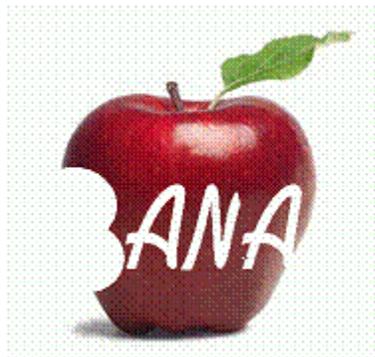


Health and well-being: A baseline study of health-related behaviours in Windsor-Essex County

FINAL REPORT



In partnership with:



HEALTH AND WELL-BEING: A BASELINE STUDY OF HEALTH-RELATED BEHAVIOURS IN WINDSOR-ESSEX COUNTY

This report presents the results of a survey conducted at 26 schools (14 Catholic and 12 Public) across Windsor-Essex County. Data were collected between November, 2010 and April, 2011. The overall study investigated food, physical activity, and health-related patterns and behaviours of grade seven students in Windsor-Essex County. Through a better understanding of the eating and physical activity patterns of students in Windsor-Essex, and the variables that influence these patterns, targeted healthy eating and living programs and strategies can be designed and evaluated.

The majority of information was collected through the use of the Food Behaviour Questionnaire¹. Nurses and Nursing students (graduate and 4th year undergraduate students) from the University of Windsor's Faculty of Nursing and the Windsor-Essex County Health Unit took all physical measurements. This study was funded by the Faculty of Kinesiology and the Faculty of Nursing (University of Windsor) and Southwestern Ontario *in motion*.

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¹ Hanning RM, Royall D, Toews JE, Blashill L, Wegener J, Driezen P. Validation of the web-based Food Behaviour Questionnaire with grade six to eight Ontario students. *Can J Diet Prac Res* 2009;70:172-8.

THE ISSUE

Nutritional Intakes of Children and Adolescents

- Nutritional problems in childhood and adolescence have the potential to exert strong deleterious impact(s) on future health and increase the risk of chronic diseases later in life. Energy and nutrient excesses and deficiencies in food intake may contribute to the development of serious health problems. For example, researchers report that excesses in dietary energy and saturated fat, and inadequate intake of dietary fibre, may contribute to heart disease and some forms of cancer.²
- Research³ suggests that children and adolescents are not consuming the servings of *milk products* or *vegetables and fruit* as recommended by Eating Well with Canada's Food Guide (EWCFG).
- Omission of breakfast or the consumption of an inadequate breakfast may be factors contributing to dietary inadequacies. Nutrient losses are rarely made up by other meals during the day.
- Healthy eating patterns formed early in childhood may persist into adulthood.

Approximately 1 in 3 children in Canada (from 5-13 years of age) is considered overweight or obese. Genetics are no longer viewed as the main culprit. It is our current surroundings that are enhancing this obesity crisis through an interactive combination of environmental factors: unhealthy eating, physical inactivity, as well as societal, economic, psychological, and biological factors.

Physical Activity of Children and Adolescents

- Participation in regular physical activity reduces the risk of diabetes and other chronic diseases, while improving cardiovascular function and helping to maintain a healthy body weight.⁴
- Physical activity positively influences choices pertaining to nutrition and the decisions not to smoke. It is also associated with improved academic performance⁵ and healthy self-esteem, and reduces the risk of depression and the effects of stress.

The bottom line...

The purpose of this project was to investigate food, physical activity, and health-related patterns and behaviours of grade seven students in Windsor-Essex County. Through a better understanding of the eating and physical activity patterns of students in Windsor-Essex, and the variables that influence these patterns, targeted healthy eating and living programs and strategies can be designed and evaluated.

² Ball GD, McCargar LJ. Childhood Obesity in Canada: a review of prevalence estimates and risk factors for cardiovascular diseases and type 2 diabetes. *Can J Appl Physiol* 2003; 117-40.

³ Garriguet D : Overview of childrens' eating habits (Statistics Canada). Available at: <http://www.statcan.ca/english/research/82-620-MIE/82-620-MIE2006002.pdf>.

⁴ Eisenman JC, Bartee RT, Wang MQ. Physical Activity, TV viewing, and weight in US youth: 1999 Youth Risk Behavior Survey. *Obesity Research* 2002; 379-85.

⁵ Trudeau F, Shephard RJ. Physical education, school physical activity, school sports and academic performance. *Int J Behav Phys Act* 2008; 5-10.

FOOD, PHYSICAL ACTIVITY, AND HEALTH-RELATED BEHAVIOURS

All methods and procedures were approved by the University of Windsor Research Ethics Board, the Windsor-Essex County Health Unit Research Ethics Board, and each school board. Schools were chosen from the Windsor-Essex Catholic District School Board (n=possible 41 elementary schools) and the Greater Essex County District School Board (n=57 possible elementary schools). Schools were selected to represent a cross section of neighbourhoods in Windsor-Essex County based on a comparison of socioeconomic and demographic variables (e.g., forward sortation code from the school's postal code) from the 2006 Census Tract Profile. The desired sample size was 30 schools but due to timing, only 26 schools participated (at the school level, there were 13 refusals to participate mainly due to timing of the study during the school year). We targeted all students in grade 7, yet due to split classrooms, some grade 6 and 8 students were invited to participate. Out of a potential of 1208 students from 26 schools, 1068 students participated (i.e., students in class on the day of the survey with parental consent represents an 88% student response rate). The tables and graphs below summarize the responses of students to various survey questions (e.g., not all students responded to all questions or participated in all assessments).

Of the students who completed the web-based survey, there were five hundred and twenty-two males (52%) and four hundred and eighty-six females (48%) (n=1008). Approximately, 1 (0.1%), 36 (4%), 710 (70%), 237 (24%), and 24 (2%) reported that they were 10, 11, 12, 13, and 14 years of age, respectively. While our original aim included grade seven students (n=897, 89%), twenty four grade six students (2%) and eighty-seven grade eight students (9%) completed the study due to split classes. Students represented a wide variety of ethnic backgrounds including: White (72%), Black (6%), Arab (5%), South Asian (3%), Chinese (2%), and other (12%). The major languages spoken at home were English (88%), French (0.2%), Arabic (3%), Chinese (1%), and Other (8%).

FOOD INTAKE AND FOOD HABITS

Mean Food Group Intake: A Comparison

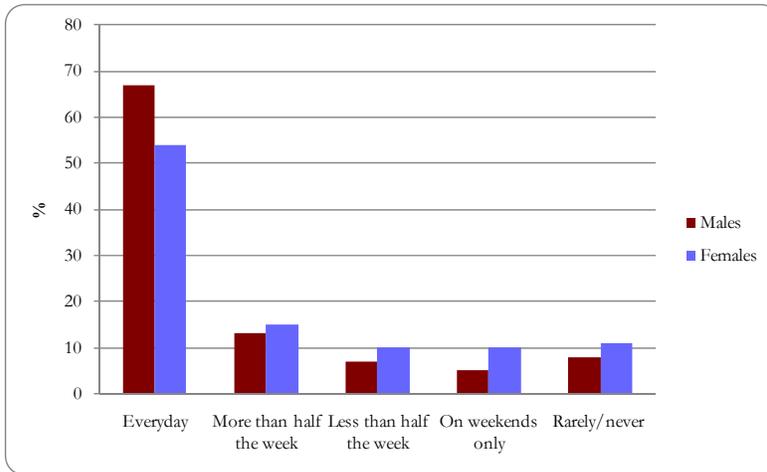
	Vegetables and Fruit	Grain Products	Milk and Alternatives	Meat and Alternatives	“Other” Foods
EWCFG Recommendations*	6	6	3-4	1-2	Limit
Total sample (n=964)**	3.2 (±2.6)	6.7 (±3.6)	2.5 (±2.0)	1.9 (±1.5)	4.0 (±3.3)

*for children 9-13 years of age

**Students that did not finish the 24-h diet recall/implausible values (e.g., energy intake < 400 kcals; n=41), or those with fallacious food records (n=3) were excluded

Compared to the national nutrition recommendations (e.g., EWCFG), the students ate fewer servings of *vegetables and fruit* and *milk and alternatives*, and slightly more *grain products*. The majority of students (48%) reported *sometimes* consuming whole grains when choosing foods such as pizza, subs, sandwiches, hotdogs and/or hamburgers. The average intake of carbohydrates, fat, protein was 53%, 31%, and 16% of total calories, respectively.

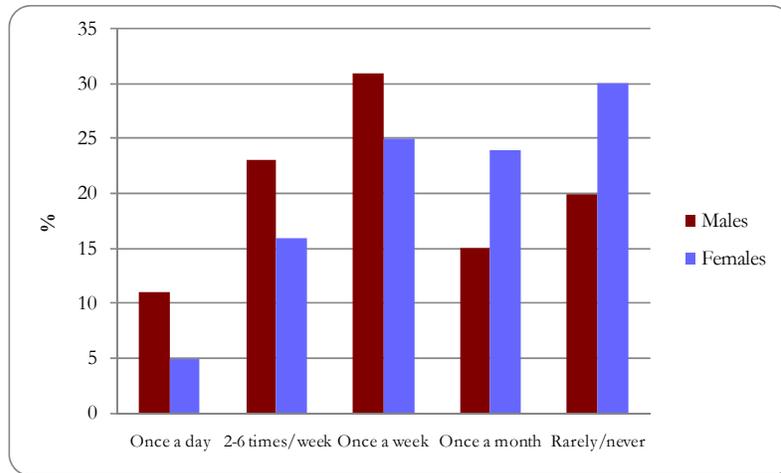
Breakfast Frequency: How often do you usually eat breakfast?



66% percent of respondents (n=680) ate breakfast the previous day. The most often stated reasons for not consuming breakfast was: time/sleep in (44%), I'm not hungry (34%), I feel sick when I eat breakfast (7%), there is nothing I like to eat at home (7%), I'm trying to lose weight (4%), and other (4%).

Males and females were statistically different ($X^2=21.64$, $p<0.005$).

Pop Consumption: How often do you drink pop (non-diet)?



Males and females were statistically different ($X^2=37.51$, $p<0.001$).

While only 8% of the respondents reported that they consume pop at least once a day, just over half (56%) said they drink pop at least once a week. Pop consumption may increase the odds of overweight and obesity among school-aged children and adolescents.⁶

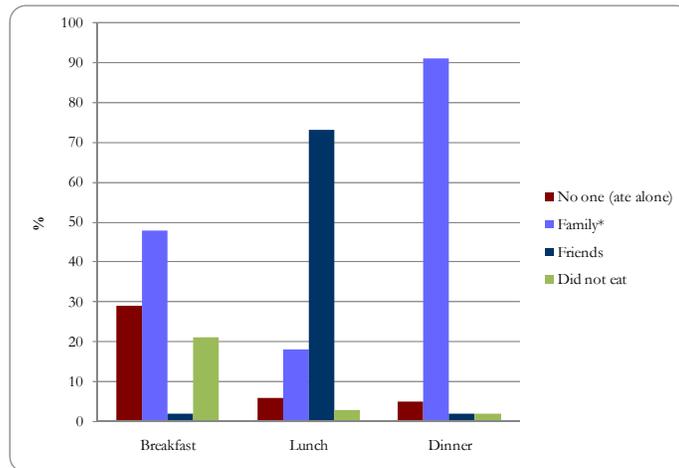
⁶ Ludwig Ds, Peterson KE, Gortmaker SL. Relation between consumption of sugar-sweetened drinks and childhood obesity: a prospective observational analysis. Lancet 2001; 357:505-8.

Food Frequency: How often to you eat/drink the following?

	Daily	2-6 times a week	Once/ week	Once/ month	Rarely/ never
Vitamin/mineral supplement	35%	21%	11%	6%	27%
Salty snacks	11%	39%	29%	11%	10%
French Fries or other fried potatoes	4%	17%	37%	31%	11%
Pizza	2%	6%	33%	48%	11%
Candy or chocolate bars	7%	20%	34%	24%	15%
Energy/supplement/protein bars	12%	18%	13%	13%	44%
Pop (non-diet) – as reported above	8%	19%	28%	19%	26%
Pop (diet)	2%	6%	10%	10%	72%
Energy drinks	2%	6%	8%	20%	64%
Energy shots	1%	1%	2%	3%	93%
Coffee-based drinks	3%	5%	10%	22%	60%
Milk	66%	18%	7%	3%	6%
100% Fruit juice	43%	34%	11%	7%	5%
Sweetened drinks (powder drinks, fruit cocktail)	13%	21%	17%	17%	32%

The majority of respondents reported consuming a vitamin/mineral supplement, milk, and 100% fruit juice on a daily basis, and never/rarely consuming energy/supplement/protein bars, diet pop, energy drinks/shots, coffee-based drinks and/or sweetened drinks.

Who did you eat with yesterday?



*Family includes all or any of parents, siblings, grandparents, aunts/uncles

Students were asked to report with whom they ate breakfast, lunch, and dinner. The majority of students ate breakfast with one or more family members, and the vast majority consumed lunch with their friends. This is to be expected as most students ate lunch at school (81%). The majority of students (77%) reported eating dinner/supper with at least one parent on 6-7 nights per week in addition to the majority of participants (36%) also stating that the television is *never* on when they eat dinner with their family.

Frequency of Meals Prepared Away from Home

Location	Once a week or more	Once a month	Rarely or never
School Cafeteria*	5%	3%	92%
Restaurant	22%	63%	15%
Fast Food Outlet	26%	50%	24%
Vending Machine	10%	21%	69%
Tuck Shop/Snack Bar	13%	24%	63%
Convenience Store/Corner Store	27%	37%	36%
At a Friend/Relative's home	50%	36%	14%

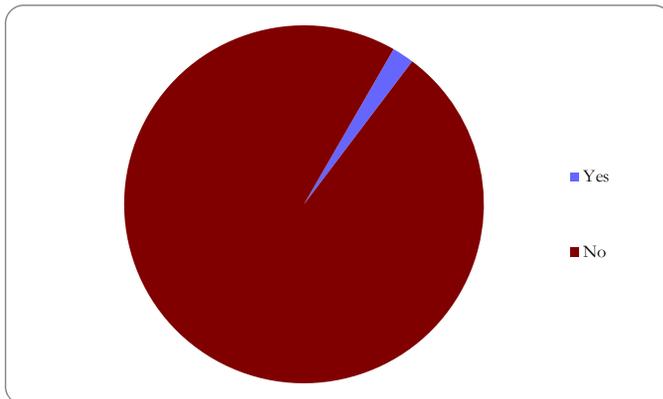
*the majority of schools do not have a school cafeteria

Of the students who responded, 50% ate at a friend/relative's house once a week or more, 63% consumed food at a restaurant, 50% at a fast food outlet, and 37% at a convenience store/corner store once a month, while the majority of students reported rarely/never eating at the school cafeteria (92%), vending machine (69%), and/or tuck shop/snack bar (63%). Children and adolescents who often eat food prepared outside the home may have a lower diet quality compared to those who generally eat food prepared at home.⁷

Food preparation

In terms of food preparation, most students reported that either they, or their parents, had prepared breakfast (47% myself, 32% parents), lunch (32% myself, 59% parents), and dinner (6% myself, 89% parents). In addition, the majority (27%) of the respondents reported that they are involved in preparing food (cooking, baking) 2-6 times/week. The respondents said that they or their family purchased the food they ate for breakfast (20%), lunch (8%), and dinner (12%), on the day prior to the survey, at places other than a grocery store.

Vegetarianism: Are you a vegetarian?

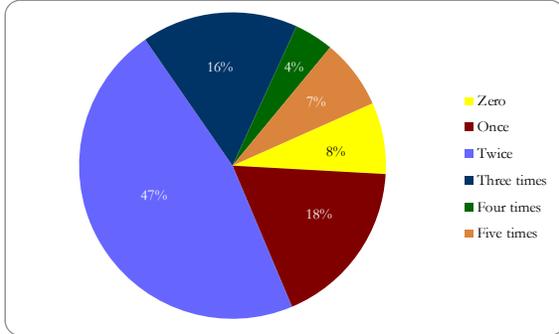


While 98% of the students reported not being a vegetarian, several reported not consuming fish (32%), shellfish (81%), chicken (2%), poultry (31%), milk products (3%), eggs (12%), and red meat (27%).

⁷ Woodruff SJ, Hanning RM. Effect of meal environment on diet quality rating. Can J Diet Prac Res 2009;70:118-24.

PHYSICAL ACTIVITY BEHAVIOURS

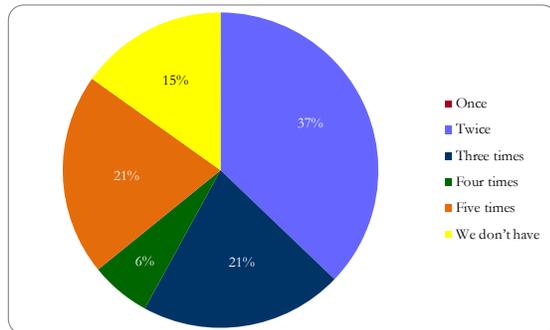
Physical Education Classes: In the past 7 days, how many PE classes did you have?



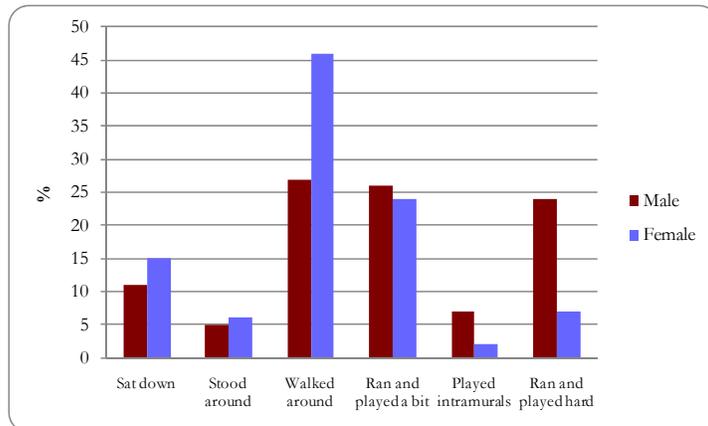
Students responded that they always (49%), quite often (30%), sometimes (14%), and hardly ever (4%) have a chance to be very active during Physical Education class(es). The remaining 3% reported that they don't do PE.

In the past 7 days, how often do you participate in daily physical activities (DPA) in school?

The majority of students (53%) reported that they do have a chance to be physically active in some of their other classes beside PE.

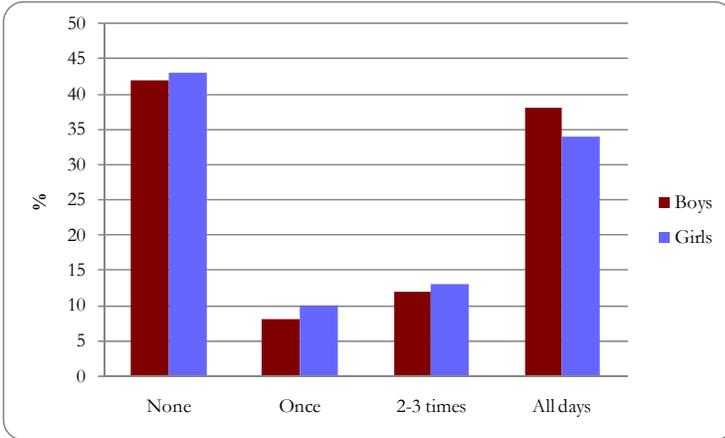


School Breaks: In the last seven days, what did you do most of the time during school breaks (e.g., recess/nutrition breaks)?



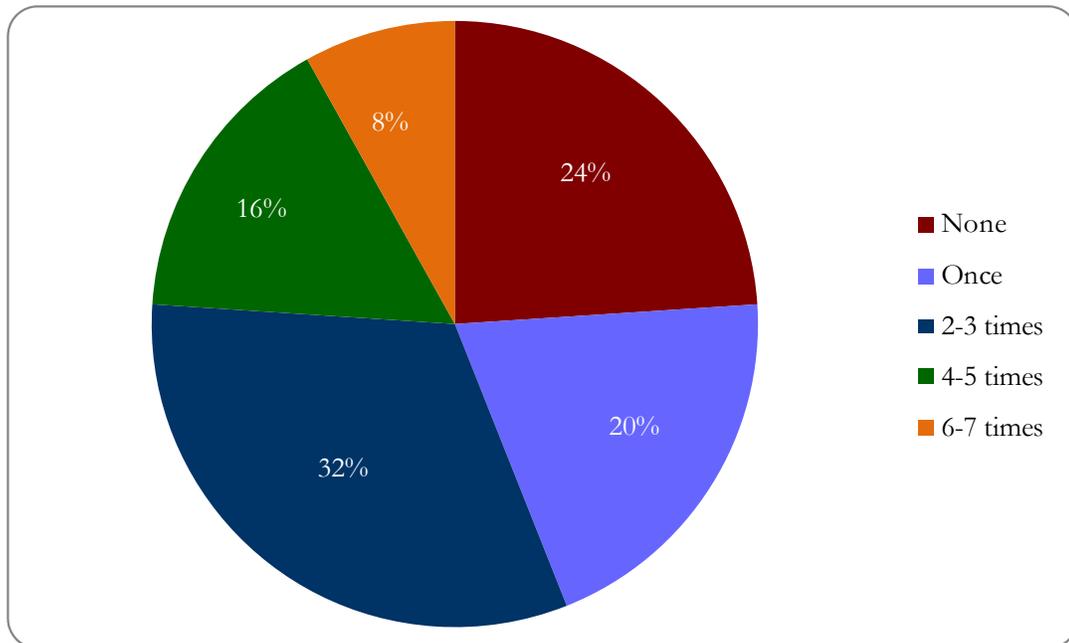
Males and females were statistically different ($X^2=88.40$, $p<0.001$).

Active Transportation: How many days in the past week did you walk, bike, or skate to or from school?

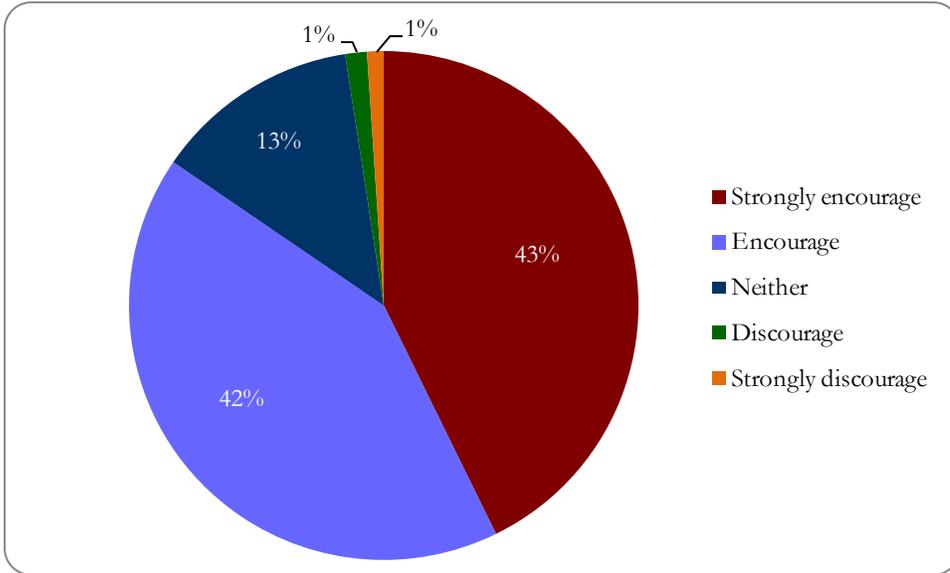


The majority (43%) reported walking on no days per week, whereas 36% reported actively getting to school on all days of the week. Active transportation increases student activity level and thereby has a positive effect on health. Reducing car trips to and from school improves air quality by reducing the number of airborne pollutants emitted by automobiles.

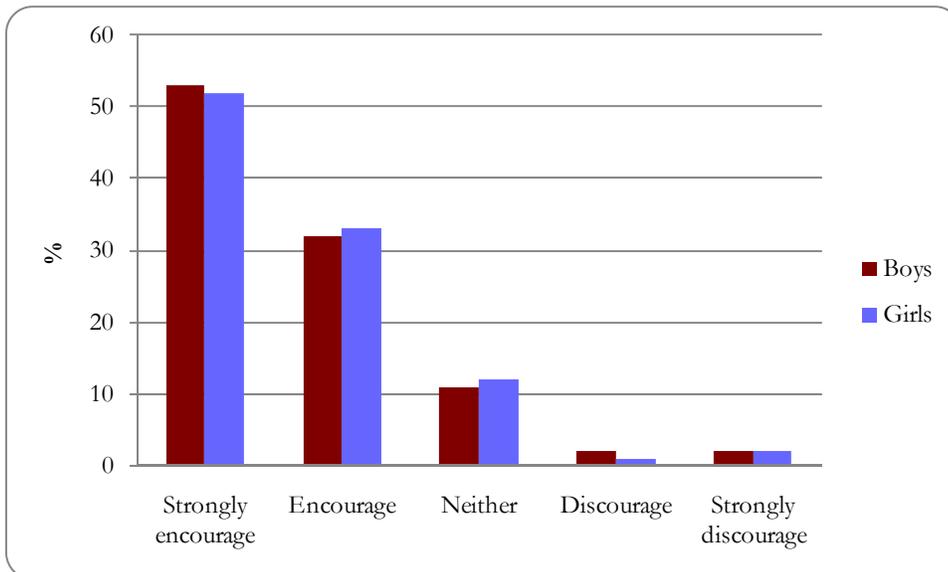
Parks and Trails: In a typical week, how many times do you use outdoor spaces, such as trails, parks, or conservation areas?



Parental Encouragement: How much do your parents, step-parents, or guardians encourage you to be physically active?

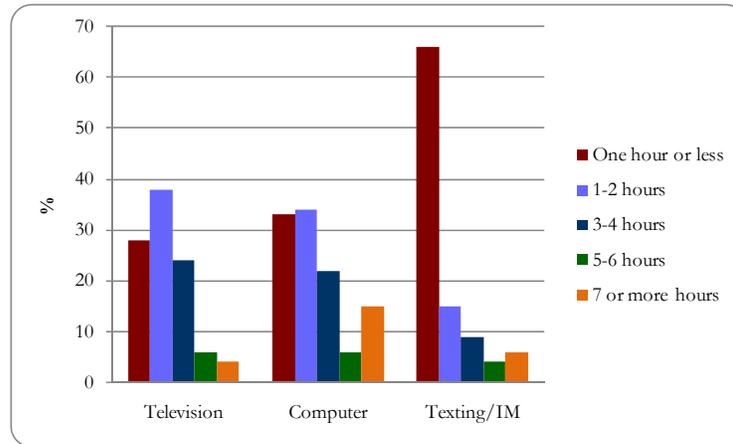


Parental Support: How much do your parents, step-parents, or guardians support you in being physically active? (e.g., driving you to team games, buying you sporting equipment, etc.)



The majority of participants reported wanting to: play sports (volleyball, baseball, soccer, hockey, golfing), go for bike rides, walk/jogs, or to the park, and swim with their parents.

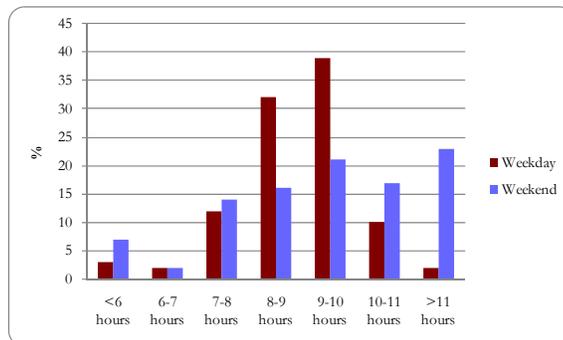
Sedentary Activities: On average, how many hours do you watch television, play on the computer, and/or text or instant message from the time you get home from school until you go to bed?



On average, the respondents spent less than 2 hours watching television (67%), surfing the internet/playing on the computer (67%), and/or texting/instant messaging (81%). There were no differences between girls and boys and the amount of time spent watching TV or playing on the computer/internet, however, a larger number of girls, versus boys, texted/instant messaged ($X^2=35.37$, $p<0.001$). Assuming that these activities are independent of each other, students spent almost 6 hours in sedentary activities (5.75 ± 3.9 hours). Sedentary activities contribute to a lower level of physical activity, a higher prevalence of obesity, and potentially having negative implications for their health.⁸

SLEEP

On average, students reported getting between 9-10 hours of sleep during the weekdays and more than 11 hours on the weekends. The majority of participants (60%) reported that they believe they get enough sleep *most of the time*.



⁸ Tremblay MS, LeBlanc AG, Janssen I, Kho ME, Hicks A, Murumets K, Colley RC, Duggan M. Canadian sedentary behaviour guidelines for children and youth. *Appl Physiol Nutr Metab*. 2011 36(1):59-64.

BODY WEIGHT CLASSIFICATIONS AND CONCERNS

Body Mass

Body Mass Index (BMI) is a number calculated from a weight and height measurement, and is a reliable indicator of body fatness for most children and adolescents when calculations consider age and sex. Using the newly adopted WHO calculations⁹, **~42% of students (n=416) were considered overweight, or obese.** This is above the National average (34%)¹⁰ and represents a significant health concern!

	Males n=508	Females n=479	Total Sample n=987
Underweight (<3 rd percentile)	1%	1%	1% (n=9)
Normal weight (3-85 th percentile)	55%	59%	57% (n=562)
Overweight (>85 th percentile)	22%	22%	22% (n=220)
Obese (>97 th percentile)	22%	18%	20% (n=196)

Waist Circumference

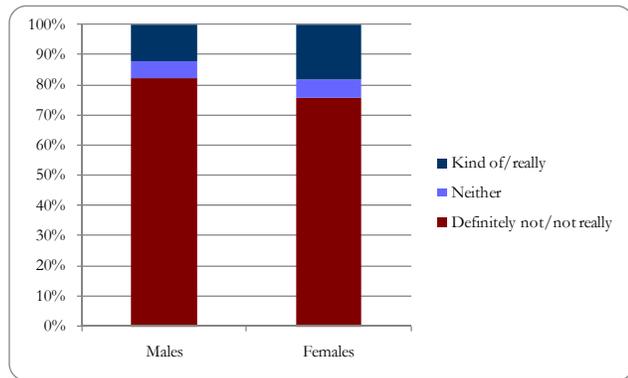
Waist circumference is a measure of abdominal adiposity and until recently, was not a common anthropometric measure for children and adolescents. At the present time, no cut-off values can be agreed upon and therefore, the mean waist circumference of males and females was 72.0 ±11.1 cm and 71.7 ±10.3 cm, respectively. The mean scores are slightly higher than those reported on children 11-14 years of age from the Canadian Health Measures Survey (e.g., 71 cm for males and 70 cm for females).¹¹

⁹ World Health Organization Growth Charts, as adopted by the Canadian Dietitians of Canada. Available at: <http://www.dietitians.ca/growthcharts>

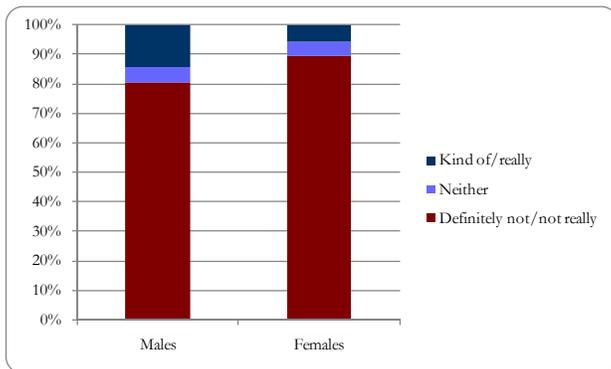
¹⁰ Tjepkema M, Shields M. Measured obesity: overweight Canadian children and adolescents. Available at: <http://www.cdha.nshealth.ca/default.aspx?page=DocumentRender&doc.Id=232>

¹¹ Tremblay MS, Shields M, Laviolette M, Craig CL, Janssen I, Connor Gorber S. Fitness of Canadian children and youth: Results from the 2007-2009 Canadian Health Measures Survey. Available at: [https://webmail2.uwindsor.ca/mail/woodruff.nsf/0/A77FDC308E9778E75FCAB89373E0D941/\\$File/Fitness%20of%20Canadian%20children%202010.pdf?OpenElement&FileName=Fitness%20of%20Canadian%20children%202010.pdf](https://webmail2.uwindsor.ca/mail/woodruff.nsf/0/A77FDC308E9778E75FCAB89373E0D941/$File/Fitness%20of%20Canadian%20children%202010.pdf?OpenElement&FileName=Fitness%20of%20Canadian%20children%202010.pdf)

I am eating less than usual to try and lose weight?



I am eating more than usual to gain weight?



Blood Pressure

Blood pressure is a common measure of cardiovascular health in adults, but is less commonly taken in children and adolescents. Recent reports suggest that high blood pressure in children and adolescents is frequently associated with overweight and obesity. Students in this study had a mean systolic blood pressure of 109 mmHg for males and 108 mmHg for females and a mean diastolic blood pressure of 66 mmHg for males and 66 mmHg for females. Compared to children/adolescents from the Canadian Community Health Survey,¹² 74% and 51% of students from Windsor-Essex County had systolic and diastolic blood pressures at or above the 90th percentile, respectively.

¹² Paradis G, Tremblay MS, Janssen I, Chiolerio A, Bushnik T. Blood pressure in Canadian children and adolescents. Health Reports. Available at <http://www.statcan.gc.ca/pub/82-003-x/2010002/article/11154-eng.pdf>.

SCHOOL-BASED HEALTHY ACTIVITIES

In order to help schools plan healthy activities for their students, we asked the students *What new activity would you like your school to do that promotes healthy living?* Combining the first and second choices, students would most like to have more daily physical activity (DPA) and extra-curriculars such as a cooking club or fitness/yoga classes.

Activity	Tally (N=1818)	Percent of Total
Plant a garden and grow vegetables and fruit	153	9%
Student generated healthy newsletter (once/month)	92	5%
More extra-curriculars such as a cooking club or fitness/yoga classes	345	19%
No parking zone in and around the school, ensuring everyone has to walk	52	3%
Have a breakfast/snack program	206	11%
Visit local markets/farms as a field trip	116	6%
Pairing up with another school for a Healthy Olympics	222	12%
Have organized recess games	140	8%
Participate in daily physical activity	383	21%
Have healthy classroom rules (e.g., only allowing fruit and vegetables at breaks)	109	6%
Others: more school teams, stay after school and play, sport nutrition talks		