

Developmental Benefits of Extracurricular Sports Participation Among Brazilian Youth

Perceptual and Motor Skills

2017, Vol. 124(5) 946–960

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DOI: 10.1177/0031512517724657

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Abstract

Youth sporting activities have been explored as a way to impact positive personal transformation and development, glaringly demonstrated by world-wide investments in public policies, programs, and projects. We studied positive effects of participation in sports on the developmental assets of 614 adolescents (13.1 ± 1.7 years) actively engaged in extracurricular sport programs targeted at socially disadvantaged youths, from five municipalities across five states of the southern, south-eastern and north-eastern regions of Brazil. Participants responded to a developmental assets questionnaire designed to capture sociodemographic and human development data. Multilevel logistic regression was used to explore associations between years of participation in sport and human development indicators, controlling for age and sex. Our results showed that the quality of the young people's support network and duration of program participation positively influenced sport participation, which, in turn, was associated with willingness to learn. A strong association was also observed

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between sport participation and developmental assets. Thus, we offer new evidence of a relationship between positive development and environmental factors in which individual and contextual forces can be aligned, and we provide new reference data for developing countries.

Keywords

sport participation, developmental assets, positive development, adolescents, multilevel modeling

Introduction

Past research reveals that whether participation in sports programs promotes positive youth development (PYD) depends on (a) the provision of regular opportune times for developing personal skills and (b) available support networks involving family, school, and community (Côté & Vierimaa, 2014; Draper & Coalter, 2016; Fraser-Thomas, Côté, & MacDonald, 2010; Holt, Kingsley, Tink, & Scherer, 2011; Reverdito et al., 2017; Zarrett et al., 2009). However, few researchers have systematically examined specific benefits stemming from involvement in structured sports in developing countries. This study was developed within the larger sport participation program of the Brazilian government, focused on personal and contextual variables.

Many known factors contribute to positive adolescent development (Scales, Benson, & Roehlkepartain, 2011), including personal characteristics such as commitment to learning and positive identity and contextual characteristics such as family support, school attendance, and available community resources. Such characteristics are mutually influential and positively affect adolescent development by offering multiple contextual resources, including essential structured extracurricular activities (Agans et al., 2014; Zarrett et al., 2009). More specifically, sport participation programs can provide a powerful means to promote positive development (Côté & Vierimaa, 2014), particularly for socially vulnerable youth.

Around the world, young people are actively engaged in daily organized sport activities in different social contexts. Regular sport participation has been linked to various aspects of healthy development throughout life (Fraser-Thomas et al., 2010), including physical health, interpersonal relationships, purposeful living, motivation, self-efficacy and self-esteem, positive values, emotional control, and behavioral self-regulation. In this sense, sport participation plays an important role in the developmental process, extending from personal and immediate outcomes such as enjoyment, positive expectations, and personal assets and skills (Holt et al., 2013; Rees & Sabia, 2010) to more long-term and distant positive effects. Sport can constitute a fundamental

ecological asset in the lives of young people with immediate and long-term positive outcomes (Agans et al., 2014; Larson, Walker, Rusk, & Diaz, 2015; Whitley, Hayden, & Gould, 2015).

Brazil represents a very good example of growing governmental investments in promoting PYD through sport programs directed particularly toward socially disadvantaged youth. One of the largest sport-for-development programs in the world, the ‘Segundo Tempo’ Program (Second Time Program, STP), was developed and administered by the federal government of Brazil. The STP served more than three million youths from 2003 to 2013, with coverage in all states of the federation (Brasil, 2015). The STP is intended for socially vulnerable children, adolescents, and young people to help reduce their exposure to social risks (drugs, prostitution, teenage pregnancy, crime, and child labor) and raise awareness of sports practice (Reverdito et al., 2016). The STP was developed around extracurricular activities (Oliveira & Perim, 2009) and currently occupies a central position in the development of public policies for the democratization of access to sport. Although “Second Time” has existed for more than 10 years, there has been no systematic study of its impact on the lives of its young participants. In fact, the absence of systematic study has been the main program criticism and has been considered a limiting factor in the further development of effective public policy for sport participation. Thus, a study of youth participation in STP may give needed insight to program leaders, policy makers, and researchers in this realm (Sousa et al., 2011).

PYD is a research term for the concept that adolescents have potential for positive developmental change and do not simply represent a problem to be solved (Lerner, 2015). When individual strengths are aligned with proper contextual forces, PYD emerges (Côté & Hancock, 2016). Based on systemic and ecological theories (Leffert et al., 1998; Scales, 2011), developmental assets are conceptualized as essential building blocks for this healthy development (Benson, Scales, & Syvertsen, 2011; Scales et al., 2015). Developmental assets encompass relationships, opportunities provided by adults and peers, values, skills, abilities, and a positive self-perception developed over time. The focus of PYD is to highlight the capacity for change in young people in a direction favoring both societal and individual welfare.

The structure of developmental assets can be divided into two main groups, internal and external, each further subdivided into four categories (Leffert et al., 1998). Internal assets comprise (a) commitment to learning, (b) positive values, (c) social competence, and (d) positive identity (consisting of personal provisions and resources). External assets are (a) support, (b) empowerment, (c) limits and expectations, and (d) constructive use of time—all emerging from constant exposure to and informal interaction with adults and peers and from the opportunities the community provides. An alternative structure of developmental

assets emphasized a contextual perspective with five categories of (a) personal, (b) social, (c) family, (d) school, and (e) community (Scales, 2011).

International studies in the area of developmental assets have provided a theoretical framework for the investigation of youth development and a guide for intervention programs that might focus on the personal and contextual variables that affect youth experiences through their participation in activities like sport (Bleck & DeBate, 2015; Blomfield & Barber, 2011; Côté & Hancock, 2016; Fraser-Thomas et al., 2010; Scales et al., 2011; Urban, Lewin-Bizan, & Lerner, 2010; Whitley et al., 2015). Data from these studies suggest that a positive experience from such youth activity results from quality interactions and developmentally appropriate environmental contexts, and this positive experience changes over time. However, studies investigating the interactional effects of individual and contextual variables in their effects on an individual's developmental assets over time have been sparse.

There is a particular paucity of studies conducted with adolescents in socially vulnerable situations, as most studies have been concentrated in developed countries (Whitley et al., 2015). Past research is also limited with respect to the time spent by youth in these activities and ecological variables (Agans et al., 2014; Lerner, 2015). Particularly in Brazil, research of this type has been rare, even with the development of policies for social programs. Thus, the present study sought to investigate the relationship between assets development and the participation of young people in the federally sponsored STP in Brazil. We hypothesized that assets development would predict continued participation in an extracurricular sport program and, secondarily, that the positive effects of participation in sport would stem from the dynamic interaction between support categories (external dimension) and commitment to learning and positive identity (internal dimensions).

Method

Participants and Procedures

Study participants were 614 adolescents (males = 427; females = 187), with an average age of 13.1 ± 1.07 (age ranges 12–15 years). Other than STP, most participants (65.8%) had no access to any other organized activity outside of formal school. All STP attendees during the time the survey was administered were invited to attend. The difference in the number of male (66.8%) and female (33.2%) participants reflects the proportion of each sex participating in the STP in the investigated regions.

From 498 collaborative agreements between the Brazilian federal government and local authorities to implement STP between 2003 and 2013, five with the longest duration were selected for data collection (time range 7–10 years;

8.8 ± 1.3 years). These five municipalities matched the inclusion criteria for STP participants in the southern, south-eastern, and north-eastern regions of Brazil. The study was approved by the Ethics Committee for Research in Humans of the Faculty of Medical Sciences of the University of Campinas.

Participation in sports developed in the STP is regarded as a recreational practice (Côté, Erickson, & Abernethy, 2013), favoring involvement in deliberate game-like activities. The emphasis is on fun and learning new sports skills (Oliveira & Perim, 2009). The municipalities selected have the same didactic pedagogical structure; in this case, the development of one individual and two collective modalities is obligatory. Each municipality is responsible for choosing its modalities, based on the available human resources and physical structure. Physical education (PE) graduate teachers, well trained in the pedagogical principles of the STP, developed and supervised the activities.

Measures

We used a validated, Portuguese-translated version of the Developmental Assets Profile (DAP) with 58 items (Santos & Gonçalves, 2012). Items in the support categories (external dimension) and commitment to learning and positive identity (internal dimensions) were regrouped and analyzed. The questionnaire is based on a Likert-type scale ranging from 1 (*not at all* and *strongly disagree*) to 4 (*yes definitely* and *strongly agree*). The Cronbach α for the total scale was .82. Cronbach's coefficient α values have been considered acceptable in cross-cultural studies, with values greater than .70 (Institute, 2014; Scales, 2011; Scales et al., 2015).

We used the Human Development Index (HDI) as a composite measure that considers health, longevity, education, and income variables as references for the level of human development in a particular region, varying on a scale between 0 and 1, and ordered into the following development ranges: very low (0.000–0.499), low (0.500–0.599), medium (0.600–0.699), high (0.700–0.799), and very high (0.800–1.000). It is publicly accessible at the Atlas of Human Development in Brazil website (<http://www.atlasbrasil.org.br/2013/>), in English, Portuguese, and Spanish. Brazilian HDI was calculated with information from the Demographic Census of the Brazilian Institute of Geography and Statistics (Brasil, 2013). Participants were grouped into the high human development group when HDI was between 0.70 and 0.79 or into the medium human development group when HDI was between 0.60 and 0.69. Age, sex, and years of participation in the program were obtained by interview. The time needed for participants to complete the questionnaire was 15–25 minutes. No adult support was allowed during questionnaire completion, and data from participants who required more than 25 minutes to respond were not kept for analysis.

Data Collection Procedures

Contact was made with the federal government (Ministry of Sport) and local authorities in order to schedule visits. In the municipalities, meetings were held with the teachers, during which procedures for collecting data were explained, and all became conversant with the characteristics of the spaces and the types of sporting activities programs. A dedicated space was reserved for use by the youngsters to answer the questionnaire, so as to achieve maximum concentration and minimum distraction.

The questionnaire was administered at the beginning of the sports activities session, with no intervention by the researchers, after the young people had been oriented on how to respond. Participants were asked to pay utmost attention and to be as sincere as possible in responding to the questions. To standardize procedures and ensure ethical and scientific standards, the research team was trained on procedures for data collection.

Statistical Analysis

Descriptive statistics for all measures are presented as means and standard deviations. Participants were nested into two levels – participant (Level 1) nested by HDI category (Level 2). Initially, a null model, which is the simpler two-level model, including only the random parameters, was used to measure the proportion of total variance that fell between HDI groups (i.e., the variance partition coefficient).

To explore the relations between the participants' years of participation in sport and their human development indicators, controlling for age and sex, we used multilevel logistic regression with a random intercept for each individual. The model was fitted using maximum likelihood with the Adaptive Gauss-Hermite Quadrature procedure in the “lme4” software package (Bates, Mächler, Bolker, & Walker, 2015).

In the last step of the analysis, we used multilevel linear modeling to explore the influences of age, sex (dummy variable: male coded 0, female coded 1), years of participation in the program, HDI, and the interaction time between the years of participation in extracurricular sports and HDI as fixed effects, on the variability of assets between individual adolescents. We considered random intercepted models, allowing for the intercept to vary randomly at both Level 1 and Level 2, since models obtained were more parsimonious. Multilevel linear models were adjusted by the maximum likelihood ratio test using the “nlme” (Pinheiro & Bates, 2000), available as a software package in the R statistical language (<http://cran.r-project.org>). We used a multilevel model due to the existence of predictive variables of different levels (Bruner, Eys, Wilson, & Côté, 2014; Gonçalves, Carvalho, & Diogo, 2014; Marlier, Cardon, De Bourdeaudhuij, & Willem, 2014) and the importance of investigating the interaction between these variables (Blomfield & Barber, 2011).

Table 1. Descriptive Statistics for the Total Sample Grouped by HDI.

	Sample (<i>n</i> = 614)	HDI	
		Medium (<i>n</i> = 226)	High (<i>n</i> = 388)
Age (years)	13.2 (1.1)	13.3 (1.1)	13.1 (1.0)
Time participating in STP (years)	0.7 (0.9)	0.3 (0.6)	0.9 (0.9)
Support (#)	3.12 (0.62)	3.10 (0.59)	3.13 (0.64)
Commitment to learning (#)	2.93 (0.64)	2.96 (0.65)	2.92 (0.63)
Positive identity (#)	2.99 (0.57)	3.03 (0.55)	2.97 (0.58)

HDI = Human Development Index; STP = Second Time Program; (#) = Standard deviation.

Table 2. Association Between Years of Participation in the Second Time program With HDI (Medium/High), and Controlling for Age and Sex.

Independent variable	HDI (group with mean HDI as the reference)	
	Model 1	Model 2
	Odds ratio (95% CI)	Odds ratio (95% CI)
Time participating in STP (years)	1.89 [0.13, 3.64]	2.86 [0.99, 4.73]
Age (years)		0.87 [−0.93, 2.65]
Sex		1.09 [−0.92, 3.09]

HDI = Human Development Index; STP = Second Time Program; CI = confidence interval.

Results

Descriptive statistics for the total sample and for groupings by HDI of each municipality are summarized in Table 1. Table 2 shows the association between years of participation in sport and human development indicators, controlling for age and sex. Subjects in regions with high range HDIs were almost twice as likely to remain in the program.

The multilevel regression models of assets correlations are summarized in Table 3. Interaction between the years of participation in extracurricular sport activities and HDI was identified as significant predictors of support ($p = .02$). Years of participation in the program were identified as a positive predictor of commitment to learning ($p = .06$). For positive identity, sex was identified as a significant predictor ($p = .03$) with a negative exponent indicating that male adolescents had lower values than female adolescents. Furthermore, HDI was

Table 3. Multilevel Regression Analysis of the Influence of the HDI, Age, Sex, and Time of Participation in STP in Variables of Developmental Assets.

	Exponent (95% CI)		
	Support	Commitment to learning	Positive identity
<i>Fixed exploratory effects</i>			
Intercept	3.64 [2.99, 4.28]	3.39 [2.71, 4.05]	2.56 [1.97, 3.16]
Age	-0.04 [-0.08, 0.01]	-0.04 [-0.21, 0.05]	0.04 [0.00, 0.08]
Sex	-0.02 [-0.13, 0.08]	0.01 [-0.11, 0.12]	-0.15 [-0.25, 0.05]
Participation time in STP	-0.10 [-0.23, 0.03]	0.13 [-0.01, 0.28]	0.01 [-0.12, 0.13]
HDI	-0.08 [-0.21, 0.05]	0.08 [-0.22, 0.05]	-0.13 [-0.24, -0.01]
HDI × Participation Time in STP	0.18 [0.03, 0.33]	-0.05 [-0.21, 0.11]	0.08 [-0.06, 0.22]

HDI = Human Development Index; STP = Second Time Program; CI = confidence interval.

identified as a significant predictor of positive identity ($p < .01$), as the negative exponent indicates that the youths in the higher context tended to have lower positive identity scores. The assets seemed to be independent of adolescents' age, ranging from 12 to 15 years.

Discussion

In a large federally supported extracurricular sport program, this study examined the relationships between (a) participation time and continuity and (b) developmental assets of socially disadvantaged Brazilian young people. Our results demonstrated that the time spent in the program and continuity in participating in the extracurricular sport were positively correlated with the participants' developmental assets. Furthermore, the trend of effects generated by sport participation was connected to the dynamic interaction between duration of participation in the extracurricular sport program and the socioeconomic context.

Sport is a unique activity with high levels of challenging situations, intrinsic motivation, and attention. These factors often foster developmental assets in youths (Benson, Scales, Hamilton, & Sesma, 2007), and this was a core consideration of this study, since STP was the main (or even the only) sport experience these youths encountered outside the school environment. Higher factor load values for sports have been previously identified in studies on the involvement of young people in sports activities compared to other extracurricular activities, such as music and arts (Zarrett et al., 2009).

The support network into which adolescents are inserted appeared to predict program participation. Adolescents with high support scores stayed longer in the program, corroborating the importance of support offered by parents and adult relatives towards PYD, as reported by others (Fraser-Thomas et al., 2010; Holt et al., 2011; Kay & Bradbury, 2009; Super, Hermens, Verkooijen, & Koelen, 2014; Whitley et al., 2015). Past research has also found that support influences such other contextual variables as life expectancy, access to knowledge, and income, which are also HDI variables. For example, Holt et al. (2013) found that adolescents in higher HDI contexts had more support and stayed longer in the sport program.

Regarding external asset dimensions, quality of support has previously been found to be an important indicator when evaluating youth sport participation. Quality of support is observable through interactions with adults, significant peers, and other opportunities offered by the community (MacDonald, Côté, & Deakin, 2010; Scales, 2011). Similarly, and of particular relevance to socially vulnerable adolescents, it is possible to establish and promote opportunities to expand the support network for young people through meaningful interpersonal relationships, feeling of belonging, integration with the community, and the sense of security provided by the program (Draper & Coalter, 2016).

Observational studies of developmental assets and social indicators (income, violence) have shown that socially vulnerable young people tend to make greater gains in terms of perceived positive effects of extracurricular activities, compared with peers who are less exposed to socially vulnerable situations (Agans et al., 2014; Blomfield & Barber, 2011; Scales et al., 2011; Urban et al., 2010). We could not replicate this comparison in the current study, but since we found that youths with the best support networks remained in the program, we can infer that youth participants with the best support networks gained more cumulative positive effects from longer term program exposure. On the other hand, peers with fewer support networks seemed inclined to leave or have no access to the program. Thus, the most significant factors related to benefit may be the time spent in the program and quality of exposure to the program, and the most important environmental factor may be support for participation, rather than socioeconomic status.

For internal assets, we found that commitment to learning was associated with years of participation in sport. These results are supported by other studies indicating relationships between participation in sports and improvement in school performance, family atmosphere, and relationships with the community (Holt et al., 2011; Kay & Bradbury, 2009; Lindsey & Grattan, 2011; Rees & Sabia, 2010). Past research has shown a significant relationship between commitment to learning and long-term sport participation (Rees & Sabia, 2010). Thus, from the perspective of a two-way path to development, mutually influencing and being influenced, the experience of participation in sport can generate

positive effects on commitment to learning, which, in turn, sustains participation in the sports program.

With regard to the internal asset of positive identity, lower values were observed for female than for male adolescents in our study. This result is consistent with previous researchers' observations (Benson, et al., 2011; Reverdito et al., 2017; Scales et al., 2015). Studies of self-efficacy in school-aged youths, Laborda, Caroli, and Sagoni (2014) also observed higher self-efficacy scores in boys, compared with girls. Similar observations by Coalter (2013) and Souza, Rech, Sarabia, Añez, & Reis (2013) suggest that differences in positive identity between male and female adolescents may be related to the type of physical activity in which both participate. Also, in studies where similar conclusions were observed, there was an influence from such contextual demands as the need to take control of life at an early age, frustrations and the need to overcome challenges (Agans et al., 2014; Blomfield & Barber, 2011; Scales et al., 2011; Urban et al., 2010). Therefore, sport participation of female adolescents from a lower HDI context seems particularly conducive to the development of positive identity. However, these results warrant further research, since the developmental asset findings in this study were independent of age and influenced by the support context and time spent in sport participation.

Based on the assumption that youths are active in their own development process, especially for those who manage to overcome difficulties occasioned by contextual factors, participation in the STP helped mobilize crucial assets. Support, commitment to learning, and positive identity were all important for participation and continuity of this group of youths. By examining the temporal dimension (long-term participation in sport) and controlling for sex and age, we further observed that program participation widened the range of program exposure for mobilization of developmental assets. These results suggest a two-way movement between developmental assets and sport participation, in that each influences and is influenced by the other. Developmental assets have been positively associated with those adolescents who have a higher predisposition to benefit from sport, since benefit involves an alignment of individual and contextual forces. Those who benefit then have the ability to direct their own interests to contribute to societal well-being (Bleck & DeBate, 2015; Côté & Hancock, 2016; Scales et al., 2011; Whitley et al., 2015).

We found length of program participation and the quality of support provided to these young participants, as influenced by HDI, to be key variables for PYD from sport. Prior research has also shown that long-term positive effects of sport participation for youngsters are directly associated with program duration (continuity) and quality. Our results are in accordance with reports by other researchers (Coalter, 2013; Spaaij, 2013; Vermeulen & Verweel, 2009) and reinforce negative implications of a sports curriculum that ignores contextual and sociostructural factors, risking discontinuity. Moreover, programs aimed at youth participation and development in sport, particularly for underserved

youth, should consider the availability of human and financial resources essential to program continuity.

Future studies might best evaluate the benefit of extended sport participation on PYD by studying the strength of developmental assets in relation to duration of program participation in a longitudinal study and by studying both the reasons for disproportionate sex participation in sport and the perception of internal development assets in young females. It will also be important to study subjects who drop out of sport participation to better understand how to best align individual and contextual forces.

Acknowledgment

The authors thank the collaboration of Leilane A. Lima, Roberto C. Vieira Junior, Paula S. Nicolau, Thiago J. Leonardi, Viviane T. Silveira, Kleber T. Carneiro, Fernando G. Melo, Jessica Cristiani, João C. Bressan for data collection.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was funded by the National Scientific and Technological Development Council (ME/CNPq –Case No. 487547/2013-6) and São Paulo Research Foundation (FAPESP 2014/20854-7).

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