

Preliminary evidence on the efficacy of cranial osteopathy in professional football

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Background & research question

The training and match injury-incidence in professional men's football remains high and current preventive strategies only seem partially effective [1]. Each season, players are sidelined by injury due to undetected intrinsic 'weaknesses'. Stomatognathic conditions/malocclusion constitute such an internal risk that may have a strong negative impact on the athletes proprioceptive abilities [3][4]. Professional football is a balance-reliant, open skill performed in an environment rich in visual, vestibular and proprioceptive input. Balance – a motor product of this neurological interaction – is associated with the final performance and injury-risk of the player [2]. Pre-season balance ability – a significant independent predictor of injuries and a long-term persisting between-individual difference in injury susceptibility [2] – depends on this input. Measurements of postural control while in a unilateral stance have been shown to predict football injury-proneness. Therefore, effective prevention of injury may start with the measurement of postural control followed by interventions targeted at trigeminal sensors.

Consequently, the primary question in this study was: **do cranial osteopathic interventions that reduce malocclusion to the better improve balance control in male elite football players?**

Material & method

Sixty three injury-free male professional football players with malocclusion were recruited amongst three Belgian Premier League teams and were tested individually. Balance was measured using Centre of Force (COF) area recordings [5] during a validated unilateral force plate balance test (pict.1). Four balance test conditions (dominant/non-dominant leg x eyes open/closed) were used to evaluate the short-term effects of three standardized cranial osteopathic techniques (pict.2) and of the cotton roll test (pict.3) condition (test of Esposito-Meersseman).

Results

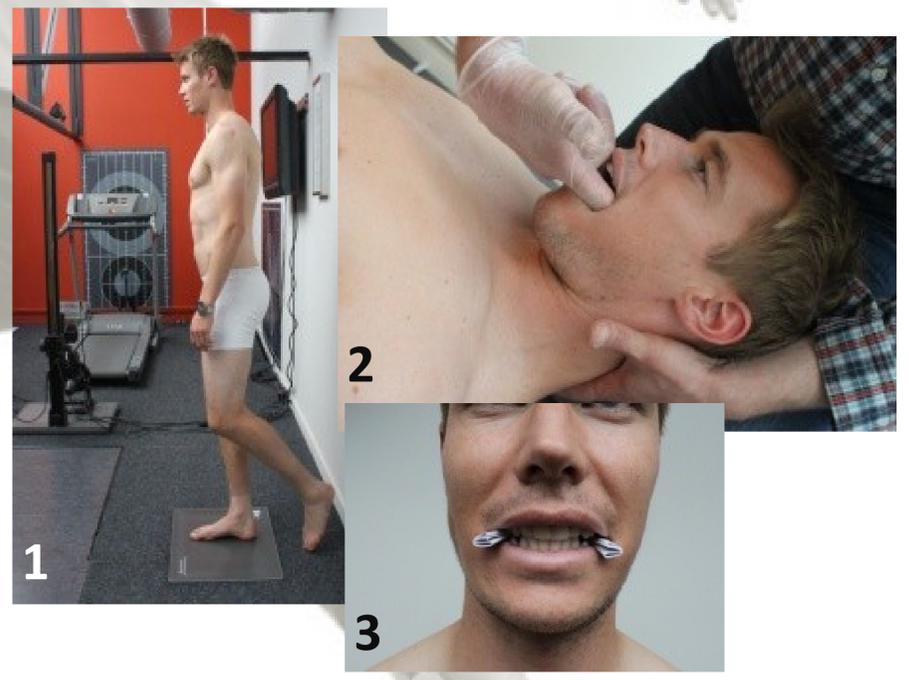
All the post-treatment measures show smaller mean COF values (balance improvement) when compared to pre-treatment base-line recordings (see boxplots), with the strongest improvement for the conditions with eyes closed (paired t-test, $p < 0.0005$). Indicators of stomatognathic conditions showed significant correlations with base-line COF and COF improvement. In line with the Esposito-Meersseman test, COF improvement after placements of cotton rolls predicted COF improvement after osteopathic intervention.

Discussion & conclusion

This study indicates that cranial osteopathic interventions with professional football players result in substantial improvement of balance in challenging test conditions (i.e. standing on one leg with eyes closed), and especially if one or more specific stomatognathic conditions are present. Improvement of balance as a non-specific indicator of injury susceptibility and of soccer performance is a dynamic process that involves many features, that could be uncovered in future prospective studies. The results are suggestive for implementation of this approach in football, and at the same time point at the need for follow-up studies with larger samples and long-term evaluation.

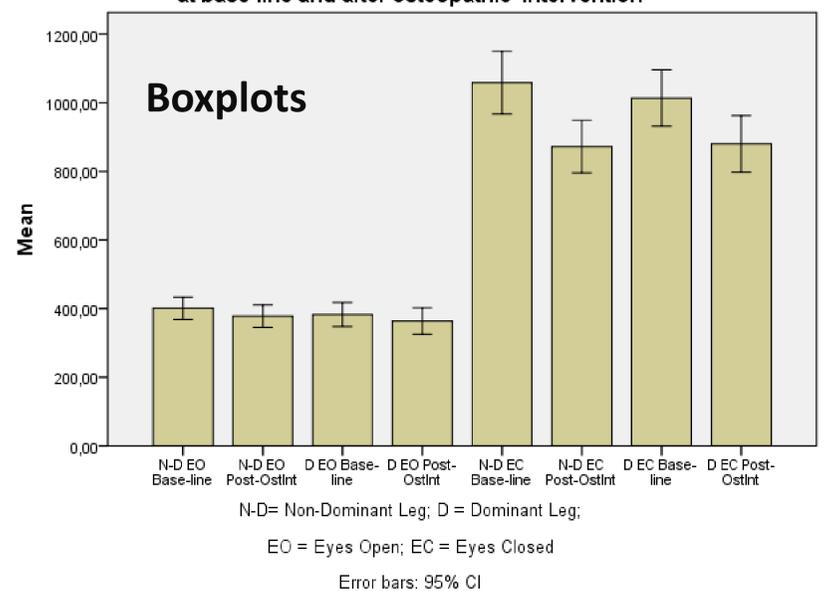
Keywords:

Professional football, balance, injury risk, malocclusion, stomatognathic conditions, (cranial) osteopathy



Balance in four test conditions

at base-line and after osteopathic intervention



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