

# References to Support Reducing Screen Time, Promote Healthy Eating & Family Meals



NUTRITION  
RESOURCE  
CENTRE  
CENTRE DE  
RESSOURCES  
EN NUTRITION

## Theme 4 Screen Time and Meals Summary Points and References

Where and what children eat and drink are important determinants of healthy eating and a healthy weight. Influences such as eating or drinking in front of screens/TV during meal time, and marketing and advertising to children on screens can negatively impact healthy eating and food choices of children. Below are some key behaviours to focus on for Theme 4 Interventions and a summary of relevant research on screen time, meals, snacks and beverages.

### Behaviours to reduce screen time and promote healthy eating:

1. **Reduce eating and drinking in front of screens.**
2. **Encourage screen-free family meals.**
3. **Replace screen time with other activities (e.g. planning and preparing meals, gardening).**

### Screen time (television) link to unhealthy eating in children and low SES

- Eating while watching TV is associated with poorer diet quality among children (Avery 2017, Feldman 2007, Ramos 2013, Coon 2001).
- Eating whilst watching TV reduced diet quality among children and included more frequent consumption of sugar sweetened beverages, more high-fat/high-sugar foods and fewer vegetables and fruit (Avery 2017).
- Children who routinely eat meals while viewing television have diets that include few vegetables and fruit, and more pizzas, snack foods, and sodas (Coon 2001, Liang 2009, Feldman 2007).
- Positive association between low socio-economic status and the increased likelihood of eating while watching TV (Avery 2017).

### Screen time link to children being overweight/distracted eating/overconsuming

- Eating in front of the TV is linked to children being overweight (Liang 2009, Avery 2017).
- There is a positive association between eating while watching TV and body mass index (BMI) (Avery 2017).
- Both watching TV and eating while watching TV were positively and independently associated with overweight (Liang 2009).
- Eating in front of a screen can lead to mindless or distracted eating and can lead children and adults to consume excess calories and promote unhealthy weight gain (Anderson 2007, de Jong 2013).

For additional resources visit the [Nutrition Resource Centre Navigator](#) – [www.nutritionrc.ca](http://www.nutritionrc.ca) – October 2017

- A systematic review<sup>1</sup> found that even in the absence of food advertising, screen time is consistently associated with increased dietary intake. This may be because screens serve as a distraction and a conditioned cue to eat (Marsh 2013).
- Screen time distraction can lead to increased food intake, with individuals who are overweight/obese having a greater tendency for distractibility (Wansink, 2004).
- Screen time is associated with less desirable food choices, particularly in overweight children. Longer screen time (> 2 hours) is associated with higher calorie intake (74 kcal) and lower intake of vegetables and fruit (- 0.3 serving/1000 kcal) (Shang 2015).
- Eating whilst watching TV was linked to poor diet quality among children and included more frequent consumption of sugar sweetened beverages, more high-fat/high-sugar foods and fewer vegetables and fruit (Avery 2017). Although these differences in consumption were small, the cumulative effect may contribute to the positive association between eating whilst watching TV and childhood obesity (Avery 2017).
- Parental obesity and TV viewing are risk factors for childhood obesity. This study assessed the association of children's TV viewing and computer use with body mass and examined whether parental weight status modified the association. BMI and percent body fat increased significantly for each hour of TV watched among children with overweight parents, but not for those with normal-weight parents. Similar results were observed for total screen time. The effect of parental BMI on children's BMI may have both a genetic and an environmental linkage (Steffen 2009).
- Using smartphones, tablets, computers, and videogames is associated with several obesity risk factors. Although further study is needed, families should be encouraged to limit both TV viewing and newer screen devices (Kenny and Gortmaker, 2017).

#### **Screen time link to SSB consumption**

- Sugar sweetened beverages comprise 22% of teens' beverage consumption and are primarily consumed at home, during screen time. Teens mainly consume SSBs their parents purchased for them at home and in the afternoon and evening (Ipsos, 2016).
- Screen-viewing behaviour was associated with consumption of sugar-sweetened beverages. The habit strength of both behaviours was strongly related, and the perceived parental norm regarding screen-viewing added to the explanation of adolescent sugar-sweetened beverage consumption. By setting a norm towards television- and computer-use, parents appeared to influence their children's consumption behaviour, over and above their specifically set norms towards sugar-sweetened beverage consumption (Kremers, 2006).
- Watching TV  $\geq 5$  hours daily was associated with daily SSB consumption and obesity. Using other screen devices  $\geq 5$  hours daily was associated with daily SSB consumption, inadequate physical activity, and inadequate sleep (Kenny and Gortmaker, 2017).

---

<sup>1</sup> Findings are preliminary due to the limited number of high-quality studies.

## **Screens and influence of marketing and advertising on children**

- Television and internet viewing may also exert external cues to promote consumption of certain foods, but not necessarily the healthiest choices (PEN - TV and Family Meals).
- Screen viewing may influence eating behaviours through food messages embedded within program content (Story and Faulkner, 1990).
- With many newer forms of digital marketing, food cues are integrated within the media content, resulting in an even stronger effect on food intake than food cues in television advertisements (Folkvord 2016).
- Increased screen time means more exposure to food-related marketing. It has been estimated that in one year Canadian children view over 25 million food and beverage ads on their favourite websites – and over 90% are for unhealthy products (Heart and Stroke Foundation, 2017).
- Most foods advertised to kids are high in salt, sugar, or fat, and low in fibre (Potvin Kent 2014; Potvin Kent 2012).
- While watching television and visiting their favourite websites, children are exposed to advertising for food and beverages that are high in fat, sodium or sugar, including cakes, cookies, ice cream and cereal (Heart and Stroke Foundation, 2017).
- Food marketing influences children’s food preferences and purchase requests (Sadeghirad 2016).
- Children can be significant influencers regarding what foods are available in the home and are eaten away from home (Sonntag et al, 2015).
- Media exposure through screens may contribute to body dissatisfaction and unhealthy eating behaviours (Morris and Katzman, 2003).
- A systematic review and meta-analysis<sup>2</sup> has found that, in children exposed to unhealthy dietary marketing, there is significantly increased dietary/caloric intake by about 30 kcal during or shortly after exposure to advertisements, and there is increased preference for energy-dense, low-nutrition food and beverages (Sadeghirad 2016).

## **Family meals away from TV linked to healthier eating in children**

- Eating family meals and eating meals away from TV is linked with improved food choices and nutrient intakes (Feldman, 2007).
- Eating meals away from screens and eating meals as a family contribute to healthy eating in children, higher intakes of vegetables and fruit and lower intakes of sugar-sweetened beverages (Avery 2017, Gilman 2007).

---

<sup>2</sup> Findings are based on low- to moderate-quality evidence.

- Study of children aged nine to 14 years found that those who sit down to eat dinner with their family four or more times/week consume more fruit and vegetables and less fried foods or pop (Gilman 2007).
- In Ontario, 83.8% of parents report that they eat meals as a family away from the TV, and those who do are 1.67 times more likely to report that their child is meeting fruit and vegetable intake guidelines. (Pyper 2016).
- Family dinners and dinners without television on are independent predictors of servings of fruit or vegetables offered to preschool children (Fitzpatrick 2007).
- Watching television during dinner can counteract the positive effects of family meals on diet. (Avery 2017, Feldman 2007, Fitzpatrick 2007, Rockett 2007).

### **Family meals, cooking and eating together**

- Families that eat dinner together tend to have more healthful dietary intake patterns that are higher in fruits, vegetables, and calcium and lower in saturated fat (Gillman 2009, Larson 2007, Neumark-Sztainer 2003, Coon 2001).
- Involving preschoolers in food preparation may also help make new foods more familiar and can help motivate children to try new foods (USDA 2017).
- Eating meals together provides opportunities for role modeling and is associated with positive attitudes about food and eating more vegetables and fruit (Cooke 2004, Wardle 2005, Fischer 2002, Cullen, 2001).
- In teens presence of the family at dinner meal was positively associated with consumption of fruit and vegetables and dairy foods and lower likelihood of skipping breakfast (Patrick and Nicklas, 2005).
- Family meals provide a ‘protective factor’ in the lives of teens in a number of ways:
  - Provide structure and routine to teens’ lives
  - Reduce unsupervised time away from home
  - Facilitate daily communication and provide opportunities for parental involvement and monitoring (Story M; Neumark-Sztainer, 2005)
- Family meals may have a greater positive effect on children’s diets when the meal is prepared at home (Rockett 2007 cited in USDA 2017).
- Adults who never watched television or videos while eating and whose family meals had all been cooked at home had 47% lower odds of obesity compared with adults who watched television or videos during all or most family meals and who ate some or no home-cooked family meals (Turnin and Anderson, 2017).

## Targeting parents

- Not all families are able or choose to eat shared meals on a daily basis; however, they may be receptive to learning how to make the meals they do eat together healthier (Turnin and Anderson, 2017).
- Because parents provide the child's main contextual environment for television viewing and playing on the computer, they can be viewed as key players and central agents of change in promoting healthy behaviours and limiting screen time (Kremers, 2006).
- Home chaos is associated with unhealthful dietary intake among parents of preschoolers. Stress and home chaos cross socio-economic levels. Consider practical strategies for addressing stress in context with promoting healthful behaviours. Consider role of fathers and mothers as role models for children (Walton 2017).

## Research Gaps around Successful Interventions for promoting family meals

Research has demonstrated a significant positive association between frequent family meals and children's dietary intake; however, the promotion of healthful family meals has not been rigorously tested for key food environment and nutrition-related behavioral outcomes in a randomized trial. This intervention targeted parents of children ages 8 – 12 years old. It included five parent goal-setting calls and 10 monthly sessions delivered to families in community settings that focused on experiential nutrition activities and education, meal planning, cooking skill development, and reducing screen time. Compared with control parents, intervention parents showed greater improvement over time in scores of self-efficacy for **identifying appropriate portion sizes and intervention children were less likely to consume at least one sugar-sweetened beverage daily at post-intervention than control children.** The Healthy Home Offerings via the Mealtime Environment Plus program involved the entire family and targeted personal, behavioral and environmental factors important for healthful changes in the home food environment and children's dietary intake. The intervention improved two nutrition-related behaviors and this may inform the design of future family meal interventions (Fulkerson et al 2017).

An article on strategies to promote family meals among families with school-aged children and adolescents reviewed interventions that assess family meals as an outcome and summarized strategies that have been used in these interventions. Four interventions resulted in greater family meal frequency. Although there were a small number of interventions, **intervention settings were diverse and included the home, community, medical settings, the workplace, and the Internet. Common strategies were goal setting and interactive group activities, and intervention targets included cooking and food preparation, cost, shopping, and adolescent influence.** Although methodological nuances may contribute to mixed findings, key correlates of family meals were employment, socioeconomic and demographic factors, family structure, and psychosocial constructs. Barriers to consider in future interventions include time and scheduling challenges, cost, and food preferences. Increasing youth involvement in mealtime, tailoring interventions to family characteristics, and providing support for families experiencing time-related barriers are suggested strategies for future research (Dwyer et al, 2015).

Friese and Schwartz (2008) provide a review of literature related to promoting family meals and discuss policies and practices to promote and support family meals.

For additional resources visit the [Nutrition Resource Centre Navigator](http://www.nutritionrc.ca) – [www.nutritionrc.ca](http://www.nutritionrc.ca) – October 2017

## Recommendations:

*Canadian Pediatric Society* recommends screen-free family meals and snacks and eating together as a family (CPS, 2017).

Reduce screen time by getting children involved in activities such as planning and preparing meals, shopping, gardening, etc.

Reinforce community and parent/caregiver messaging around screen-free meals and snacks, includes both foods and beverages, with the exception of water being the only acceptable food or beverage during screen use. Continue to promote messages from Theme 2 - Water Does Wonders and Theme 3 - Choose to Boost Veggies and Fruit.

## References

- Anderson GH. Effect of television viewing at mealtime on food intake after a glucose preload in boys. *Pediatr Res*. 2007;61(6):745–749.
- Avery A, Anderson C & Mccullough F. (2017). Associations between children’s diet quality and watching television during meal or snack consumption: A systematic review. *Maternal and Child Nutrition* <http://doi.org/10.1111/mcn.12428>.
- Canadian Pediatric Society. (2017). Screen time and young children: Promoting health and development in a digital world. <<http://www.cps.ca/en/documents/position/screen-time-and-young-children>>
- Cooke LJ, Wardle J, Gibson EL, Sapochnik M, Sheiham A, Lawson M. Demographic, familial and trait predictors of fruit and vegetable consumption by pre-school children. *Public Health Nutr*. 2004;7: 295-302.
- Coon K, Goldberg J, Rogers B, & Tucker K (2001). Food Consumption Patterns, *107*(1), 1–11.
- Cullen KW, Baranowski T, Rittenberry L, Cosart C, Herbert D, de Moor C. Child-reported family and peer influences on fruit, juice and vegetable consumption: Reliability and validity of measures. *Health Educ Res* . 2001;16:187-200.
- de Jong E, Visscher TL, HiraSing RA, Heymans MW, Seidell JC, Renders CM. Association between TV viewing, computer use and overweight, determinants and competing activities of screen time in 4- to 13-year-old children. *Int J Obes*. 2013;37(1):47–53.
- Dwyer L, Oh A, Patrick H, Hennessy E. Promoting family meals; a review of existing interventions and opportunities for future research. *Adolescent Health, Medicine and Therapeutics* 2015;6 115-131.
- Feldman S, Eisenberg ME, Neumark-Sztainer D, Story M. Associations between watching TV during family meals and dietary intake among adolescents. *J Nutr Educ Behav*. 2007;39:257-263. <https://doi.org/10.1016/j.jneb.2007.04.181>.
- Fiese B and Schwartz M. Reclaiming the family table: mealtimes and child health and child health and wellbeing. Social Policy Report Giving Child and Youth Development Knowledge Away. Volume XXII, Number IV 2008 - <http://opha.on.ca/Nutrition-Resource-Centre/NRC-Navigator/Resources/Reclaiming-the-Family-Table-Mealtimes-and-Child-He.aspx>
- Fischer JO, Mitchell DC, Smiciklas-Wright H, Birch LL. Parental influences on young girls’ fruit and vegetable, micronutrient, and fat intakes. *J Am Diet Assoc*. 2002;102:58-64.
- Fitzpatrick E, Edmunds LS, Dennison BA. Positive effects of family dinner are undone by television viewing. *J Am Diet Assoc*. 2007 [cited 2007 21 Jul];107:666-671. Abstract available from: <http://www.ncbi.nlm.nih.gov/sites/pubmed/17383273>

For additional resources visit the [Nutrition Resource Centre Navigator](http://www.nutritionrc.ca) – [www.nutritionrc.ca](http://www.nutritionrc.ca) – October 2017

Folkvord F, Anschutz DJ, Boyland E, Kelly B and Buijzen M. 2016. Food advertising and eating behavior in children. *Current Opinion in Behavioral Sciences*; 9:26-31 <https://doi.org/10.1016/j.cobeha.2015.11.016>

Fulkerson JA, Friend S, Horning M, Flattum C, Draxten M, Neumark-Sztainer D, Gurvich O, Garwick A, Story M, Kubik MY. Family Home Food Environment and Nutrition-Related Parent and Child Personal and Behavioral Outcomes of the Healthy Home Offerings via the Mealtime Environment (HOME) Plus Program: A Randomized Controlled Trial. *J Acad Nutr Diet*. 2017 Jun 1. pii: S2212-2672(17)30346-5. doi: 10.1016/j.jand.2017.04.006. [Epub ahead of print].

Gillman MW, Rifas-Shiman SL, Frazier AL, Rockett HRH, Camargo CA, Field AE, et al. Family dinner and diet quality among older children and adolescents. *Arch Fam Med*. 2000 [cited 2007 21 Jul];9:235-40. Abstract available from: <http://www.ncbi.nlm.nih.gov/pubmed/10728109>

Heart and Stroke Foundation of Canada. 2017. The kids are not alright. How the food and beverage industry is marketing out children and youth to death. Available at: <http://www.heartandstroke.ca/-/media/pdf-files/canada/2017-heart-month/heartandstroke-reporthonhealth2017.ashx?la=en&hash=1D4354193C46A235D2A657230FE2EB29DC6F34C8>

Ipsos. 2016. Market Segmentation Analysis of SSB consumers in Canada (between the ages of 14-30), Health Canada.

Kenny E, Gortmaker S. 2017. United States Adolescents' Television, Computer, Videogame, Smartphone, and Tablet Use: Associations with Sugary Drinks, Sleep, Physical Activity, and Obesity. *The Journal of Pediatrics*. Volume 182, P144-149.

Kremers S, van der Horst K, Brug J. 2007. Adolescent screen-viewing behaviour is associated with consumption of sugar-sweetened beverages: The role of habit strength and perceived parental norms. *Appetite* Volume 48, Issue 3, p 345–350.

Larson NI, Neumark-Sztainer D, Hannan PJ, Story M. Family meals during adolescence are associated with higher diet quality and healthful meal patterns during young adulthood. *J Am Diet Assoc*. 2007;107:1502-1510.

Liang T, Kuhle S, Veugelers PJ. (2009). Nutrition and body weights of Canadian children watching television and eating while watching television. *Public Health Nutr*, 12(12): 2457-63.

National Obesity Observatory – TV viewing and obesity in children and young people. [Accessed Oct 19, 2017]. [http://webarchive.nationalarchives.gov.uk/20160805122346/http://www.noo.org.uk/uploads/doc/vid\\_15867\\_TV\\_viewing.pdf](http://webarchive.nationalarchives.gov.uk/20160805122346/http://www.noo.org.uk/uploads/doc/vid_15867_TV_viewing.pdf)

Neumark-Sztainer D, Hannan PJ, Story M, Croll J, Perry C. Family meal patterns: Associations with sociodemographic characteristics and improved dietary intake among adolescents. *J Am Diet Assoc*. 2003;103:317-322.

Marsh S, Ni Mhurchi C and Maddison R. (2013). The non-advertising effects of screen-based sedentary activities on acute eating behaviours in children, adolescents, and young adults. A systematic review. *Appetite*, 71: 259-73.

Morris AM and Katzman DK. 2003. The impact of the media on eating disorders in children and adolescents. *Paediatr Child Health*; 8(5): 287–289.

Patrick H, Nicklas TA. *J Am Coll Nutr*. 2005 A review of family and social determinants of children's eating patterns and diet quality. Apr;24(2):83-92.

PEN – Practice Based Evidence and Research - TV and Family meals - <http://www.pennutrition.com/index.aspx>

Potvin Kent M, Martin C and Kent E. 2014. Changes in the volume, power and nutritional quality of foods marketed to children on television in Canada. *Obesity*; 22 (9):2035-2060

Potvin Kent M, Dubois L and Wanless A. 2012. A nutritional comparison of foods and beverages marketed to children in two advertising policy environments. *Obesity*; 20(9):1829-1837.

Pyper E, Harrington, DW, Manson HM. (2016). The impact of different types of parental support behaviours on child physical activity, healthy eating and screen time: A cross-sectional study. *BMC Public Health*, 16: 568. <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-016-3245-0>

For additional resources visit the [Nutrition Resource Centre Navigator](#) – [www.nutritionrc.ca](http://www.nutritionrc.ca) – October 2017

Ramos E, Costa A, Araújo J, Severo M, Lopes C. (2013). Effect of television viewing on food and nutrient intake among adolescents. *Nutrition*, 29(11–12), 1362–1367. <https://doi.org/10.1016/j.nut.2013.05.007>

Rockett HR. Family dinner: More than just a meal. *J Am Diet Assoc*. 2007;107: 1498-1501. 17.

Sadeghirad B, Duhane T, Motaghipisheh S, Campbell NR, and Johnston BC. 2016. Influence of unhealthy food and beverage marketing on children’s dietary intake and preference: a systematic review and meta-analysis of randomized trials. *Obesity Reviews*; 17: 945–959.

Shang L, Wang J, O’Loughlin J, Tremblay A, Mathieu ME, Henderson M, and Gray-Donald K. 2015. Screen time is associated with dietary intake in overweight Canadian children. *Prev Med Rep*; 2: 265–269. Published online 2015 Apr 14. doi: 10.1016/j.pmedr.2015.04.003

Sonntag D, Schneider S, Mdege N, Shehzad A and Schmidt B. 2015. Beyond Food Promotion: A Systematic Review on the Influence of the Food Industry on Obesity-related Dietary Behaviour among Children. *Nutrients*; 7(10): 8565-8576.

Steffen L, Dai S, Fulton J, Labarthe D. Overweight in Children and Adolescents Associated with TV Viewing and Parental Weight: Project HeartBeat! *Am J Prev Med*. 2009 July; 37(1 Suppl): S50–S55. doi:10.1016/j.amepre.2009.04.017.

Story M and Faulkner P. 1990. The prime time diet: a content analysis of eating behavior and food messages in television program content and commercials. *Am J Public Health*; 80(6):738–740.

Story M, Neumark-Sztainer D. A perspective on family meals: do they matter? *Nutrition Today*, 2005. Nov-Dec; 40

Tumin R, Anderson S. Television, Home-Cooked Meals, and Family Meal Frequency: Associations with Adult Obesity, *J Acad Nutr Diet*. 2017. Available from: <http://dx.doi.org/10.1016/j.jand.2017.01.009>

Walton K. NRC Webinar - Parental stress, home chaos and children’s health. Sept 21, 2017. <http://opha.on.ca/Nutrition-Resource-Centre/Events/Events/2017/NRC-Webinar-Parental-stress,-home-chaos-and-childr.aspx>

Wansink B. 2004. Environmental factors that increase the food intake and consumption volume of unknowing consumers. *Annu Rev Nutr*; 24:455–479

Wardle J, Carnell S, Cooke L. Parental control over feeding and children’s fruit and vegetable intake: How are they related? *J Am Diet Assoc*. 2005;105:227-232.

United States Department of Agriculture (USDA). Maximizing the message: Helping Moms and Kids Make Healthier Food Choices (Last Published 05/19/2017). Available online: <https://www.fns.usda.gov/tn/maximizing-message-helping-moms-and-kids-make-healthier-food-choices>

For additional resources visit the [Nutrition Resource Centre Navigator](#) – [www.nutritionrc.ca](http://www.nutritionrc.ca) – October 2017