

**METHODS:** Searching Wanfang platform, VIP consulting platform, CNKI, Pubmed and Springer on Ba Duanjin in the treatment of insomnia Randomized controlled trial (RCT). Meta-analysis was performed using revman5.3 software. The main indicators were the number of recovered patients, effective patients and invalid patients, the Pittsburgh sleep quality score (PSQI). **RESULTS:** A total of 98 articles were retrieved by searching in computer. Excluding the literature which is repeated or with incomplete date, the final including was 9 RCT. A total of 789 patients were included in the analysis. Meta-analysis showed that the number of patients with recovery was higher in the experimental group than in the control group. [OR=3.14, 95% CI (2.18, 4.52),  $p < 0.00001$ ], and the number of invalid patients was lower. [OR=0.19, 95% CI (0.12, 0.31),  $p < 0.00001$ ], the difference was statistically significant. There was no statistical difference between the effective groups. PSQI were not statistically different due to excessive heterogeneity. **CONCLUSION:** This meta-analysis showed that in the treatment of insomnia, the clinical efficacy of the group with Ba Duan Jin intervened was better than the group with the conventional drug, and the difference was statistically significant.

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## D-68 Free Communication/Poster - Cognition and Emotions

Thursday, May 28, 2020, 2:00 PM - 4:30 PM  
Room: CC-Exhibit Hall

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**2266** Board #185 May 28 2:00 PM - 3:30 PM

### The Effect Of Brief Mindfulness Intervention As Adjuvant Of Fluid Intake On Athletes' Cognitive Function

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**PURPOSE:** The present study investigated the effect of combined fluid intake and brief mindfulness intervention (MBI) in a simulative half-time break of soccer competition on athletes' cognitive function.

**METHODS:** In a 3 (treatments) × 2 (times) double-blinded cross-over design, fourteen male athletes (age: 24.3±3.7 yr, height: 173.8±4.5 cm, weight: 68.3±5.1 kg,  $VO_{2max}$ : 47.0±4.4 ml/kg/min) received three treatments (Control: non-carbohydrate (CHO) electrolyte solution + traveling introduction audio; CHO: CHO-electrolyte solution + travelling introduction audio; and CHO\_M: CHO-electrolyte solution + MBI) in a simulative half-time break. Cognitive function performance (assessed by Stroop Test, Corsi Block Test, Rapid Visual Information processing task (RVIP)), mindfulness level, blood glucose and lactic, rating of perceived exertion was tested at different time points during the trial.

**RESULTS:** Major findings include: (1) CHO\_M trial obtained a better score in post Stroop colour test when compared with Control trial (CHO\_M vs. Control: 17813.87 ± 3706.98 vs. 22990.43 ± 6665.36;  $p = .04$ ); (2) a significant interactive effect was observed on the performance of Corsi block test ( $p = .03$ ). Specifically, the reaction time decreased from pre-trial to post-trial in CHO\_M and Control trials (pre vs. post: 826.88 ± 384.67 vs. 667.49 ± 331.56 ms,  $p < .01$  for CHO\_M; pre vs. post: 1085.43 ± 388.51 vs. 798.36 ± 253.28 ms;  $p < .01$  for Control), but not in CHO trial (pre vs. post: 832.68 ± 296.37 vs. 810.11 ± 347.70 ms,  $p = .66$ ); (3) CHO trial spent less time on missing numbers in post RVIP test than the other two trials (Control vs. CHO vs. CHO\_M: 5939.57 ± 2100.27 vs. 3316.79 ± 2716.73 vs. 6201.43 ± 4013.58 ms;  $p = .03$ ), given that their performance in pre-test were statistically the same ( $p = .13$ ).

**CONCLUSIONS:** In conclusion, a positive effect of the combined fluid intake and brief MBI on athlete's cognitive function was revealed, while both positive and negative effect was revealed for fluid intake only.

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**2267** Board #186 May 28 2:00 PM - 3:30 PM

### Preschoolers Demonstrate Similar Learning And Enhanced On-task Behavior Following Physically-active Lessons On Emerging Numeracy Skills

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Previous studies demonstrate variable effects of physically-active instruction on academic achievement and classroom behavior. The utility of such approaches to train the approximate number system—a foundational construct underlying later mathematics achievement—in preschoolers remains unclear.

**PURPOSE:** To determine the acute effects of physically-active lessons on acuity of the approximate number system and on-task behavior in preschoolers.

**METHODS:** Using a randomized within-participants repeated-measures crossover design, children ( $N = 51$ ; 3-5 y) completed a computerized approximate number system task before and after engaging in either 20-min of either physically-active or conventional sedentary instruction during two separate, counterbalanced sessions. The conventional sedentary lessons consisted of activities previously shown to strengthen approximate number representations (i.e., number line estimation, counting, and magnitude estimation) at an intensity of approximately 12% heart rate reserve whereas the physically-active lessons consisted of comparable activities integrated with movement corresponding to 30% heart rate reserve. Separate univariate multi-level models were constructed. Difference in pedometer step count between conditions was analyzed using independent t-test.

**RESULTS:** Although no significant differences were observed in behavioral task performance at posttest between conditions,  $F$ 's (2,49) ≤ 1.0,  $p$ 's ≥ 0.434,  $f^2$ 's < 0.02 [95% CI: 0 to 0.08], fewer experimenter redirections were required following the physically-active lessons (2.5 ± 2.8) relative to following the conventional sedentary lessons (5.0 ± 3.6),  $F(1, 49) = 20.7$ ,  $p < 0.001$ ,  $f^2 = 0.61$  [95% CI: 0.24 to 1.29]. On average, children accrued 931.3 ± 8.2 more steps during the physically-active lessons relative to the sedentary lessons,  $t(95) = 19.1$ ,  $p < .001$ ,  $d_s = 3.91$  [95% CI: 3.19 to 4.55].

**CONCLUSION:** Physically-active lessons on emerging numeracy skills do not impede training of the approximate number system and result in greater on-task behavior relative to conventional sedentary lessons in preschoolers. Future studies should explore the integration of such approaches into early childhood education.

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**2268** Board #187 May 28 2:00 PM - 3:30 PM

### History Of Heading In Soccer Impairs Cognition But Not Cerebral Perfusion In Young Amateur Players

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Heading the ball in soccer has been linked to impaired cognition and may increase the risk of neurodegenerative disease. This may be explained by an accelerated decline in cerebral perfusion, a major risk factor for cognitive impairment, stroke and dementia, for reasons that remain unclear.

**PURPOSE:** To determine if a history of recurrent heading of a football predisposes to cerebral hypoperfusion and cognitive impairment.

**METHODS:** Twenty-nine amateur male soccer players (age: 28 ± 6 yrs) with a playing history of 15 ± 6 yrs and a self-reported heading frequency of 9 ± 4 balls per game were recruited for the study. They were compared to 32 age and fitness-matched controls who had not participated in contact sports with no history of concussion. All participants completed a battery of