The Guide to Community Preventive Services
THE COMMUNITY GUIDE
What Works to Promote Health

Obesity Prevention and Control: Behavioral Interventions to Reduce Screen Time (2008 Archived Review)

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Review Summary

Intervention Definition

Behavioral interventions to reduce screen time (time spent watching TV, videotapes, or DVDs; playing video or computer games; and surfing the internet) can be single-component or multicomponent and often focus on changing screen time through classes aimed at improving children's or parents' knowledge, attitudes, or skills. These interventions may include:

- Skills building, tips, goal setting, and reinforcement techniques
- Parent or family support through provision of information on environmental strategies to reduce access to television, video games, and computers
- A "TV turnoff challenge" in which participants are encouraged not to watch TV for a specified number of days

Summary of Task Force Finding

The Community Preventive Services Task Force recommends behavioral interventions aimed at reducing screen time based on sufficient evidence of effectiveness for reducing measured screen time and improving weight-related outcomes. Screen time was reduced by 36.6 min/day (range: -26.4 min/day to -55.5 min/day) and a modest improvement in weight-related outcomes was observed when compared to controls. Most of the interventions evaluated were directed at children and adolescents.

Results from the Systematic Review

Seven studies qualified for the review.

- Screen time (hours per day): decrease of 0.61 hrs/day (interquartile interval: –0.44 to –0.925 hrs/day; 4 studies)
- Sedentary behavior and related outcomes: in favor of the intervention (3 studies)
- Weight-related outcomes: modest improvement (5 studies)
- Physical activity: inconsistent and non-significant effects (3 studies)
- Nutrition: findings in favor of the intervention (4 studies)
- Applicable to children ages 3 to 17 (6 of 7 studies)

These results were based on a systematic review of all available studies, conducted on behalf of the Task Force by a team of specialists in systematic review methods, and in research, practice and policy related to obesity prevention and control.

Task Force Finding and Rationale Statement

Intervention Definition

Screen time is time spent watching TV, videotapes, or DVDs; playing video or computer games; and surfing the Internet. Components of behavioral interventions to reduce screen time (mostly "TV time reduction") include skills building, tips, goal setting, reinforcement techniques, workbooks, messages, TV turnoff challenges, and family support.

Task Force Finding (January 2008)

The Community Preventive Services Task Force recommends behavioral interventions aimed at reducing screen time based on sufficient evidence of effectiveness for reducing measured screen time and improving weight-related outcomes among children and adolescents in a variety of settings.

Rationale

The Task Force finding is based on evidence from 7 studies that assessed four health behavior outcomes: screen time, weight, physical activity, and nutrition (search period through July 2007). Six studies that reported screen time outcomes reported a small to moderate decrease in screen time. Four of these six studies, which reported screen time in hours/day, indicated that screen time was reduced by 36.6 min/day (range: –26.4 min/day to –55.5 min/day). Five studies reported weight-related outcomes, with all five reporting a small to moderate decrease in percent overweight or BMI. Four studies reported physical activity outcomes but results were mixed. Four studies reported nutrition outcomes, with all studies reporting small improvements in nutrition outcomes.

The interventions evaluated in this review were conducted in a variety of settings including schools, preschools and daycare centers, WIC centers, and research clinics. All studies were conducted in the United States. Most of the interventions evaluated were directed at children and adolescents. Because limited race and ethnicity data were available, it is unknown if the intervention had differential effects for different racial or ethnic groups.

Supporting Materials

Evidence Gaps

What are Evidence Gaps?

Each Community Preventive Services Task Force (Task Force) review identifies critical evidence gaps—areas where information is lacking. Evidence gaps can exist whether or not a recommendation is made. In cases when the Task Force finds insufficient evidence to determine whether an intervention strategy works, evidence gaps encourage researchers and program evaluators to conduct more effectiveness studies. When the Task Force recommends an intervention, evidence gaps highlight missing information that would help users determine if the intervention could meet their particular needs. For example, evidence may be needed to determine where the intervention will work, with which populations, how much it will cost to implement, whether it will provide adequate return on investment, or how users should structure or deliver the intervention to ensure effectiveness. Finally, evidence may be missing for outcomes different from those on which the Task Force recommendation is based.

Identified Evidence Gaps

The results from this review indicate that behavioral interventions aimed at reducing screen time are effective at reducing screen time and improving weight-related outcomes. However, important research issues remain.

- Studies do not usually make a distinction between recreational screen time and other, possibly desirable forms of screen time, such as computer use for school work, or “exergaming” (e.g., Dance Revolution™, Wii™, etc.). Further differentiation of sedentary versus non-sedentary screen time would be beneficial.
- Studies do not always report other sedentary behavior such as reading, arts and crafts, or quiet play in addition to or separate from screen time. What is the relationship between screen time and other sedentary behaviors?

Additional research is needed to identify how screen time affects health outcomes.

- What is the mechanism for screen time being associated with weight-related outcomes (e.g., advertising of food, snacking/eating while watching TV, etc.)?
- Not all screen time is undesirable (e.g., when computers are used for school work). What factors cause it to become excessive?
- What is the relationship between screen time and other health outcomes?

Increased consensus about screen time measures would be useful.

- Increased consensus about “best measures” for weight-related outcomes, physical activity outcomes, and nutrition-related outcomes would improve comparability between studies.
- Increased consensus about how screen time is measured (number of hours vs. % at a certain threshold; TV only vs. all kinds of screen time; weekend vs. weekday use)

Behavioral interventions aimed at reducing screen time should be applicable in most school settings; however, possible differences in the effectiveness for specific subgroups of the population often could not be determined. Several questions about applicability remain.

- Are behavioral interventions aimed at reducing screen time as effective in preschool children, high school children, and adults as they are for elementary and middle school children?
- Are behavioral interventions aimed at reducing screen time as effective in different socioeconomic, gender, racial or ethnic subgroups?
- Are intervention effects sustained once intervention activities cease?

Included Studies

Dennison BA, TJ Russo, PA Burdick, et al. An intervention to reduce television viewing by preschool children. *Arch Pediatr Adolsc Med* 2004; 158:170-6.

Epstein LH, AM Valoski, LS Vara, et al. Effects of decreasing sedentary behavior and increasing activity on weight change in obese children. *Health Psych* 1995; 14:109-15.

Epstein LH, RA Paluhc, CC Gordy, et al. Decreasing sedentary behaviors in treating pediatric obesity. *Arch Pediatr Adolesc Med* 2000; 154:220-6.

Gortmaker SL, K Peterson, J Wiecha, et al. Reducing obesity via a school-based interdisciplinary interventions among youth: planet health. *Arch Pediatr Adolesc Med* 1999; 153:409-18.

Gortmaker SL, LWY Cheung, KE Peterson, et al. Impact of a school-based interdisciplinary intervention on diet and physical activity among urban primary school children: eat well and keep moving. *Arch Pediatr Adolesc Med* 1999; 153:975-83.

Johnson DB, D Birkett, C Evens, et al. Statewide intervention to reduce television viewing in WIC clients and staff. *Am J Health Promot* 2005; 19:418-21.

Robinson TN. Reducing children's television viewing to prevent obesity: a randomized controlled trial. *JAMA* 1999; 282:1561-7.

Search Strategy

Search Terms

The articles to be reviewed were obtained from systematic searches of multiple databases, reviews of bibliographic reference lists, and consultations with experts in the field. The following databases were searched for English-language studies published between 1966 and the second week of July 2007: Medline, CINAHL, EMBASE, PsycINFO, and Cochrane Library.

Screen time search: an example from MedLine

1. ("screen time" or "screen use" or "screen usage").tw.
2. television/
3. video games/
4. (vcr or dvd$).tw.
5. ((television or tv) adj (view$ or watch$)).tw.
6. ((view$ or watch$) adj (television or tv)).tw.
7. ((video game$ or videogame$) adj play$).tw.
8. (play$ adj (video game$ or videogame$)).tw.

9. or/1-8
10. 9 and health education/
11. 9 and "health education".tw.
12. 9 and exp health promotion/
13. 9 and intervention studies/
14. 9 and exp health behavior/
15. 9 and life style/
16. 9 and intervention$.mp.
17. 9 and (trial$ or study or studies).mp.
18. 9 and program evaluation/
19. 9 and pc.fs.
20. or/10-19
21. 20 and (exp overweight/ or exp obesity/ or body mass index/ or skinfold thickness/ or waist-hip ratio/ or bmi.tw. or obes$.tw. or weight$.hw,tw. or body fat.tw. or overweight.mp.)
22. 20 and (physical activity.tw. or motor activity/ or exercise$.mp. or physical fitness/ or "physical education and training"/ or exp sports/)
23. 20 and (diet$ or nutrition$ or food$).hw,tw.
24. 20 and ((reduc$ or restrict$ or decreas$ or limit$) and (television or video$ or screen)).mp. [mp=title, original title, abstract, name of substance word, subject heading word]
25. 21 or 22 or 23 or 24
26. limit 25 to (humans and english language and yr="1966 - 2007")
27. (computers/ or user-computer interface/ or attitude to computers/ or internet.mp.) and (exp child/ or adolescent/ or exp adult/)
28. 27 and health education/
29. 27 and "health education".tw.
30. 27 and exp health promotion/
31. 27 and intervention studies/
32. 27 and exp health behavior/
33. 27 and life style/
34. 27 and intervention$.mp.
35. 27 and (trial$ or study or studies).mp.
36. 27 and program evaluation/
37. 27 and pc.fs.
38. or/28-37
39. 38 and (exp overweight/ or exp obesity/ or body mass index/ or skinfold thickness/ or waist-hip ratio/ or bmi.tw. or obes$.tw. or weight$.hw,tw. or body fat.tw. or overweight.mp.)
40. 38 and (physical activity.tw. or motor activity/ or exercise$.mp. or physical fitness/ or "physical education and training"/ or exp sports/)
41. 38 and (diet$ or nutrition$ or food$).hw,tw.
42. 38 and ((reduc$ or restrict$ or decreas$ or limit$) and (computer$ or internet$)).mp.
43. 39 or 40 or 41 or 42
44. limit 43 to (humans and english language and yr="1966 - 2007")
45. 44 not 26

46. exp mass media/ or "mass media".tw. or billboard$.tw. or exp serial publications/
47. 46 and ((reduc$ or restrict$ or decreas$ or limit$) and (television or video$ or screen or computer$ or internet)).mp.
48. limit 47 to (humans and english language and yr="1966 - 2007")
49. 48 and (exp overweight/ or exp obesity/ or body mass index/ or skinfold thickness/ or waist-hip ratio/ or bmi.tw. or obes$.tw. or weight$.hw,tw. or body fat.tw. or overweight.mp.)
50. 48 and (physical activity.tw. or motor activity/ or exercise$.mp. or physical fitness/ or "physical education and training"/ or exp sports/)
51. 48 and (diet$ or nutrition$ or food$).hw,tw.
52. or/49-51
53. 52 not (26 or 44)

Disclaimer

The findings and conclusions on this page are those of the Community Preventive Services Task Force and do not necessarily represent those of CDC. Task Force evidence-based recommendations are not mandates for compliance or spending. Instead, they provide information and options for decision makers and stakeholders to consider when determining which programs, services, and policies best meet the needs, preferences, available resources, and constraints of their constituents.

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