studies have been conducted with different groups of children (n=60) and adolescents (n=75) differentiated in terms of their regular sport expertise (athletes, football players and non-athletic controls). In one session, participants completed an adapted version of the Psychomotor Vigilance Task (PVT). In a different session, participants performed the Leger Multistage fitness test to estimate their aerobic fitness level. In the second study a manipulation of the velocity demands of the PVT was performed to evaluate the athletes' processing speed capacities under temporal pressure.

Results & Discussion
Both children and adolescent football players showed better cardiovascular fitness than non-athletic controls in the Léger test (alls ps $< .001$). In the first study, adolescent football players exhibited faster responses in the PVT than non-athletic controls, ($p < .001$). In the second study, only differences between football players and controls were found in the normal condition of the PVT ($p < .015$) in favour of the football players group. However, in speed condition, football players outperformed both track and field athletes ($p = .011$) and non-athletic controls ($p < .001$).

Conclusion
The major novel finding of our research points to a positive relationship between football expertise and processing speed during childhood and adolescence. Future research should explore the role of processing speed in specific football decision making situations to determine his implications for talent identification.

References
Lezak, M. D (2004). Neuropsychological assessment. Oxford University Press, USA.
Voss M, et al (2010) *Appl Cogn Psychol, 24*(6), 812-826.

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