Physical literacy in primary school children

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Objectives

• Detail the current obesity rates, physical activity levels and recommended guidelines for primary aged school children
• Findings of a recent study we have conducted
• Suggest why focusing on movement training skills (MTS) may be a piece in the jigsaw towards changing the future health of the nation, keeping teenagers out of trouble and improving the future of British sport
The NCMP (2007/08) revealed that 26.4% of Reception and 39.7% of Year 6 children in Coventry are overweight or obese.

National average: 25.4% and 37.5% respectively.

Debate for the causes of increased pediatric obesity.
Evidence indicates that physical inactivity plays a contributing role (Hills *et al.*, 2007).

Opportunities for children to be active are declining (car journeys to school have doubled, safety outside, computer games, money etc).

Time devoted to PE = 2 hours/week

Activity during these sessions?
• Only 1/3 of UK children aged 2-11 years old meet physical activity guidelines

• Guidelines have changed over the years:
  - 30 min of moderate- vigorous activity per day (ACSM, 1988)
  - 60 min/day and twice a week exercise to improve bone health, muscular strength and flexibility (Biddle et al., 1998)
  - 90 min of moderate intensity activity per day (Anderson et al., 2006)
• How do we reverse the trend???
• Exercise participation declines from childhood to adolescence (Gorely et al., 2004)
• Fitness in adolescence is closely related to fitness in adulthood (Twisk et al., 1995)
• Adolescents not participating in regular sport/activity are possibly more likely to hang around on the streets
• Targeting adolescent years= too late!!!
• Need to target primary school children.
Physical literacy

• Term under constant review
• Literacy thought to include components of knowledge, understanding, thinking, communication & application (Mandigo et al., 2003)
• To be physically literate a person moves with poise, economy and confidence across a variety of activities (Whitehead, 2001)
• More recent definitions include importance of culture, self-esteem, motivation and social responsibility
• The development of physical literacy starts with the development of fundamental motor skills (LTAD model)

• Motor development models suggest many levels through which a child must progress to achieve motor proficiency...
• Mastery of fundamental motor skills/movement skills provides the foundation for the development of sport specific skills (Haubenstricker & Seefeldt, 1986)

• Motor skill proficiency tracks with childhood (Branta et al., 1984) therefore do children with better motor skills become more active teenagers?? And thus adults??
The study

- Does a 15 min active warm-up (including MTS) impact upon agility performance in primary school children?
Methods

• 29 year 5 (Mean age 9.6 ± 0.5 years) children from a local primary school
• Quickest of 3 Illinois agility tests recorded and ranked in order (quickest to slowest)
• Class split into 2 equal ability groups
• One group received 15 min warmup at beginning of every PE lesson for 4 weeks (8 sessions)
• Control group performed normal PE lesson
• HR continuously recorded for 3 children in each group
  - 2 factor ANOVA analysed the results
5 yards

10 Yards
Results

• No significant differences ($P>0.05$) in agility performance times within or between the experimental and control groups both pre (21.5 ± 1.59 and 21.7 ± 1.52 sec respectively) and post intervention (21.4 ± 1.47 sec and 21.3 ± 1.59 sec respectively)
Heart rate data

• The percentage of time spent in various HR zones (<125 beats.min\(^{-1}\), 125-165 beats.min\(^{-1}\) and >165 beats.min\(^{-1}\)) were calculated, during MTS 13.7%, 38% and 48.3% of time was spent in each HR zone respectively, compared with 21%, 47% and 32% in PE.
Heart Rate Intensity Zones - Experimental

- HR below 125 (bpm): 46.30%
- HR inside 125-165 (bpm): 38.00%
- HR over 165 (bpm): 13.70%
Heart Rate Intensity Zones - Control

- HR below 125 (bpm) - 21.00%
- HR inside 125-165 (bpm) - 32.00%
- HR over 165 (bpm) - 47.00%

* p<0.05 significantly different compared with experimental group
Conclusions

- 8 x 15 minute sessions of MTS is not adequate to see improvements in agility performance of primary school children.
- Heart rate is significantly higher for a longer period of time during the MTS warm-up (P<0.05) compared with normal PE warm-up.
References


• Branta, C., Haubenstricker, J., and Seefeldt, V. Age changes in motor skills during childhood and adolescence. *Exercise and Sport Science Reviews* 12 467-520


Thank you for listening
Warm-up sessions

- Session 1: Running mechanics
- Sessions 2-8:
  7 min drills (across 10 m track) including walking, skip, butt flick, fast feet, high knees, strides, turning.
  8 min games developed to increase HR, work on skills to improve speed and agility