

Youth Sport Practice Model Gets More Kids Active with More Time Practicing Skills

Michael Kanters¹, Thomas McKenzie², Michael Edwards¹, Jason Bocarro¹, Matthew Mahar³,
Camilla Hodge¹

¹NC State University, ²San Diego State University, ³East Carolina University

Background

The US Department of Health and Human Services [1] and American Academy of Pediatrics [2] have identified organized sports as a mechanism for children to obtain physical activity in an environment where risks of participation can be controlled. However, research connecting youth sport participation and physical activity is both limited and equivocal. Studies using objective measures of physical activity have found that children engaged in MVPA between 33-46% of the time during sport practices or games and that there was a high percentage of inactivity time[3-5]. Similarly, Leek et al. [6] found that fewer than 25% of youth sport participants obtained the recommended 60 minutes of daily MVPA during practices. Sport practices also tend to overemphasize skill and competition strategies during instructional time, thereby limiting the efficient use of practice facilities and the amount of time children engage in MVPA. Therefore, although organized sport may create opportunities for children to be active, its full potential as a strategy to increase children's overall MVPA may be limited by policies that govern the structure and delivery of sport practices.

The national governing organization of ice hockey in the United States, USA Hockey, has recently taken strides to address the limitations of the traditional model of youth sport delivery

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that tends to overemphasize competition, limit the number of participants during practice time, and possibly hinders children from engaging in substantial amounts of MVPA during sport practices. With the development and implementation of its American Development Model (ADM) [7], USA Hockey has redesigned the practice structure for their developmental programs to best utilize a constrained and often prohibitively expensive practice facility. By dividing the ice surface into smaller areas and organizing children into smaller groups, more players are accommodated on the ice and coach-to-player instruction interactions are improved.



The station-based structure of ADM practices accommodates substantially more participants on the same surface at the same time, it requires participants to practice in more confined space which encourages more effective play in traffic and may help players excel in game play.

The purpose of this study was to assess the physical activity levels and skill development

opportunities of children during USA Hockey ADM practices and to compare them to non-ADM practices (i.e., more traditional practices). The station based practice design is believed to minimize bouts of sedentary behavior during practice time and increase time in MVPA without compromising skill development time. ADM practice drills are designed to require minimal instruction time for fewer players resulting in more time engaged in drills and overall physical activity.

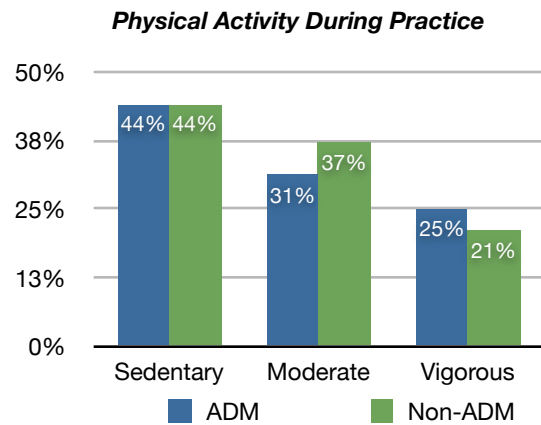
Methods

Ice hockey teams and players were recruited from two southeastern United States youth hockey leagues (9-10 year old division). One league implemented USA Hockey’s American Development Model (ADM) for practices that promotes the use of smaller spaces, more participants, and lower child-to-coach ratios. A comparative sample of similar aged teams and players was also recruited from two separate youth hockey organizations in the same metropolitan area that did not currently use ADM. Systematic Observation of Hockey Opportunities (SOHO) was used to measure player physical activity levels and the practice context in which they occur. SOHO uses momentary time sampling and is modeled after the widely used SOFIT (System for Observing Fitness Instruction Time) [8], but is hockey-specific. Trained observers randomly selected 4 participants from each practice and observed each participant for 12 consecutive 10 seconds observations followed by 10 seconds for recording their PA level and practice context. A Metabolic Equivalent of Task (MET) score was calculated for each practice based on multiplying the percentage of time players spent in each activity level (sedentary, moderate, and vigorous) by the corresponding MET value associated with the activity level [9]. The interclass correlation for independent observers was .95 for physical activity, and .96 for practice context.

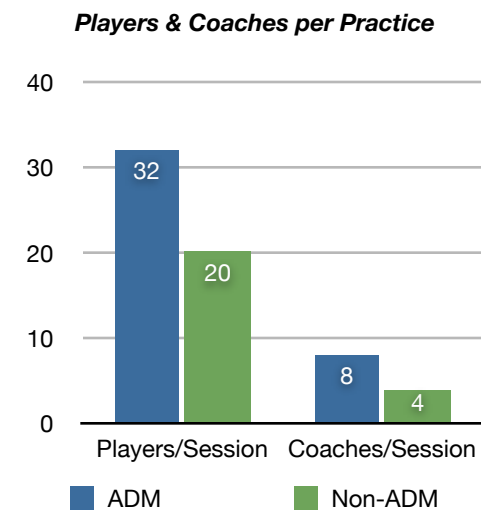
Results

SOHO data were obtained from 82 hockey practices (ages 9-10) between February 2012

and February 2013. Of the practices, 43 used the ADM approach while 39 operated under a traditional structure (non-ADM). Results show overall, players spent 44% of practice time engaged in sedentary activities (i.e., lying down,

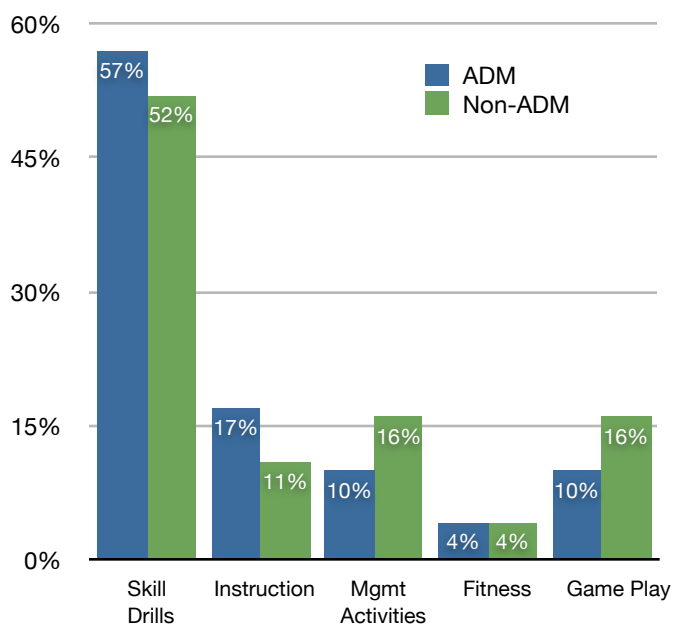


sitting, standing), 33% in moderate physical activity (gliding/walking), and 23% in vigorous physical activity. While minutes in MVPA and MET scores did not differ significantly between the practice types, ADM practices provided overall higher MET hours than traditional practices.



ADM practices also accommodated approximately 60% more players while having twice as many coaches, a lower player-to-coach ratio, and a higher percentage of practice time spent in vigorous physical activity than traditional practices.

Practice Context Comparisons



ADM practices had more time dedicated to skill drills/activities (57% vs. 52%) and knowledge transfer/instruction (17% vs. 11%). Non-ADM practices allocated more time to practice management activities (16% vs. 10%) and game simulations (16% vs. 10%).

Discussion

Participants in these hockey leagues accrued substantial amounts of physical activity during regularly scheduled practices. MVPA time was also among the highest reported in studies of youth sport participants [6, 10]. More notable, however, is that the ADM helped participants achieve these high MVPA levels while accommodating 60% more players than the standard coaching model and used a significantly lower player-to-coach ratio. Finally, the ADM appears to minimize time wasted on practice management activities while creating more time for skill practice.

Because of the increasing number of children participating in sport, organized sport clubs and organizations have been identified as an important setting to facilitate physical activity and health promotion [11]. It seems apparent that USA Hockey has developed a framework to

facilitate high levels of physical activity for more children without compromising attention to skill development and instruction. The ADM strategies may serve as a model for other youth sports seeking to accommodate the increasing demands for participation on constrained practice facilities and time for practice.

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