Case Report

The influence of a yoga exercise program for young adults with intellectual disabilities

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ABSTRACT

Background: Individuals with intellectual disabilities (ID) have an increased risk of obesity and are significantly less likely to engage in physical activity compared to their nondisabled peers. A growing body of research supports the physical and mental health benefits of yoga. While the benefits of yoga have been studied across a host of populations with varying ages and physical disabilities, no studies could be identified investigating the benefits of yoga for young adults with ID.

Aims: This study investigated the impact of participating in yoga classes on the amount of exercise behavior and perception of physical exertion when compared to non-structured exercise sessions between two young adults with ID in a post-secondary education setting.

Materials and Methods: A single subject multiple baseline research design was implemented across two young adults with mild ID to determine the effects of a yoga exercise class on frequency of exercise behavior and perception of physical exertion when compared to non-structured exercise sessions. Partial interval recording, the Eston-Parfitt curvilinear rating of perceived exertion scale, and the physical activity enjoyment scale were implemented to collect data on dependent variables and consumer satisfaction during each non-structured exercise session and each yoga class.

Results: indicated that percentage of exercise behavior and perceived exertion levels during yoga group exercise sharply increased with large effect sizes when compared to non-structured exercise sessions.

Key words: Exercise; intellectual disabilities; post-secondary education; yoga.

INTRODUCTION

Individuals with intellectual disabilities (ID) are significantly at-risk for becoming overweight or obese, according the centres for disease control (CDC).[1] Additionally, individuals with mild to moderate ID have a higher risk of becoming overweight or obese than those with more severe ID.[2,3] When comparing people with ID to the normative population, higher body mass index and other obesity values,[4] decreased muscle strength[5] and lower maximal oxygen consumption have been reported for individuals with ID.[6] Sedentary lifestyles and low participation in exercise activities are the main factors leading to these health risk factors.[3,7-9] The subgroups with the highest risk for obesity among people with ID are those who live outside of residential placements (e.g., community settings),[3,10,11] women,[2] individuals with Down syndrome,[12] and individuals with mild ID.[11,13]

With the reported negative health outcomes for people with ID, it is important to investigate strategies that promote health benefits by increasing exercise participation in this population. The CDC[14] reports, clear health benefits, for individuals who participate in regular, moderate exercise and the U.S. Department of Health and Human Services[15] provides specific physical activity guidelines. Recommendations include 150 min of moderate-intensity aerobic activity each week, in addition to muscle strengthening exercises for all major muscle groups twice per week [Table 1]. An easy strategy for measuring moderate activity level is to conduct a "talk test".[14] If you are able to talk, but not sing, during the activity it is classified as moderate exercise. The centre of disease control's data

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Table 1: CDC's moderate physical activity guidelines

	Aerobic	Muscular
Option one	2 h and 30 min (150 min) of moderate-intensity aerobic activity (i.e., brisk walking) every week and	Muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders and arms)
Option two	1 h and 15 min (75 min) of vigorous-intensity aerobic activity (i.e., jogging or running) every week and	Muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders and arms)
Option three	An equivalent mix of moderate- and vigorous-intensity aerobic activity and	Muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders and arms)

"Physical Activity for Everyone," Centers for Disease Control and Prevention. Last modified on March 30, 2011. http://www.cdc.gov/physicalactivity/everyone/guidelines/index.html

substantiates that physically active adults, including those with ID, are less likely to develop chronic health diseases (e.g., diabetes, heart disease) and maintain enhanced aerobic fitness in comparison to inactive adults.[14]

To date, researchers have shown significant health benefits for individuals with ID participating in aerobic (walking/jogging) activities[16,17] and mixed exercise (aerobic and anaerobic) programs[18,19] resulting in improvements in body composition (e.g., BMI), aerobic capacity, physical fitness, and lipid profiles.

Benefits of yoga

While scholars posit yoga originated over 10 millennia ago in ancient India, it has recently become one of the fastest growing physical, mental, and spiritual disciplines across the United States, with an estimated 20 million participants.[20] Yoga's increasing popularity is in part due to the growing body of research supporting the physical and mental health benefits it offers. To date, researchers have demonstrated the therapeutic efficacy of yoga for improving a host of mental health conditions ranging from post-traumatic stress disorder, depression and schizophrenia.[21-23] Similar benefits have been documented regarding the physical health benefits of yoga. A recent review of 81 yoga studies reported the health benefits of yoga to be as effective as or better than exercise at improving a variety of health-related outcome measures, including symptoms associated with diabetes, multiple sclerosis menopause and kidney disease.[24] While the benefits of yoga have been studied across a host of populations including many age groups and physical disabilities, no studies could be identified investigating the benefits of yoga for individuals with ID. Therefore, the purposes of the study are to investigate the effect of participation in yoga exercise classes on the amount of physical exercise behavior and the perception of physical exertion when compared to non-structured exercise sessions among young adults with mild intellectual disabilities.

MATERIALS AND METHODS

Design

Following a single subject research method, a multiple baseline design was implemented across two young adults with ID. Multiple baseline designs administer treatment in a staggered sequence across subjects to demonstrate changes in behavior when and only when the treatment is administered.[25] The staggered treatment method was chosen to determine the effects of a yoga exercise class on frequency of exercise behavior and perception of physical exertion when compared to non-structured exercise sessions. Enjoyment of exercise sessions was also taken into account for social validity purposes. Non-structured exercise sessions were defined by the participant's scheduled time for exercise at the recreation center. The participant exercised alone or with other individuals in the recreation center, but did not receive any formal guidance during their one hour exercise sessions. Structured yoga exercise sessions consisted of one hour group yoga classes facilitated by experienced yoga instructors. The sequence and adaptation of classical yoga postures (asanas) were designed by the instructor for novice to advanced participants, based on the Vinyasa method of yoga. The Vinyasa method focuses on the flow of breath-linked movements in which the participants move from one posture to the next while coordinating their breath with each movement while either inhaling or exhaling.[26] In this class, the asanas were taught with the intention of increasing overall health by increasing the participants' knowledge of a variety of poses and increasing skills to correctly perform the poses. Instructors guided the class through a variety of poses and postures by demonstrating the exercises and providing hands-on postural correction to all participants when needed. Yoga classes were held in the afternoons with the same fitness instructors during all sessions. On average 15-20 non-disabled, college-aged peers also participated in the yoga sessions along with the two students.

Setting and participants

The study was conducted at a university recreation center at a medium sized public university. Participants included two young adults with mild ID who were members of a class of six students enrolled in a laboratory for post-secondary education program for individuals with ID located in a public university campus in the southeast United States. The two participants were included in the study based on their limited engagement in physical exercise activities. Both students had intelligence quotients (IQ) within the mild intellectual disability range but each had a different diagnosis [Table 2]. Participant 1 was diagnosed with

Table 2: Participant characteristics

Name	Gender	Age	Diagnosis	IQ	Height	Weight
Participant 1	F	21	Joubert syndrome	71	5′3″	150 lbs
Participant 2	M	22	Soto syndrome	75	6′2″	168 lbs

Joubert syndrome and displayed the disability's typical symptoms of poor balance, coordination, and muscle tone. Participant 2 also had poor muscle tone and problems with balance due to his larger stature and physical features associated with Soto syndrome. Parental and student consent was obtained for all subjects in accordance with university IRB procedures (IRB # 2008-378).

The post-secondary education program both students were enrolled in is designed to enhance independent living skills, job skills, social skills and assist with integration into the community for young adults aged 18 to 24 with mild to moderate ID. Students have daily schedules with times allotted for educational classes, leisure activities, meals and exercise. Upon initial enrollment in the post-secondary education program, students received a semester of individualized education and training on how to use various exercise equipment at the recreation center and basic fitness training. However, formal exercise instructions did not continue after the participants' first semester. Both students' weekly schedules included two, one hour non-structured exercise sessions at the recreation center, but they often neglected to benefit from these exercise sessions due to low levels of participation and exertion. Both students agreed to participate in the study and elected to enroll in the yoga fitness class offered at the student recreation center.

Instrumentation

Dependent variables measured in the study included frequency of exercise behavior, perceived exertion levels, and enjoyment of exercise. The following instruments, (a) partial interval recording, (b) Eston-Parfitt curvilinear rating of perceived exertion (RPE) Scale and (c) Physical activity enjoyment scale (PACES), were implemented to collect data on dependent variables and consumer satisfaction during each non-structured exercise session and each yoga class.

Frequency of exercise behavior

Partial interval recording observations are designed to record if the target behavior occurs or does not occur during a specified block of time.[25] The target behavior observed was physical exercise, which included the performance of either: (a) strength training exercise with the use of weights or body weight (e.g., shoulder press, leg press and push up), (b) balance and stability training (e.g., yoga or pilates type movements, abdominal strengthening), and (c) cardiovascular exercise (e.g., walking for exercise, running, biking and swimming). If any of the components of the target behavior were performed, an occurrence of the behavior was recorded for that interval.

Partial interval recording allowed for an estimation of the frequency of exercise behavior and when the exercise behaviors occured during each non-structured workout session and yoga class. Two, 15 min observations with 10 s intervals were recorded during each session and class. Two researchers observed the participants' exercise behavior at the recreation center. Researchers kept the participants within sight throughout the observations but attempted to maintain as much distance as possible to reduce interference with participant exercise behaviors. If physical exercise was observed at any time during the 10 s interval, the interval was marked as an occurrence of behavior, with daily totals converted to percentages to determine the frequency of physical exercise during the sessions. Interobserver agreement (IOA) was calculated using point by point agreement of occurrences performed for 40% of baseline observations and 50% of intervention observations. IOA for baseline phase was 97.17% and 99.63% during the intervention (range 94.8-100%).

Perceived level of exertion

The Eston and Parfitt curvilinear RPE pictorial scale is designed to rate the perceived physical exertion levels of children while engaging in physical activity or exercise.[27] The scale was developed to enhance a child's ability to accurately rate their exercise effort given their lower level of cognitive development. A Likert scale from 1 to 10 is used in the RPE scale. A rating of 10 represents extreme exertion with a corresponding character climbing the highest point of a hill along with a dialogue box that states "So hard I am going to stop." A rating of one represents very little exertion with a corresponding character sitting on a chair at the bottom of the hill stating "Very, very easy". The RPE scale has demonstrated strong validity measures when compared to changes in work rate (R^2=.93 to.94).[27,28] As suggested by Hartley and MacLean,[29] this study implemented the pictorial RPE scale to increase the students' comprehension of the scale given their intellectual abilities.

The RPE scale was implemented at the end of each workout session to determine the percieved level of exertion for the participant's session as a whole. The observer administered the scale immediately following the workout session (i.e., within five min post exercise). After the participant chose a number on the scale, the observer validated their score by asking probing questions that corresponded with the number (e.g., "You scored two in today's session, so you felt like today's session was very easy?" or "You scored an eight, so your exercise was pretty hard today?").

Consumer satisfaction

Participants were administered the Physical Activity Enjoyment Scale (PACES)[30] immediately after each exercise session to determine perceived enjoyment participation in yoga. The original version utilized a six point Likert-type scale; however as the literature on ID suggests,[29,31] the scale was reduced to four points in this study to increase understanding of the scale among participants. A score of one indicated "disagree a lot" with the statement while a score of four indicated "agree a lot" with the statement. Eighteen items are included in PACES, 11 positively worded items (e.g., "I enjoy it", "It gives me energy") and seven negatively worded items (e.g., "I feel bored", "It frustrates me"). The PACES has also demonstrated strong factorial validity with the majority of items reliably loading onto one factor (range=.29 to.76).[32-34]

Procedures

Students were observed while performing non-structured exercise until a stable trend in baseline was present for each dependent measure. Once a stable trend was established with one participant, the intervention of the yoga class was implemented for that individual. When a change in behavior during the yoga class was demonstrated, the second participant began the yoga class. The yoga intervention was implemented until a relatively stable trend was exhibited across the dependent measures. A stable trend of three data points with consistent response was determined through visual analysis of the graphed data.[25] Effect sizes (ES) were determined through calculation of points exceeding the median (PEM) for each participant on their percent of exercise behavior and RPE scores. PEM values of 90% or greater indicate highly effective interventions, 70 to 89% represents moderate or fair effects, 50 to 69% indicates mild or questionable effects, and below 50% is considered to be an ineffective treatment.[35]

RESULTS

Frequency of exercise behavior

Figure 1 shows the frequency of exercise participation for both subjects across phases. During baseline, Participant 1 exhibited a steadily decreasing trend in percentage of exercise behavior during non-structured exercise sessions. Her level of participation ranged from 47.76 to 81.66% (M=64.30%). Given her trend of exercise behavior during baseline (i.e., steadily decreasing trend) was opposite of the predicted behavior of the intervention, the yoga class was implemented with her first. Once the yoga intervention was implemented, Participant 1's level of engagement increased immediately from less than 50% during baseline to 100% during her first yoga session. Throughout all yoga sessions her level of participation ranged from 97.22 to 100% (M=99.07%). Participant 1's PEM effect size (ES) was calculated to be 100%, demonstrating that yoga exercise class was highly effective in increasing her participation in exercise.

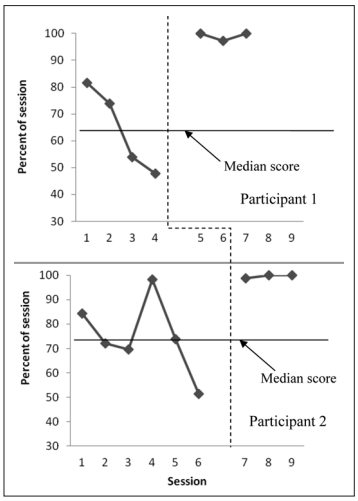

Figure 1: Percentage of exercise behavior exhibited during exercise sessions

Once the change in exercise behavior was successfully demonstrated with Participant 1, Participant 2 began yoga classes. During baseline Participant 2's level of exercise participation ranged from 51.47 to 98.33% (M=74.78%). Similar to Participant 1, there was an overall decreasing trend of exercise participation throughout baseline with the exception of one data point. Once Participant 2 began yoga he also showed an immediate increase in exercise participation level, ranging from 98.88 to 100% (M=99.63%). ES was calculated at 100%, showing participation in group exercise was also highly effective in increasing his time of exercise involvement.

Perception of physical exertion

Figure 2 shows the perceived exertion levels for both subjects across phases. During baseline, Participant 1's perceived exertion level as rated by the RPE scale, ranged from 3 to 5 (M=3.75) which equates to "starting to get hard". Upon beginning yoga she reported an immediate increase in her exertion level to an 8 (M=8.00) for the remainder of the sessions, which meant her yoga sessions were between "Very hard" and "So hard I am going to stop". ES was calculated at 100%, showing group exercise was highly effective in increasing Participant 1's perceived level of physical exertion during exercise.

Participant 2's baseline exertion scores ranged from 4 to 8 (M=5.33), meaning he believed his workouts were "starting to get hard". During yoga class Participant 2's perceived level of exertion ranged from 5 to 7 (M=6.33) representing

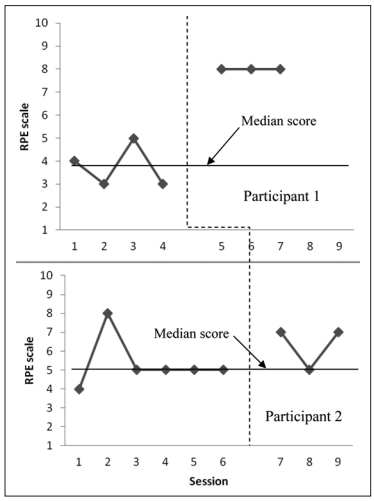

Figure 2: Rating of perceived exertion scores during exercise sessions

a "very hard" workout session. ES calculation was 67% showing group exercise was mildly effective in increasing Participant 2's perception of physical exertion.

Consumer satisfaction

During the yoga exercise sessions, Participant 1's PACES scores ranged from 2.18 to 2.82 (M=2.42) indicating a moderate level of enjoyment, with an increasing trend as more yoga sessions were completed. Participant 2's PACES scores ranged from 2.36 to 3.36 (M=3.00), also indicating a moderate level of enjoyment on average. Similar to Participant 1, his highest score was achieved by the last exercise session.

DISCUSSION

Previous research has linked participation in yoga to various health benefits and supports that yoga is an effective exercise option.[24] The purpose of this research was to identify ways of incorporating effective exercise routines into the lifestyle of young adults with ID. Specifically, researchers measured the percentages of exercise behaviors and perceptions of a yoga exercise program compared to non-structured exercise programs to define the most effective strategy for helping young adults with ID increase exercise participation and avoid health risks associated with low exercise participation. Increased exercise behaviors are especially important among young adults with ID as they have higher risks of obesity and secondary health conditions,[1] and are much less likely to meet the physical activity recommendations of the CDC.[36] The data from this study indicated a functional relationship between participation in yoga exercise classes and amount of exercise behavior. There was a sharp increase in physical exertion for both subjects when they participated in a yoga exercise program as opposed to non-structured exercise. Both students had the opportunity of benefitting more from participating in a structured yoga exercise class than non-structured exercise, as shown by the sharp increase in their percentage of exercise behavior and perceived levels of exertion. This increase in exercise, if continued over an extended period of time, may help in reducing the likelihood of developing chronic health diseases and improving physical fitness levels.[1] Enjoyment during the yoga intervention remained within an enjoyable range and both students voluntarily continued attending yoga classes upon the conclusion of the study.

There were also social benefits with the yoga exercise class. The researchers observed the students engaging in brief conversations with other yoga class participants, non-disabled college students, providing some anecdotal evidence of the social benefits of participation in the structured yoga program. The outcome of this research indicates that the use of a structured yoga exercise program for young adults with ID may increase their exercise behavior and help reduce the risks of obesity and other health related risks commonly associated with this population. However, additional research is necessary to further determine the relationships between individuals with ID, yoga, and exercise behavior.

Limitations and future research

Generalizability is limited because only two participants were included in the study. External validity could be increased through research with additional young adults with ID. Pre and post-test fitness levels of the students were not measured as should be considered in future studies. As used in earlier studies,[16,18,19] specific fitness indicators would have given a better indication of the physical benefits of the class.

CONCLUSION

These findings suggest that participation in yoga provided the participants with ID an increased opportunity for health benefits when compared to previously non-structured exercise sessions. Additionally, the yoga exercise classes provided these students with ID social opportunities to participate and interact with other non-disabled peers in a supportive exercise environment which is available in most community recreation programs.

REFERENCES

1. "Overweight and obesity," Centers for Disease Control and Prevention. Available from: http://www.cdc.gov/obesity/defining.html. [Last accessed on 2010 June 21].
2. Melville C, Cooper S, Morrison J, Allan L, Smiley E, Williamson A. The prevalence and determinants of obesity in adults with intellectual disabilities. J Appl Res Intellect 2008;21:425-37.
3. Peterson JJ, Janz KF, Lowe JB. Physical activity among adults with intellectual disabilities living in community settings. Prev Med 2008;47:101-6.

4. Frey CG. Comparison of physical activity levels between adults with and without mental retardation. J Physical Activity Health 2004;1:235-45.
5. Fernhall B, Pitetti H. Leg strength is related to endurance run performance in children and adolescence with mental retardation. Pediatr Exerc Sci 2000:12;234-333.
6. Fernhall B, McCubbin JA, Pitetti KH, Rintala P, Rimmer JH, Millar AL. Prediction of maximal heart rate in individuals with mental retardation. Med Sci Sport Exer 2001;33:1655-60.
7. Frey GC, Stanish H, Temple VA. Physical activity of youth with intellectual disability. Review and research agenda. Adapt Phys Act Q 2008;25:95-117.
8. Lin J, Lin P, Lin L, Chang Y, Wu S, Wu J. Physical activity and its determinants among adolescents with intellectual disabilities. Res Dev Disabil 2010;31:263-9.
9. McGuire BE, Daly P, Smyth F. Lifestyle and health behaviors of adults with an intellectual disability. J Intell Disabil Res 2007;51:497-510.
10. Draheim CC, Williams DP, McCubbin JA. Prevalence of physical inactivity and recommended physical activity in community-based adults with mental retardation. Ment Retard 2002;40:436-44.
11. Maaskant MA, van Knijff-Raeven AG, van Schrojenstein Lantman-de Valk HM, Veenstra MY. Weight status of persons with intellectual disabilities. J Appl Res Intellect 2009;22:426-32.
12. Balic M, Mateos E, Blasco C, Fernhall B. Physical fitness levels of physically active and sedentary adults with down syndrome. Adapt Phys Act Q 2000;17:310-21.
13. Hove O. Weight survey on adult persons with mental retardation living in the community. Res Dev Disabil 2004;25:9-17.
14. "Physical Activity for Everyone," Centers for Disease Control and Prevention. Available from: http://www.cdc.gov/physicalactivity/everyone/guidelines/index.html [Last accessed on 2011 March 30].
15. "Physical Activity Guidelines for Americans," U.S. Department of Health and Human Services 2008. Available from: http://www.health.gov/PAGuidelines/pdf/paguide.pdf [Last accessed on 2010 October 28].
16. Moss SJ. Changes in coronary heart disease risk profile of adults with intellectual disabilities following a physical activity intervention. J Appl Sport Psychol 2009;53:735-44.
17. Tsimaras V, Giagazoglou P, Fotiadou E, Christoulas K, Angelopoulou N. Jog-walk training in cardiorespiratory fitness of adults with down syndrome. Percept Motor Skill 2003;96:1239.
18. Elmahgoub SM, Lambers S, Stegen S, Van Laethem C, Cambier D, Calders P. The influence of combined exercise training on indices of obesity, physical fitness and lipid profile in overweight and obese adolescents with mental retardation. Eur J Pediatr 2009;168:1327-33.
19. Wu C, Lin J, Hu J, Yen C, Yen C, Chou Y, *et al*. The effectiveness of healthy physical fitness programs on people with intellectual disabilities living in a disability institution: Six-month short-term effect. Res Dev Disabil 2010;31:713-7.
20. "Annual Sports Participation Survey," National Sporting Goods Association. 2010. available from: http://www.nsga.org/i4a/pages/index.cfm?pageid=3484 [Last accessed on 2011 November 20].
21. Lavey R, Sherman T, Mueser KT, Osborne DD, Currier M, Wolf R. The effects of yoga on mood in psychiatric inpatients. Psychiatr Rehabil J 2005;28:399-402.
22. Shapiro D, Cook IA, Davydov DM, Ottaviani C, Leuchter AF, Abrams M. Yoga as a complementary treatment of depression: Effects of traits and moods on treatment outcome. Evid Based Complement Alternat Med 2007;4:493-502.
23. Visceglia E, Lewis S. Yoga therapy as an adjunctive treatment for schizophrenia: A randomized, controlled pilot study. J Altern Compliment Med 2011;17:601-7.
24. Ross A, Thomas S. The health benefits of yoga and exercise: A review of comparison studies. J Altern Complem Med 2010;16:3-12.
25. Barlow D, Nock M, Hersen M. Single case experimental designs: Strategies for studying behavior change. 3rd ed. Boston: Pearson; 2009.
26. Uebelacker LA, Tremont G, Epstein-Lubow G, Gaudiano BA, Gillette T, Kalibatseva Z, *et al*. Open trial of vinyasa yoga for persistently depressed individuals: Evidence of feasibility and acceptability. Behav Modif 2010;34:247-64.
27. Eston R, Parfitt G. Perceived exertion. In: Armstrong N, editor. Paediatric exercise physiology. London: Elsevier; 2007: p. 275-98.
28. Eston RG, Lambrick DM, Rowlands AV. The perceptual response to exercise of progressively increasing intensity in children aged 7–8 years: Validation of a pictorial curvilinear ratings of perceived exertion scale. Psychophysiology 2009;46:843-51.
29. Hartley SL, MacLean WJ. A review of the reliability and validity of likert-type scales for people with intellectual disability. J Intell Disabil Res 2006;50:813-27.
30. Kendzierski D, DeCarlo KJ. Physical activity enjoyment scale: Two validation studies. J Sport Exercise Psy 1991;13:50-64.
31. Miller SM, Chan F. Predictors of life satisfaction in individuals with intellectual disabilities. J Appl Res Intellect 2008;52:1039-47.
32. Dunton GF, Tscherne J, Rodriguez D. Factorial validity and gender invariance of the physical activity enjoyment scale (PACES) in older adolescents. Res Q Exercise Sport 2009;80:117-21.
33. Moore JB, Yin Z, Hanes J, Duda J, Gutin B, Barbeau P. Measuring enjoyment of physical activity in children: Validation of the physical activity enjoyment scale. J Appl Sport Psychol 2009;21:116-29.
34. Motl RW, Dishman RK, Saunders R, Dowda M, Felton G, Pate RR. Measuring enjoyment of physical activity in adolescent girls. Am J Prev Med 2001;21:110-7.
35. Ma H. An alternative method for quantitative synthesis of single-subject researches: Percentage of data points exceeding the median. Behav Modif 2006;30:598-617.
36. Grunbaum JA, Kann L, Kinchen S, Ross J, Hawkins J, Lowry R, *et al*. Youth risk behavior surveilance-United States, 2003. Mort Morb Wkly Rep 2004;53:1-96.

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