

Promoting activity-friendly communities.



RESEARCH BRIEF

Does Summertime Weight Gain Undermine Youth Obesity Prevention Efforts?

INTRODUCTION

For many children, summer vacation is a three-month hiatus from the daily responsibilities and scheduled demands they experience during the nine-month school year. Yet the freedoms many adults may remember from their childhood summers — riding bikes to the corner store, walking to the local swimming hole, playing active games with neighborhood friends every day — have become less common among today's youth. Many parents are becoming increasingly concerned about neighborhood safety, and limiting children's outdoor play.^{1,2}

Only recently has it been suggested that the change in summer freedoms may have a potentially negative impact on children's physical activity levels, and that this shift may be contributing to a larger problem of disproportionate summertime weight gain among children. Emerging evidence shows that children gain more weight during their summer vacation than they do during the entire school year,³⁻⁵ and some studies also find that the fitness gains children achieve during the school year are erased over the summer months.^{6,7}

Produced with funding from the Robert Wood Johnson Foundation.

There is limited information about children's diets and opportunities to be physically active during the summer months; research investigating the "how," "why," and "what to do" about summer weight gain is in its infancy, but growing. As policymakers, practitioners, and researchers continue to work toward reversing the childhood obesity epidemic and ensuring our children grow up at a healthy weight, learning more about what occurs during summer vacation may be critical for informing their efforts. This research brief synthesizes what is known about summer weight gain, and how physical activity and diet during the summer may contribute.

THE EVIDENCE

Weight Gain During Summer

- Two recent systematic reviews concluded that during summer vacation, children gain up to three times as much weight as during the entire school year.^{3,4}
- While all youth tend to gain weight over the summer, youth from African-American and non-White Hispanic backgrounds, and youth who are already overweight, may be especially at risk for excessive summertime weight gain.^{4,5}

Fitness and Physical Activity Decreases

- Studies of children participating in two types of schoolbased fitness interventions showed that the children lost the cardiovascular fitness improvements they had gained during the school year by the time they returned from the subsequent summer vacation.⁶⁻⁸
- There appears to be a "Goldilocks Zone" of optimal temperature for youth physical activity, and hot summer days may not fall into that category. Studies show that children are less active on very cold or hot days.⁹

Poor Dietary Habits

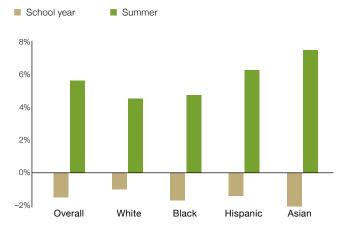
A study on the types of foods and beverages children bring to summer day camps for lunch and snacks found that almost half of the children brought both sugar-sweetened beverages (such as non-100% juice drinks) and chips. Only a third of children brought fruits, and almost none brought vegetables.^{10,11}

Summer Program Leaders Recognize Health as Important

Summer programs, such as summer day camps, serve 14 million youth annually.¹² In a 2011 national study, the American Camp Association reported that summer day camp leaders identified "healthy eating and physical activity of the children attending" as the third most important issue facing summer day camps, behind "financial security of the camp" and "communication to parents."¹³

FIGURE 1 Differences in weight change during the summer vs. school in 3,588 elementary-age children¹⁶

Change in Body Mass Index Sex-Age Specific Percentile



CONCLUSIONS AND POLICY IMPLICATIONS

Conclusions

The problem is clear — children weigh more and are less fit at the end of summer than they were before summer started. This is surprising because children should have more free time to be physically active, and fresh fruits and vegetables are in season during the summer. Although youth obesity and associated health behaviors have received significant attention in recent years, very limited attention has been given to the effects of summer vacation.

Recommendations

Promising efforts to achieve healthy eating and physical activity standards in summer programs are underway, but it will require additional time before the impact of these interventions is fully known.¹⁴ Given the existing information regarding youth and summer vacation, the following recommendations are provided:

- In 2011, healthy eating and physical activity standards endorsed by the National Afterschool Association included standards for day-long summer programs.¹⁵ These standards call for increases in the amount of fruits and vegetables children eat and the amount of moderate-tovigorous physical activity they should accumulate while attending summer programs. These standards should be implemented by the settings many youth frequent during the summer, such as YMCA, Boys and Girls Clubs, and Parks and Recreation-operated summer day camps.
- Existing approaches, such as professional development trainings, should be tailored to staff employed in locations youth frequent during the summer.

Given the emerging evidence about weight gain during summer, there is a clear need for more research on youth physical activity and eating patterns during the summer, and how these factors ultimately influence weight gain. Further, more research is needed to determine how such behaviors differ between summer and the school year. These types of studies should be funded and undertaken, as they can help us identify the most effective strategies to slow down the excessive weight gains currently observed during summer so our children can maintain a healthy weight, and live long, healthy lives.

This research brief was written by Michael W. Beets, M.Ed., M.P.H., Ph.D., Associate Professor, Department of Exercise Science, Division of Health Aspects of Physical Activity, Arnold School of Public Health University of South Carolina. Peer review by Aaron E. Beighle, Ph.D., University of Kentucky; Russell L. Carson, Ph.D., University of Northern Colorado.

Cover image: @Jordan Gantz. Used with permission from the Robert Wood Johnson Foundation.

REFERENCES

- ¹ Weir LA, Etelson D, Brand DA. Parents' perceptions of neighborhood safety and children's physical activity. *Prev Med.* 2006;43(3):212-7.
- ² Carver A, Timperio A, Crawford D. Playing it safe: the influence of neighbourhood safety on children's physical activity. A review. *Health & Place.* 2008;14(2):217-27.
- ³ Baranowski T, O'Connor T, Johnston C, Hughes S, Moreno J, Chen TA, et al. School year versus summer differences in child weight gain: a narrative review. *Child Obes.* 2014;10(1):18-24.
- ⁴ Franckle R, Adler R, Davison K. Accelerated weight gain among children during summer versus school year and related racial/ethnic disparities: a systematic review. *Prev Chronic Dis.* 2014;11:E101.
- ⁵ von Hippel PT, Powell B, Downey DB, Rowland NJ. The effect of school on overweight in childhood: gain in body mass index during the school year and during summer vacation. *Am J Public Health*. 2007;97(4):696-702.
- ⁶ Gutin B, Yin Z, Johnson M, Barbeau P. Preliminary findings of the effect of a 3-year after-school physical activity intervention on fitness and body fat: The Medical College of Georgia Fitkid Project. *Int J Pediatr Obes*: 2008;3 Suppl 1:3-9.

- ⁷ Yin Z, Moore JB, Johnson MH, Vernon MM, Gutin B. The impact of a 3-year after-school obesity prevention program in elementary school children. *Child Obes*. 2012;8(1):60-70.
- ⁸ Sallis JF, McKenzie TL, Alcaraz JE, Kolody B, Faucette N, Hovell MF. The effects of a 2-year physical education program (SPARK) on physical activity and fitness in elementary school students. Sports, Play and Active Recreation for Kids. *Am J Public Health.* 1997; 87(8):1328-34.
- ⁹ Carson V, Spence JC. Seasonal variation in physical activity among children and adolescents: a review. *Pediatr Exerc Sci.* 2010;22(1):81-92.
- ¹⁰ Tilley F, Beets MW, Jones S, Turner-McGrievy G. Evaluation of compliance to national nutrition policies in summer day camps. *Public Health Nutr.* 2014:1-6.
- ¹¹ Tilley F, Weaver RG, Beets MW, Turner-McGrievy G. Healthy eating in summer day camps: the Healthy Lunchbox Challenge. J Nutr Educ Behav. 2014;46(2):134-41.
- ¹² America After 3 PM. Special Report on Summer: Missed Opportunities, Unmet Demand Washington, DC: Afterschool Alliance; 2010 [cited 2011 Feb 3]. Available from: http://www.afterschoolalliance.org/documents/ Special_Report_on_Summer_052510.pdf.
- ¹³ American Camp Association. 2011 Camp Emerging Issues Survey Martinsville, IN 2011 [cited 2011 August 8th]. Available from: http://www.acacamps.org/research/improve/emerging-issues.
- ¹⁴ NIH RePORTER NIH Research Portfolio Online Reporting Tools. Turn up the HEAT – Healthy Eating and Activity Time in summer day camps: National Institutes of Health; 2014 [cited 2014 August 18]. Available from: http://projectreporter.nih.gov/project_info_description.cfm?aid=87 57852&icde=21420567&ddparam=&ddvalue=&ddsub=&cr=1&csb=def ault&cs=ASC.
- ¹⁵ National Afterschool Association. Standards for Healthy Eating and Physical Activity in Out-Of-School Time Programs 2011 [cited 2011 December 2]. Available from: http://naaweb.org/resources/ item/56-healthy-eating.
- ¹⁶ Moreno JP, Johnston CA, Woehler D. Changes in weight over the school year and summer vacation: results of a 5-year longitudinal study. *J Sch Health*. 2013;83(7):473-7. doi:10.1111/josh.12054.