

**TITLE**

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**DATE DEPOSITED**

14 December 2020

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### **Decision-making practice activities during coaching sessions in youth soccer: A cross-comparison of elite coaching contexts across European countries**

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**Introduction:** A key performance attribute that has been consistently shown to discriminate highly skilled soccer players from their lesser-skilled counterparts is the ability to make effective decisions under pressure situations during match-play. The aim of this study was to investigate the microstructure of decision-making practice in youth academies of professional top-division clubs from England, Germany, Portugal, and Spain. This was the first study to assess the structures of coach-led practice activities in youth soccer across multiple countries.

**Methods:** A total of 53 soccer coaches working with U12-16s age group male players across 16 youth academies of professional top-division clubs in four European nations took part. Altogether, 83 practice sessions were analysed in situ. Sessions were analysed for the proportion of time in 'non-active decision-making' (e.g., unopposed technical/tactical skills practices, fitness training) and 'active decision-making' activities (e.g., small-sided games, skills practice with opposition), with the latter deemed superior for the transfer of 'game intelligence' skills to match-play.

**Results:** More time was spent in active decision-making (M = 62%) compared to non-active decision-making activities (M = 20%) and transitioning between activities (M = 17%). Players from Portugal and Spain spent a higher amount of time in active decision-making activities compared to English and German players. English players spent more time in unopposed technical-based drills and German players in improving fitness aspects of the game without the ball.

**Conclusion:** Our data contradict some earlier findings where non-active decision-making activities were greater than active. Moreover, it extends previous research assessing coach-led youth soccer practice in single countries by offering a comprehensive cross-comparison of differences in training activities between youth academies at top-division professional clubs in multiple European countries.

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### **Does varying the ingestion duration of sodium citrate influence blood alkalosis and gastrointestinal symptoms?**

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**Objectives:** Induced blood alkalosis has been associated with improved performance of short-duration and high-intensity exercise. The primary aim of this study was to compare the effect of ingesting 500 mg.kg<sup>-1</sup> BM sodium citrate over varying durations on blood alkalosis, GI symptoms and palatability.

**Methods:** Following a randomized, cross-over design, 16 healthy and active participants completed four sessions, ingesting 500 mg.kg<sup>-1</sup> BM sodium citrate in gelatine capsules over a duration of 15, 30, 45 or 60 min. Validated GI symptoms questionnaires were completed, and venous blood samples were collected before ingestion, immediately post-ingestion, and every 30 min for 480 min after ingestion; blood samples were analysed for blood pH and [HCO<sub>3</sub><sup>-</sup>]. Palatability was assessed using a validated tool, which was completed immediately after ingestion. Linear mixed models were used to estimate the effect of ingestion protocol.

**Results:** A significant treatment effect was detected for both blood pH and [HCO<sub>3</sub><sup>-</sup>] ( $p < 0.05$ ). The 15 min ingestion duration was associated with significantly greater blood alkalosis when compared to 30, 45 and 60 min ingestion duration. Blood alkalosis peaked between 180-210 min after completion of sodium citrate ingestion. Blood alkalosis was significantly elevated above baseline (significant time effect,  $p < 0.05$ ) and was not significantly below peak at all time points from 150-270 min after ingestion was completed. No differences for GI symptoms or participant preference were detected when comparing the four ingestion protocols of varying duration.

**Conclusion:** Ingestion of 500 mg.kg<sup>-1</sup> BM sodium citrate in gelatine capsules should be completed over a 15 min duration. This protocol was associated with greater blood alkalosis, and no greater GI symptoms when compared to longer ingestion durations. Supplementation should be completed 150-270 min prior to the commencement of exercise.