

Sweat and Thirst—The Exercise Hydration Knowledge of Coaches and PE Teachers in Singapore

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SAFE REGIMENS ARE a pre-requisite for children and youths who exercise and train in the hot and humid weather of Singapore. Coaches and Physical Education (PE) teachers have an important role in providing young people with up-to-date exercise hydration knowledge before, during and after exercise. However, it is not known if such professionals have the requisite knowledge and this was the main rationale for the study. Participants of this study consisted of 193 coaches and 164 PE teachers. They completed a 31-item exercise hydration knowledge quiz, with an established construct and content validity. An average competence score of $64.0 \pm 11.6\%$ and a low passing rate of 7.8% were observed. At the 90th percentile, both coaches and PE teachers, had quiz scores of 77.4%, below the minimum passing score of 80%. Overall, professionals dealing with youths do not yet have the minimum competence in terms of exercise hydration knowledge and educational efforts at ameliorating this deficiency are recommended.

INTRODUCTION

Dehydration has deleterious effects on exercise safety, sport performance and contributes to heat-related illnesses. Singaporean youths are at a greater risk of dehydration-associated ailments due to the tropical climate, especially when training outdoors. Coaches and Physical Education (PE) teachers must equip sport-active youths with appropriate hydration knowledge and facilitate hydration practices that optimise training and performance outcomes without compromising on safety.

KEY IMPLICATIONS

- Monitoring coach and teacher behaviours will translate into safe and sound hydration practices (before, during and after exercise) of adolescent youths exercising in the heat.
- Coach education and PE training programmes should have specific exercise hydration courses to equip both coaches and PE teachers with the requisite knowledge for safe participation, optimal training and competition performance of youths.

Apparently, no data are available on the adequacy of exercise hydration knowledge among coaches and PE teachers, which provide compelling grounds for this research. In the present study, the exercise hydration knowledge of Singaporean coaches and PE teachers was examined.

RESEARCH DESIGN

After institutional ethics clearance (IRB 11/04/14) was granted, 193 coaches and 164 PE teachers (Mean age= 30.35±8.78y, male=265, female=92) participated in the study. Participants completed a 31-item hydration knowledge quiz.

Adequate hydration knowledge was accepted as a score of 80% and above; this is consistent with the acceptable minimum professional competence in scores for associated knowledge-based tests (Ransone & Dunn-Bennett, 1999) and with certification standards set by the Singapore Red Cross.

The questionnaire was developed, based upon the position stands on fluid replacement for athletes

(Casa et al., 2000; Sawka et al., 2007) set by the American College of Sports Medicine (ACSM) and the National Athletic Trainers' Association (NATA)—two renowned international sports associations.

Content and construct validity was established jointly by two internationally certified exercise physiologists and an internationally accredited nutritionist.

KEY FINDINGS

Out of the 357 participants, 70.3% were coaching youth athletes. From the questionnaire, an average competence score of 64.0%±11.6 (range=16.1 to 96.8%) was observed (see Figure 1).

Less than 10% of the 357 participants surveyed attained the professional competence standard of scoring 80% and above in the 31-item quiz, which assessed hydration knowledge—before, during and after exercise. At the 90th percentile, both coaches and PE teachers had quiz scores of 77.4%.

Overall mean scores between coaches (63.9%±12.7) and PE teachers (64.2%±10.2%)

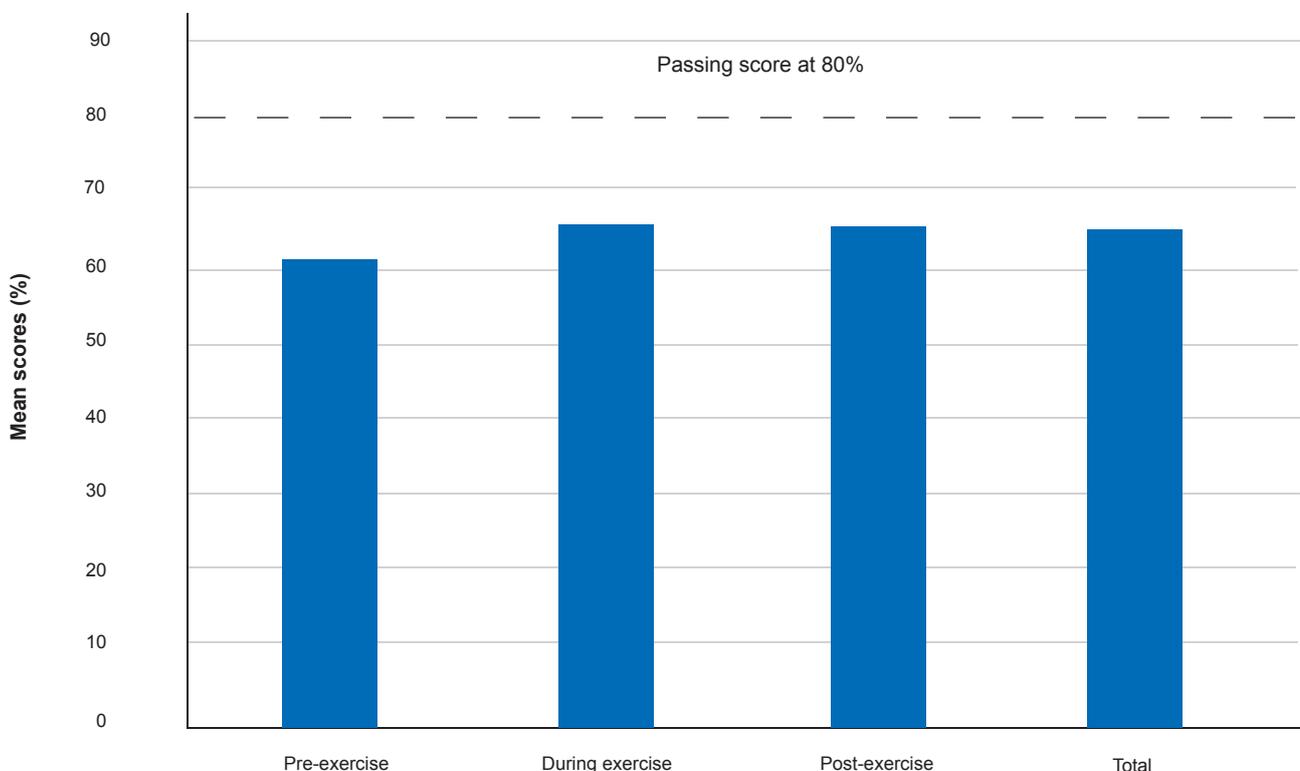


Figure 1. Overall hydration knowledge pooled mean scores of coaches and PE teachers showing that both groups did not attain a passing score of 80%.

were not significantly different from each other ($p>0.05$). Coaches scored higher in pre-exercise hydration knowledge (coaches= $64.9\%\pm 17.4$, PE teachers= $58.1\%\pm 15.5$, $p<0.05$) whilst PE teachers scored higher for during exercise hydration knowledge (coaches= $63.8\%\pm 17.5$, PE teachers= $67.3\%\pm 14.5$, $p<0.05$). There were no significant differences in post-exercise hydration knowledge between coaches and PE teachers (coaches= $62.9\%\pm 16.7$, PE teachers= $65.8\%\pm 13.6$, $p<0.05$; see Figure 2).

IMPLICATIONS

For Policy

As coaches and PE teachers were mostly unfamiliar with the position statements for adequate hydration for exercising youths, specific education courses on exercise hydration knowledge should be made available to coaches and PE teachers.

The courses should be based upon the most recent position statements of international organizations, such as ACSM and NATA, in coach and PE training programmes.

For Practice

Singaporean adolescent youths are exposed to hot and humid weather conditions, especially when exercising outdoors. Overall, professionals dealing with youths do not yet have the minimum competence in terms of exercise hydration knowledge, and educational efforts that will help ameliorate this deficiency are recommended.

Furthermore, monitoring coach and teacher behaviours will translate into safe and sound hydration practices (before, during and after exercise) of adolescent youths exercising in the heat.

For Teacher Training

More effort should be made to heighten the awareness and knowledge of international guidelines for exercise hydration of adolescent youths exercising in the heat.

Coach education and physical education training programmes should have specific exercise hydration courses to equip both coaches and PE teachers with the requisite knowledge for safe participation, optimal training and competition performance of youths.

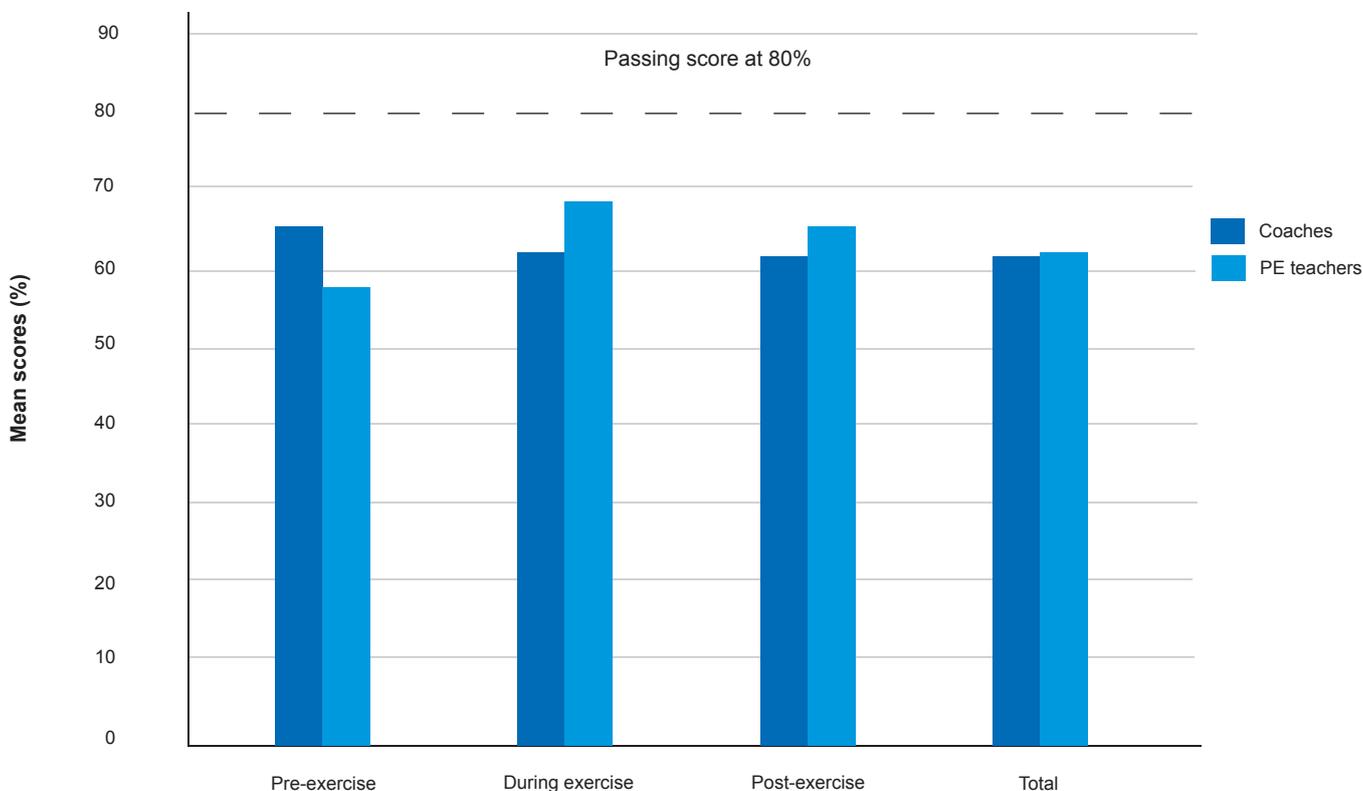


Figure 2. Comparison of hydration knowledge mean scores between coaches and PE teachers.

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