Parents’ participation in physical activity predicts maintenance of some, but not all, types of physical activity in offspring during early adolescence: A prospective longitudinal study

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Abstract

Purpose: We examined the longitudinal associations between parents’ and youth’s participation in physical activity (PA).

Methods: 190 youths completed self-administered questionnaires 3 times per year from 2011–2015, and their parents completed an interviewer-administered questionnaire during a telephone interview once in 2011–2012. Data on youth’s and parents’ activities were classified as interdependent or coactive-independent.

Results: Youth with 1 or both parents who participated in interdependent activities were more likely to maintain participation in interdependent activities (hazard ratio [HR] = 3.63; 95% confidence interval [95% CI] = 1.30–10.17). Youth’s sustained participation in coactive-independent activities was not associated with parents’ participation in coactive-independent activities (HR = 0.97; 95% CI = 0.46–2.06).

Conclusion: Longitudinal associations between parents’ and youth’s participation in PA differed across type of PA. Encouraging parents’ participation in interdependent activities may promote sustained participation in interdependent activities in youth.

Keywords: Longitudinal; Parental behavior; Physical activity; Sports; Youth

1. Introduction

Regular participation in physical activity (PA) can help reduce the risk of several chronic diseases (e.g., cardiovascular diseases, diabetes, certain cancers, hypertension, and osteoporosis) and premature death in youth.1,2 It can also promote healthy physical (e.g., build muscle, improve flexibility, maintain healthy weight); psychological (e.g., reduce symptoms of stress, anxiety and depression, and enhance self-esteem); and social development (e.g., foster supportive relationships and reinforce a sense of belonging) in youth.3,4 In light of this evidence, guidelines suggesting youth engage in at least 60 min of moderate-to-vigorous intensity PA per day have been issued.5 However, only 9% of youth age 6–17 years are meeting these PA guidelines in Canada.6 Moreover, participation in PA markedly decreases as youth transition from childhood to adolescence,7,9 and annual decreases are more pronounced in youth age 12–19 years relative to annual decreases observed in adults.10,11 These statistics are alarming because physical inactivity during youth predicts inactivity during adulthood.12 Early interventions may therefore have considerable value for preventing decreases that occur from age 12 years onwards and subsequently offset the risk of physical inactivity and associated health consequences later in life. To support the development of tailored early interventions, a better understanding of factors that contribute to the adoption and maintenance of PA starting at age 12 years is needed.

It is widely believed that parents can influence a youth’s participation in PA,13 likely because youth live in close proximity and have daily contact with their parents.14 Parents can play an important role in supporting their child’s participation by providing the resources their child needs to participate in PA,
participating in PA together, exposing their child to a variety of activities, developing their child’s feelings of competence for PA, and transmitting positive attitudes toward PA to their child.\textsuperscript{15,16} In addition, parents can promote a youth’s participation in PA by showing their child that PA is an important part of their own life. They might do so by participating in PA themselves or by sharing their personal experiences and the benefits it has offered them (e.g., develop competencies and gain confidence, connect with others, and build character). Accordingly, several researchers have investigated the association between parents’ and a youth’s participation in PA.\textsuperscript{17-21} Evidence supporting this association is inconsistent. There are data in support of similar PA patterns between parents and youth,\textsuperscript{18,19} but other reports have not demonstrated such associations.\textsuperscript{22,23}

There is consensus that PA includes many different types of activities that may have different correlates.\textsuperscript{26-28} Classifying activities based on relative amount of task interdependence required to achieve the activity’s goal would allow researchers to examine the associations between parents’ and youth’s participation in different types of PA. According to Carron et al.,\textsuperscript{29} interdependent activities are those whereby members of a group are mutually dependent on one another, task interactions are inherently variable, and greater success in such tasks relies on the coordination and cooperation within the group. In contrast, the success of coactive-independent activities depends solely on the actions of 1 individual or the synchronized responses of 2 individuals.\textsuperscript{29} The social nature of this categorization makes it particularly relevant for investigating associations between parents’ and youth’s participation in different types of PA, especially during the transition from childhood to adolescence, which has been viewed as a period when the influence of parents decreases.\textsuperscript{19,30} Though the timing and nature of the decline in parental influence remains unclear, it is possible that parents influence youth’s participation in PA differently based on the social nature of the activity.

Furthermore, although several researchers have investigated the association between parents’ and youth’s participation in PA, most have used cross-sectional study design.\textsuperscript{18,20,21} Such designs do not allow for the examination of whether parents’ participation in PA is associated with youth’s sustained participation over time. With PA initiation and maintenance having different determinants,\textsuperscript{23} a longitudinal study is necessary to determine whether parents’ participation in interdependent activities and coactive-independent activities is associated with youth’s sustained participation in interdependent activities and coactive-independent activities, respectively. This type of study would provide evidence for the importance of involving parents when implementing interventions to maintain participation in different types of PA among youth. Therefore, we examined the associations between parents’ participation in interdependent activities and coactive-independent activities with youth’s sustained participation in interdependent activities and coactive-independent activities in this longitudinal study. Whereas findings regarding the association between parents’ and youth’s participation in PA have been conflicting\textsuperscript{18,19,22,23} theoretical perspectives demonstrate the importance of parents’ influence on youth’s health behaviors.\textsuperscript{16} Thus, we hypothesized that parents’ participation in interdependent activities would be associated with youth’s continued participation in these respective activities, and that parents’ participation in coactive-independent activities would be associated with youth’s continued participation in these respective activities.

2. Methods

2.1. Participants and procedures

We analyzed data from the Monitoring Activities of Teenagers to Comprehend their Habits (MATCH) study,\textsuperscript{32} an ongoing prospective longitudinal study designed to investigate patterns of participation in PA in a sample of youth recruited from grade 5 and grade 6 classes in 17 schools across the province of New Brunswick, Canada. The MATCH study was approved by the Centre Hospitalier de l’Université de Sherbrooke Ethics Committee. Complete study description and protocol are published elsewhere.\textsuperscript{32} In brief, 802 youths (51% of those eligible) provided written informed parent or legal guardian consent and assented to participate in the MATCH study in the fall of 2011. We collected data from youth through self-report questionnaires administered 3 times during the school year. At the time of analysis, data were available for 12 time points spanning a 4-year period.

In addition, we collected data from parents during a telephone interview once in 2011–2012, corresponding to the first year of the MATCH study, using a standardized questionnaire. Contact information was available for 490 parents whom we attempted to contact on at least 3 occasions at various times throughout the day. We were able to reach, obtain informed consent, and collect data from 190 of these parents. In each household, we interviewed 1 parent (mother 72.9% of the time), and obtained data on the other parent’s participation in PA via the interviewed parent. The results we report are limited to the 190 families (i.e., mother or father and 1 offspring [49% girls; 10.50 ± 0.68 years at the start of the study]) who provided complete data.

2.2. Measures

2.2.1. Youth’s participation in PA

Every 4 months during the school year, we collected data on youth’s participation in PA using a self-administered questionnaire in which we asked youth how often they participated in 36 common activities in the past 4 months outside of their physical education class. The list of activities included all activities represented in the Kowalski et al. study.\textsuperscript{33} PA checklist for adolescents and an additional 14 activities to reflect other commonly practiced activities by youth in Atlantic Canada.\textsuperscript{34} Pilot testing of the questionnaire with grade 5 and grade 6 students (n = 12) showed it had acceptable readability and good comprehension. For each activity, we asked youth to indicate
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