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FROM ATHEORETICAL TO MOTIVATION THEORY-BASED YOUTH DISCRETIONARY-TIME PHYSICAL ACTIVITY PROMOTION: CURRENT AND FUTURE DIRECTIONS

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ABSTRACT: This article describes the importance of promoting children's discretionary-time physical activity (DTPA) in connection with the rising international obesity epidemic. School-based recess is highlighted as exemplar of an opportunity for children to obtain more DTPA. Brief review of the extant research focused on efforts to increase children's recess physical activity (RPA) is provided. Literature from the field of sports psychology that has established a strong foundation of evidence regarding factors that increase youth motivation in various physical domain contexts will guide the proposed expansion to theoretical examination of predictors of youth DTPA. Three relevant motivation theory frameworks will be discussed as the basis for recommendations of future systematic research on promotion of youth DTPA.

KEY WORDS: motivation, social influence, discretionary-time physical activity (DTPA)

DESDE UNA PERSPECTIVAS ATEÓRICA A UNA BASADA EN LA MOTIVACIÓN PARA LA PROMOCIÓN DE LA ACTIVIDAD FÍSICA DE LOS JÓVENES EN EL TIEMPO LIBRE

RESUMEN: Este artículo describe la importancia de promover la actividad física de los niños a lo largo del tiempo (DTPA) en relación con la creciente epidemia internacional de obesidad. Se destaca el recreo en las escuelas como una excelente oportunidad para que los niños obtengan más DTPA. Se ofrece una breve revisión de las investigaciones existentes centradas en incremen-

tar la actividad física que realizan los niños durante el recreo. La literatura en psicología del deporte que cuenta con evidencias relativas a los factores que aumentan la motivación de los jóvenes en diversos dominios físicos, propondrá una ampliación del análisis teórico de los predictores de actividad física en jóvenes en el transcurso del tiempo. Se presentarán tres marcos relevantes como base para las recomendaciones de investigación sistemática futura sobre la promoción de la DTPA en los jóvenes.

PALABRAS CLAVES: Motivación; Influencia social; Actividad física discrecional en el tiempo

DE UMA PROMOÇÃO DA ATIVIDADE FÍSICA DISCRICIONÁRIA NO TEMPO ATEÓRICA PARA UMA BASEADA NAS TEORIAS DA MOTIVAÇÃO: DIREÇÕES ATUAIS E FUTURAS

RESUMO: Este artigo descreve a importância de promover a realização por parte de crianças e jovens de atividade física discricionária no tempo (AFDT) em conexão com o crescimento da epidemia internacional de obesidade. Os intervalos escolares são destacados como oportunidades exemplares para crianças e jovens conseguirem ter mais AFDT. É fornecida uma breve revisão da investigação disponível centrada nos esforços para aumentar a atividade física de crianças e jovens nos intervalos escolares. Literatura do campo da psicologia do desporto que estabeleceu uma base sólida de evidências sobre os fatores que aumentam a motivação dos jovens em vários contextos de atividade física orientará a expansão proposta para a análise teórica dos preditores da AFDT de crianças e jovens. Três relevantes enquadramentos teóricos da motivação serão discutidos como base para recomendações de investigação sistemática futura sobre a promoção da AFDT de crianças e jovens.

PALAVRAS-CHAVE: Motivação; Influência social; atividade física discricionária no tempo (AFDT)

Life in the 21st century is increasingly structured, and over scheduled, leaving very little discretionary time (DT) for youth to spend as they choose which leads to few opportunities to spend time regulated by oneself. Discretionary time (DT) is an opportunity for one to decide to engage in physical activities of their choosing as a means to enjoy the benefits of physical activity. However, due to the busy nature of modern lifestyles not only is DT limited but too often adults and children alike are choosing to be sedentary during DT. Data from the World Health Organization (WHO) suggests physical inactivity is the fourth leading risk factor for global mortality and that increasing levels of physical inactivity are seen worldwide, in high-income countries as well as low- and middle-income countries (WHO, 2004). The WHO (2004) also reports a global shift in diet towards increased intake of energy-dense foods that are high in fat

and sugars but low in nutritional value. The combination of low levels of physical activity and poor nutrition has led to a level of worldwide childhood obesity that the WHO (2004) is calling one of the most serious public health challenges of the 21st century. Globally, in 2010 the number of overweight children under the age of five was estimated to be over 42 million (WHO, 2004).

Due to the magnitude of the interconnected physical inactivity and overweight/obesity problem it seems imperative to discover empirically-based methods to help children balance their energy expenditure with their energy intake. A focus on children's discretionary time physical activity (DTPA) is one approach that may yield ideas for how to reduce childhood obesity.

Discretionary-time physical Activity (DTPA) is physical activity during time where individuals are free to regulate their own behavior. This is unique from the physical activity acquired during organized sports and physical education because hypothetically individuals are free to choose what they do during this time. Recess opportunities, as well as before and after school programs, can play an import role in increasing children's DTPA. Recess is a regularly occurring DT period in elementary school children's days that is often overlooked as an opportune time to help them discover enjoyable physical activities and increase their motivation to engage in more movement, thereby forming habitual physical activity patterns that potentially reduce obesity across the lifespan. Before and after school programs can also make DT available for children to choose to be physically active on their own accord in much the same way and towards the same benefit as recess opportunities. Increased physical activity during school-based discretionary time would help children begin to meet the WHO (2004) recommendation of at least 60 minutes of moderate to vigorous physical activity on all or most days of the week. Most children spend the majority of their weekday waking hours in school. Therefore, it is critical that schools create environments that promote, support and provide physical activity opportunities (AAHPERD, 2011). Daily school-based DTPA opportunities, such as recess may promote development of physical competence, health-related fitness, personal and social responsibility, and enjoyment of physical activity as well as improvements in children's cognitive skills, attitudes, academic achievement, and conduct in the classroom (Barros, Silver, & Stein, 2009; CDC, 2010; Jarrett et al. 1998).

Atheoretical Approaches to Youth Recess Physical Activity Promotion

Efforts to increase youth physical activity during DT, specifically recess physical activity (RPA), have received attention in recent literature. The trend to date in these efforts has been primarily atheoretical in nature. While informative, these findings provide limited application to other DT contexts or to predic-

tion of whether the same intervention will be effective with other samples of youth. Despite the limitation of no theoretical basis for the investigations, findings have revealed some important conclusions for increasing children's RPA. Studies have been ecologically strong in that they have been field-based interventions grounded in the logical manipulation of the social-contextual aspects of the recess context. Actual youth physical activity levels have been positively impacted in the majority of these intervention directions.

One of the first directions that emerged in the literature followed McKenzie et al.'s (1997) suggestion of environmental manipulations during recess breaks as a potential mechanism for increasing school day physical activity levels. Scruggs, Beveridge and Watson (2003) took heed of this recommendation and compared children's recess physical activity levels during structured, or required, fitness breaks and unstructured free time during recess. Results indicated that youth were more physically active during structured fitness breaks as compared to free-play recess. Provision of additional periods, or recess, where classroom teachers led physical activities was another variation of the structured fitness break examined by Ernst and Pangrazi (1999). Findings revealed that children's self-reported physical activity increased when these sessions were available and that teacher promotion of more physical activity was successful. While these examples of findings suggest that structured fitness breaks or additional teacher led opportunities for physical activity have the potential to increase physical activity during the school day, it should be interpreted cautiously because it does not reveal that required physical activity breaks are beneficial for raising or predicting youth physical activity during discretionary time. In other words, youth will be more physically active if provided with structure, opportunity, and most importantly no choice but to be physically active. This does not translate well to prediction of physical activity during time when youth are self-regulating and ideally autonomous in their decision making about how to use the time available. While the "structured fitness break", or additional classroom teacher led opportunity for physical activity approach, is clearly effective for increasing the amount of physical activity children will engage in it does not establish a mechanism for developing children's intrinsic motivation to be active during discretionary time.

Other research has examined whether alterations or additions to the recess environment influence children's RPA. Provision of equipment or painting the playground surface to promote particular games has been studied in relation to children's RPA levels (Stratton & Leonard, 2002; Stratton & Mullan, 2005; Verstraete, Cardon, De Clercq, & De Bourdeaudhuij, 2006). Each of these simple additions to the recess environment was found to increase children's moderate-to-vigorous physical activity (MVPA). Babkes

Stellino and colleagues (2010) examined the impact of recess activities of the week (RAWs) on children's RPA levels. RAWs included opportunity to complete an obstacle course, do a circuit course, or play disc golf; each presented as an option to the regular recess activities during three separate weeks of recess. Results revealed that children were significantly more active during the no RAW week and circuit course week than the disc week. Males were significantly more physically active than females during the obstacle course week, while older children were significantly more active during the disc week than younger children and children with a healthy-weight BMI were significantly more physically active during the circuit course week than children in the overweight/obese BMI category. Taken together, these findings show that availability of a variety of game equipment, multicolor playground markings, or novel provision of RAWs are low-cost, effective interventions for boosting youth discretionary-time physical activity during the school day in the short term. Exploration of other environmental features, such as the temperature or availability of playground structures has been found to have no association with MVPA during recess (Ridgers, Fairclough, & Stratton, 2010).

Studies have also targeted the impact of social influences on children's recess physical activity. Exploration of the impact of teacher prompts for physical activity during recess, number of adult staff present during recess, and training staff to promote more physical activity in association with children's RPA has revealed equivocal results (Huberty et al., 2011; McKenzie et al., 1997; Ridgers et al., 2010; Willenberg et al., 2010). For example, McKenzie and colleagues (1997) found that overall preschool and elementary children were highly compliant with teacher physical activity prompts. European-American children were more likely to engage in more MVPA as compared their Mexican-American counterparts in relation to the prompts provided and more encouragement for physical activity was provided to boys. Huberty and colleagues (2011) found that implementation of the Ready for Recess program that included staff training on management of Activity Zones for children at recess and how to motivate children for physical activity also led to increased MVPA and vigorous physical activity (VPA) among 3rd-5th grade children during recess. In contrast, Ridgers et al. (2010) found that the number of staff present during school-based physical activity opportunities was not associated with children's recess MVPA. These findings suggest that social influences clearly have the potential to impact children's RPA but may be mediated by individual factors such as age, gender, weight-status, race/ethnicity or socioeconomic status.

Relevant Theoretical Frameworks for Promotion of Increased Youth Discretionary Time Physical Activity

Despite the growing knowledge base on factors that potentially increase chil-

dren's DTPA, gaps in understanding how to promote increased DTPA still exist. Underlying mechanisms that account for the increase in PA evidenced in these studies remains largely unexplained. The extant literature on psychological and social factors related to participation in organized youth sport, general physical activity, and physical education provides a solid basis for plausible directions for research focused on promotion of youth DTPA. Theories of motivation commonly used in the pediatric sport psychology literature provide excellent frameworks for application to youth DTPA promotion. These relevant theories collectively emphasize the importance of individual differences in social and cognitive appraisal processes as critical in the patterns of motivated behavior and interpretation of the predictors and outcomes of behavior that result. While there are numerous applicable social-cognitive theories of motivation, self-determination theory (Deci & Ryan, 1985, 2000), expectancy-value theory (Eccles et al., 1983) and competence motivation theory (Harter, 1978, 1981) are particularly relevant theories that are highlighted because they account for many of the hypothetical psychological and social predictors of youth DTPA motivation.

Self-Determination Theory

Self-determination theory (SDT) is a framework useful for examination of the social and environmental factors that enhance or diminish individual innate needs as they predict the human tendency to actively engage in the world (Deci & Ryan, 1985). SDT assumes that individuals' quality of motivation or level of self-determination, in a particular context is determined by the extent to which their basic psychological needs of competence, autonomy and relatedness are satisfied (Deci & Ryan, 1985, 2000). The need for competence is characterized as the desire to interact effectively with the environment and experience success and control over outcomes. An individual's free will to engage in activities and be the agent of his or her actions is represented in the need for autonomy. Need for relatedness is reflected by individuals' satisfaction of their desire to feel connected to others when engaging in activities. The greater the satisfaction of these three basic psychological needs the more individuals will experience self-determination when pursuing behaviors within the context.

SDT further distinguishes between different motives, or forms of self-regulation, individuals maintain for their participation in activities within any particular context (Deci & Ryan, 1985; Vallerand, 1997). Self-determination can be classified along a continuum between autonomous and controlling forms of motivation (Deci &Ryan, 1985). Intrinsic motivation (IM) is the most autonomous and self-determined form of regulation and lies at one extreme of the continuum. An individual who is intrinsically motivated toward a particular activity will participate purely for the inherent enjoyment, interest, and satisfaction (Deci & Ryan, 1985; 2000).

Alongside IM are forms of extrinsic motivation that vary in the degree of relative autonomy or regulatory style; integrated, identified, introjected, and external regulation. Immediately adjacent to IM is integrated regulation which refers to motivation based on actions congruent with one's own beliefs where the individual has evaluated the regulatory process and assimilated it to be in correspondence with ones' own other values and needs. It is the most autonomous form of extrinsically motivated behavior and produces benefits associated with IM, such as interest and enjoyment. Vallerand (1997) contended that due to necessary cognitive development integrated regulation is not appropriate to measure in youth. Next on the continuum is identified regulation, which reflects an individual's motivation to attain personally relevant outcomes. Identified regulation is somewhat internal and is associated with behavior that is motivated by the feeling that engaging in an activity is the result of valuing the activity. One views action as personally important, therefore engagement is relatively autonomous. Next on the continuum is introjected regulation, which reflects behaviors to avoid negative feelings of guilt and shame or to gain positive psychological outcomes, such as contingent self-worth or pride. Introjected regulation is motivation based on self-controlled, ego-involved forms of behavior that are typically driven by a perception of what others might think. External regulation, or extrinsic motivation (EM), is the most controlling form of regulation and is on the opposite extreme end from IM on the continuum; it refers to behavior controlled by external sources, such as material rewards or constraints imposed by others (Deci &Ryan, 1985). Extrinsically motivated individuals perceive the cause of action as external to the self and action is motivated by receipt of rewards or avoidance of punishments.

The influence that social-contextual factors (e.g., the autonomy-supportive or control by significant others, such as teachers and leaders) have on individuals' motivation toward a specific activity or within a particular context is another central tenet of SDT (Deci & Ryan, 2000). Theoretically, the influence of these social-environmental factors is not direct but exerted through the satisfaction of basic psychological needs. The extent that social or environmental factors, such as family, peers, school, or community are perceived to fulfill basic psychological needs for autonomy, competence, and relatedness will theoretically determine the type of regulation guiding the contextually-based behavior (Deci &Ryan, 2000). Satisfaction of these needs have been proposed as central to promoting self-determined forms of motivation (i.e., IM and identified regulation) whereas lack of satisfaction can result in controlling forms of motivational regulation (i.e., introjected and external regulation; Deci &Ryan, 1985, 2000). Ryan and Deci (2000) proposed that self-determination in school contexts in accordance with children's exposure to new ideas and engagement in

novel skills require conditions that allow for the satisfaction of three basic psychological needs to feel connected, effective and agentic.

SDT has effectively been used as a framework for a wealth of research within sport and physical education contexts focused on understanding and predicting motivated behavior (see various chapters in Hagger & Chatizisarantis, 2007 for reviews). Wilson and colleagues (2008) further highlight that use of SDT contentions as part of the ACT ("Activity by Choice Today") intervention for after-school youth physical activity promotion is feasible. Youth DTPA promotion grounded in SDT suggests three clear research directions: 1) exploration and provocation of basic psychological need satisfaction during DTPA; 2) examination of self-regulatory processes during DTPA; and 3) investigation of the social-contextual nature of the DTPA environment.

The nature of children's needs for autonomy, competence and relatedness during DTPA would provide a necessary foundation for SDT based interventions to promote increased DTPA. Variances in the levels of DTPA needs satisfaction according to age, gender, weight-status and other relevant demographics would paint a complete picture of children's autonomy, competence and relatedness unique to DT contexts. Given that theoretically, satisfaction of basic psychological needs predicts one's quality of motivation it is imperative to examine whether children's needs for autonomy, competence and relatedness are satisfied during typical DT opportunities for physical activity. For example, children's autonomy need satisfaction for physical activity may not be as satisfied as their need for competence in physical activity during recess which would theoretically translate into less self-determined motivation to be physically active in that context. Ideas and contextual changes intended to satisfy children's basic psychological needs, such as more choices, challenges or opportunities to work with others on a task during discretionary times could be examined for their salience in satisfaction of basic needs and positive impact actual physical activity.

Discretionary time opportunities for physical activity are a quintessential occasion to examine children's motivational processes because the context allows for the entire continuum of self-regulations to occur (Baldwin & Caldwell, 2003). The quality of motivation maintained by children in DTPA opportunities can conceivably range from intrinsically- to extrinsically-motivated because the context inherently allows and requires them to self-regulate.

Investigation of children's level of self-determination for physical activity during DTPA opportunities would shed light on the regulatory patterns employed in these contexts. Children's self-regulation might be introjected during a classroom fitness break yet integrated or even intrinsically-motivated during recess. Determination of why children employ diverse self-regulation dependent on the specific DTPA con-

text warrants attention.

Examination of whether children perceive DTPA contexts as autonomy-supportive versus controlling is a relevant direction for determination of the social-contextual nature of the DTPA environment. The degree to which contextually relevant significant others (e.g., teachers) are perceived as supporting children's DTPA autonomy, competence and relatedness will theoretically predict more self-determined DTPA. For example, recess is all too often used by classroom teachers as either reinforcement or punishment for good or poor classroom behavior respectively. Unfortunately, this has the potential to be perceived as controlling and undermine children's regulatory processes associated with the discretionary time for physical activity afforded by the recess opportunity. Exploration of factors associated with perceived autonomy-supportive versus controlling DTPA contexts would contribute important theoretically-based knowledge to the youth physical activity promotion literature.

Expectancy-Value Theory

The expectancy-value theory (EVT) framework was developed to study the motivational factors that underlie individuals' decisions regarding various activity and achievement-related choices (Eccles et al., 1983; Weiss & Amorose, 2008). According to EVT, individuals' activity choices, persistence, and performance are linked to expectancies for success and the importance, or subjective task value, attached to the particular activity (Eccles et al., 1983; Wigfield & Eccles, 1992). Theoretically, individual's beliefs about the activity are heavily influenced by the input of primary socializers, such as parents or teachers, whose own beliefs and behaviors shape the individuals' expectancies for success and values in the particular activity. Contentions further explain how primary socializers shape children's self-perceptions about their abilities in specific activities, beliefs about the relative value of participation and success in specific activities, relay gender role and activity stereotypes about the adequacy and importance of various activities for males and females, and children's subsequent levels of motivation to pursue engagement in various activities (Partridge, Brustad, & Babkes Stellino, 2008). The two primary ways that socializers influence children's activity choice behavior are by interpretation and provision of experience (Eccles, 1993; Eccles et al., 1983). For example, parents help to interpret their children's experiences by providing messages about the likelihood that their children will attain success in a particular achievement domain, in combination with messages about the value of participation in that activity (Fredericks & Eccles, 2004).

Expectancies for success are broadly defined as beliefs about how well an individual will do on an upcoming task (Wigfield & Eccles, 1992). Expectations of success are influenced by one's self-concept of ability and one's perception of task difficulty. Theoretically, providing children with various experiences,

parents structure the opportunities their children have for forming ideas about their own competencies (Eccles & Harold, 1991). Parents, and other socializers, help children interpret experiences and, in so doing, influence the inferences children make about their successes and failures in various activities (Eccles, 1993; Eccles et al., 1983).

Eccles (1993) argued that both competence beliefs and values are needed to understand achievement behavior and task choice. Even though children may believe that they are competent at a given activity, they may not engage in it if they do not believe the activity to be important. Subjective task value is broken into four major components: attainment value, intrinsic value, utility value, and cost (Eccles et al., 1983; Wigfield & Eccles, 1992). Attainment value is the value associated with an activity because it is perceived to highlight salient aspects of the self and therefore is deemed important. Intrinsic value refers to the enjoyment that one gains from participation in the activity. Next, utility value refers to how useful the activity is and how it fits into the individuals' current or future plans. Cost refers to the anticipated time, energy, and resources that may be lost if one engages in a particular activity or the expense of engaging in one activity rather than another more attractive one.

Eccles and colleagues (1983) suggest that parents, and other socializers, likely maintain differential beliefs and behaviors associated with various activities. For example, some parents and teachers value physical activity, and some do not. As a consequence of their parents', or primary socializers' beliefs, specifically expectancies and values, a child will receive differential patterns of encouragement and opportunity across varying achievement domains (Partridge, Brustad, & Babkes Stellino, 2008). Research suggests that parents, in particular, adjust their beliefs and behaviors in response to characteristics of their own children, specifically the child's gender (Eccles, 1993; Eccles et al., 1983). For instance, if socializers believe that boys have superior physical activity competencies than do girls it is likely that they will provide different opportunities and encouragement to children depending on gender role stereotypes (Fredericks & Eccles, 2004). As a result, children of different gender will develop varying beliefs regarding their physical abilities if primary socializers have different perceptions of the children's abilities. Brustad (1996) further suggests that within the EVT perspective examination of socializers influence on youth physical activity according to socioeconomic and race/ethnicity differences are warranted given that the nature of these characteristics may impact children's physical activity choice behavior.

Several studies in the sport psychology literature have provided support for the tenets of EVT, particularly the role that parental socialization practices and gender stereotype beliefs play on children's physical domain behavior (Bois et al., 2002; Brustad, 1993, 1996; Dempsey, Kimiecek, & Horn, 1993; Eccles, Jacobs,

& Harold, 1990; Eccles & Harold, 1991; Fredericks & Eccles, 2004; Jacobs & Eccles, 1992; Kimiecek & Horn, 1998; Kimiecek, Horn, & Shurin, 1996). Only one study to date focused on recess activity choice behavior has been framed within EVT. Watkinson, Dwyer and Nelson (2005) examined whether children described their, and fictitious others', recess activity choices in a manner consistent with EVT predictions. Findings revealed that children's decisions to participate in recess activities confirmed differences in patterns of recess engagement according to variations of attainment, interest, utility and cost values. Support for recess as an activity setting of which EVT can apply was established and results confirmed that children's expectancies and values contributed to recess activity choices.

The existing research provides the basis for two potential directions of investigation for EVT based promotion of children's DTPA; examination of predictors of expectancies for success and subjective task value associated with opportunities for physical activity during children's free-time. In addition to measuring children's own expectancies for success in DTPA, investigating the physical activity expectations that key socializers, such as teachers and parents, maintain for children during available discretionary time is a relevant beginning point. Examination of whether children who exhibit either more or less physical activity during DT receive complimentary heightened expectations from socializers to continue, or not, being physically active during DT would further expand this line of inquiry. Demographic variations in children (e.g, gender, race/ethnicity, age, weight-status, socioeconomic) should also be explored to determine whether different socializer expectations of DTPA exist in accordance with the demographic stereotypes and then examine whether those beliefs are related to actual differences in activity choice behavior during DTPA.

Exploration of children's subjective task value for DTPA, socializers' beliefs about the value of children's DTPA, and the relationship between the constructs is also a relevant theoretically-driven direction to pursue within EVT. Another line of inquiry could focus on whether variations in socializers' specific subjective task values lead to differences in how they provide and interpret DTPA experiences for particular children according to demographic variables. For example, a teacher who maintains high utility value for DTPA in overweight children may subsequently provide more encouragement for those children to be physically active during DT. These ideas serve as just a few of the many possible questions that EVT evokes for explanation and predication of children's DTPA.

Competence Motivation Theory

Harter's (1978, 1981) competence motivation theory (CMT) is a framework that is particularly well-suited for studying children's domain specific motivation. A central construct of Harter's model is

the fundamental role of domain specific self-perceptions of competence and control in motivational processes. Individuals who perceive that they are competent and have an internal locus of control over their behaviors in a particular domain are more intrinsically motivated to pursue optimal challenges (Weiss Amorose, 2008). Competence motivation theory further emphasizes the predictive impact of other factors, including significant others, affect, and motivational orientation on the development of children's competence motivation towards mastery attempts in that specific domain. Harter contends that individuals who receive positive contingent feedback and support for independent domain specific mastery attempts from significant others, or success at the mastery attempt, will experience higher perceptions of self-competence and control within that domain which will in turn predict more positive affect, or enjoyment, and lead to internalization of a self-reward system and a mastery motivated goal orientation guided by intrinsic means. In contrast, negative responses or feedback from significant others, or failure, will reduce ones' perceptions of competence, create an external locus of control theorized to result in negative affect, or anxiety, and in turn extrinsic motivational orientation towards future mastery attempts.

Considerable research in the youth sport domain supports the contentions of Harter's (1978, 1981) theory (see Weiss & Amorose, 2008 for a thorough review). Promotion of youth DTPA grounded in the youth sport focused CMT framed findings suggests four clear psychosocial constructs as targets of intervention; significant others' influence, perceptions of competence, locus of internal control, and affect. First, the feedback and reinforcement provided by significant others, such as peers, parents, teachers and others within the DT context are a relevant beginning point. These "others" beliefs and behaviors could be examined and subsequently trained to provide more positive, supportive and constructive appraisals of youth DTPA endeavors. Educating these "others" on the benefits of modeling a physically active lifestyle should theoretically benefit the internalization of self-reward systems and mastery goals developed by youth for DTPA. Significant others' commendation of youth efforts to be physically active and use of less judgment about skill competence or outcomes would also be theoretically beneficial for promotion of DTPA. Second, provision of various opportunities and sources of information for youth to determine success at being physically active during DT would theoretically be relevant to understanding how they develop perceptions of competence for DTPA. Manipulation of these factors associated with increased perceived DTPA competence would in turn favorably impact intrinsic motivation for actual DTPA. Developmental modifications of the DTPA environment and equipment as well as increased availability of relevant information to determine competence will predict stronger com-

petence motivation in this context. Third, examination of the factors related to manifestation of an internal locus of control during DT that predicts greater engagement in physical activity mastery attempts is warranted. Conceivably, more choice associated with where, when, how and why to be physically active during DT should give way to a stronger perception of internal locus of control and therefore more PA during these times. Last, the emotion experienced during physical activity, both positive and negative, are essential to consider in youth DTPA promotion efforts. Research that aims to assess levels of youth enjoyment, stress and anxiety during DT opportunities to be physically active has the potential to provide the basis for designing quality DT experiences that actually result in more PA. The preceding factors are all theoretically intertwined with creating greater positive emotion; some approaches would include creating opportunity for youth to be fully immersed in physical activity, feel capable at the physical activities available, receive favorable feedback and support from others, and be able to make a variety of choices within the DT context.

Conclusions

Research aimed at understanding, predicting and ultimately increasing children's DTPA can benefit from the existing research in sport psychology. The extant literature on psychosocial factors that impact children's sport and general physical activity motivation and behavior provides an exceptional foundation for building the knowledge base regarding factors that are relevant to promotion of children's motivation for, and actual, DTPA. Furthermore, future research grounded in motivational frameworks that have successfully described and aided in understanding youth sports motivation and predictive mechanisms of such behavior will provide an even better approach to investigation of efforts to promote youth DTPA. We recommend systematic theoretically-based research on promotion of youth physical activity in order to better create field-based change to increase children's physical activity and ultimately decrease overweight and obesity in youth and across the entire lifespan.

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