



Wellington-Dufferin-Guelph *in motion*  
Physical Activity Survey Report  
Findings for Adults 18 Years of Age and Over

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&  
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## Executive Summary

**WDG *in motion*** conducted a random sample telephone survey to explore the current physical activity levels of Wellington-Dufferin-Guelph residents. The survey was implemented and completed between April 16<sup>th</sup> and June 5<sup>th</sup> 2007 by trained interviewers from the University of Guelph using a standard survey instrument that was initially developed by *in motion* Saskatoon and adapted by Harry Cummings and Associates (HCA). Data was collected using a modified Microsoft ACCESS instrument and analyzed using SPSS. The surveyors phoned a total of 8,589 randomly selected households and of the 3,725 adult occupants (18 years of age or older) that were reached, 31% (1,159) completed the survey.

The results show that approximately 40% of residents in Guelph and Wellington and 31% in Dufferin do enough moderate or vigorous physical activity to achieve health benefits. Some researchers argue that only moderate and vigorous activities produce health benefits. However, if you include all forms of physical activity; light, moderate and vigorous, analysis shows that those receiving health benefits, ranged, among males, from 59.3% in Guelph to 65.7% in Wellington, and among females, from 58.5% in Dufferin to 64.8% in Wellington. The most popular moderate physical activities were fast walking and bicycling and most popular vigorous physical activities were jogging and hockey.

Vegetable and fruit consumption, in all three areas, was low. Only 28% of the respondents are consuming vegetables and fruits 5 or more times per day. Furthermore, only one half of residents strongly agreed that consumption of vegetables and fruit reduces the incidence of diseases such as diabetes, cancer and cardiovascular diseases. On the other hand, four-fifths of respondents strongly agreed that physical activity and stopping tobacco use can reduce the incidence of such diseases. The majority of respondents, in all three areas (greater than 80%) intend to exercise regularly in the next six months.

The current survey clearly illustrates the need to adopt community-based strategies to increase resident's physical activity levels and consumption of vegetables and fruits recommended by Canada's Physical Activity Guide and Canada's Food Guide. More in-depth analysis of the current barriers is needed to fully understand and plan for effective preventive measures.

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## 1.0 Introduction

This report presents the results for the adults (18 years of age and over) surveyed in the *in motion* project in Wellington-Dufferin-Guelph (WDG) region. Adults were questioned about their physical activities. The adult individuals having energy expenditure greater than or equal to 3 kilocalories per kilogram per day (KKD) are considered physically active and receiving health benefits.

## 2.0 Methodology

### *Survey Design*

The WDG *in motion* phone survey instrument was developed by HCA through a review of the original survey instrument used by Saskatchewan *in motion* and a slightly revised version of the instrument used by Manitoba *in motion* and discussions with Karen Armstrong (WDG *in motion* Coordinator) and Jim Bonk (Chief Executive Officer YMCA-YWCA of Guelph). A key interest of WDG *in motion* was to develop an instrument that would allow the WDG data to be compared with other *in motion* projects.

The survey instrument was designed to capture information on the physical activity levels of adults including the different types, frequency and duration of light, moderate and vigorous activities that they participated in.<sup>1</sup> The instrument was also designed to capture socio-economic and lifestyle/health practice data including age, gender, education, household income, employment by occupation/industry, smoking activity, and fruit and vegetable consumption.

Key modifications for the WDG survey instrument included lowering the respondent age criteria from 20 to 18 years, incorporating additional examples of light, moderate, and vigorous activities based on Canada's Physical Activity Guide for adults and children; incorporating questions related to fruit and vegetable consumption that have been successfully used in other survey applications (i.e. Cancer Care Ontario); and incorporating employment by occupation and industry questions that would permit comparisons with the standard occupation and industry categories used by Statistics Canada.

### *Survey Sample Frame*

The survey sample frame was developed based on the total number of private dwellings in each of the three areas. Table 1 shows the total number of private dwellings in each area for 2006 and the related sample size required for different confidence intervals. In order to obtain a 95% level of confidence within 5% (+/-) of the estimate in the results for the summary statistics for each of the three regions it was determined that a total of 381 surveys were required for the City of Guelph, 380 for Wellington County and 377 for Dufferin County.

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<sup>1</sup> The survey instrument was also designed to capture information on the physical activity levels of youth (5 years to 17 years of age). Parents were asked to respond on behalf of children between the ages of 5 and 12 years. For children between the ages of 13 and 17 the surveyor asked to speak directly with the child. If the child was unavailable or if the parent declined to allow the surveyor to speak to the child the parent was asked to respond on behalf of the child. This report focuses on the survey results for the adult respondents only.

Table 1: Total Dwellings in each of the Three Study Areas and Required Sample Size

City of Guelph Total Dwellings = 47,969 <sup>a</sup>		Wellington County Total Dwellings = 31,895 <sup>a</sup>		Dufferin County Total Dwellings = 19,754 <sup>a</sup>	
% Error	Adjusted Sample Size	% Error	Adjusted Sample Size	% Error	Adjusted Sample Size
1%	8002	1%	7381	1%	6462
2%	2287	2%	2233	2%	2141
3%	1044	3%	1033	3%	1012
4%	593	4%	589	4%	583
5%	381	5%	380	5%	377
6%	265	6%	265	6%	263
7%	195	7%	195	7%	194
8%	150	8%	149	8%	149
9%	118	9%	118	9%	118
10%	96	10%	96	10%	96

<sup>a</sup> 2006 Population Census, Statistics Canada.

Participants for the phone survey were randomly selected from the local telephone directories. The random selection process involved identifying all of the relevant telephone exchanges within the study area and using the white pages from the relevant directories to develop the sample frame. Once all of the relevant pages of the phone directory were identified the target sample (i.e. 380 respondents) was then divided into the total number of relevant phone pages – this provided the number of participants to be randomly selected from each page. A random number was then selected to identify the starting phone number for each page and every  $n^{\text{th}}$  name on the page was then identified as a participant. If a business phone number was identified during the random selection process, the next household phone number listed in the directory was selected. At least three attempts were made to contact each household selected for the survey. If there was no response after three calls or if the number was out of service, the next household phone number listed in the directory was selected.

Advance notice of the survey was provided through various community newspaper articles in the WDG area in March 2007.

### *Survey Pre-Test*

The HCA survey team conducted a pre-test of the **WDG *in motion*** survey instrument between April 10 and 12. Calls were limited to weeknights from 5:00pm to 9:00pm. A total of 50 surveys were completed during the pre-test and it was determined that the survey instrument was appropriate. The instrument was converted to Microsoft ACCESS to more easily facilitate direct data entry during the phone interview.

## Survey Implementation

The survey was conducted between April 16 and June 5, 2007. The gender profile of the survey respondents in each region was monitored on a daily basis as the survey progressed. When a gender imbalance was detected the survey team would focus on male or female respondents as needed until the gender profile was brought back into balance. In summary the survey was stratified for region and gender.

As shown in Table 2, over 8,500 household phone numbers were called during the survey. Approximately 5% of the numbers were found to be out of service. With respect to the remaining 'eligible' phone numbers, 32% could not be reached (i.e. no answer after multiple calls), 22% asked to be called back but were unavailable at the time of the call back, and 46% actually completed or declined to participate in the survey. Within this last group a total of 1,159 respondents or 31% completed the survey.

Table 2: Survey Response Profile

Call Record		Number	Percent
A	1. Total phone numbers attempted	8,584	100%
	2. Not in service / wrong numbers	429	5%
	3. Remaining	8,155	95%
B	4. Total eligible numbers	8,155	100%
	5. No answer / could not be reached (multiple attempts)	2,636	32%
	6. Asked to be called back but unavailable	1,794	22%
	7. Remaining	3,725	46%
C	8. Total interviewed, declined	3,725	100%
	9. Refusal	2,566	69%
	10. Completed interviews	1,159	31%

A total of 417 surveys were completed in Wellington County, 353 in Dufferin County, and 389 in the City of Guelph.<sup>2</sup> This provides a 94-95%+ level of confidence, +/- 5% error in all three areas at the aggregate level. It is important to note that once the regional data is divided into age groups or education categories or any other sub group, the level of reliability diminishes because of the smaller number of respondents in each of the sub categories.

Additional details on the demographic profile of the adult respondents in each area (e.g. gender, highest level of education, age, employment status, occupation, household income, number of children, etc) is provided in the results section of the report.

<sup>2</sup> An additional 251 children and youth between the ages of 5 and 17 years were surveyed (82 in Wellington County, 93 in Dufferin County, and 76 in the City of Guelph) in the process of interviewing the adults. This report focuses on the survey results for the adult respondents only. For the findings on the WDG children and youth see the report *Wellington-Dufferin-Guelph in motion Physical Activity Survey Report - Findings for Children and Youth 5 to 17 Years of Age*, June 2008.

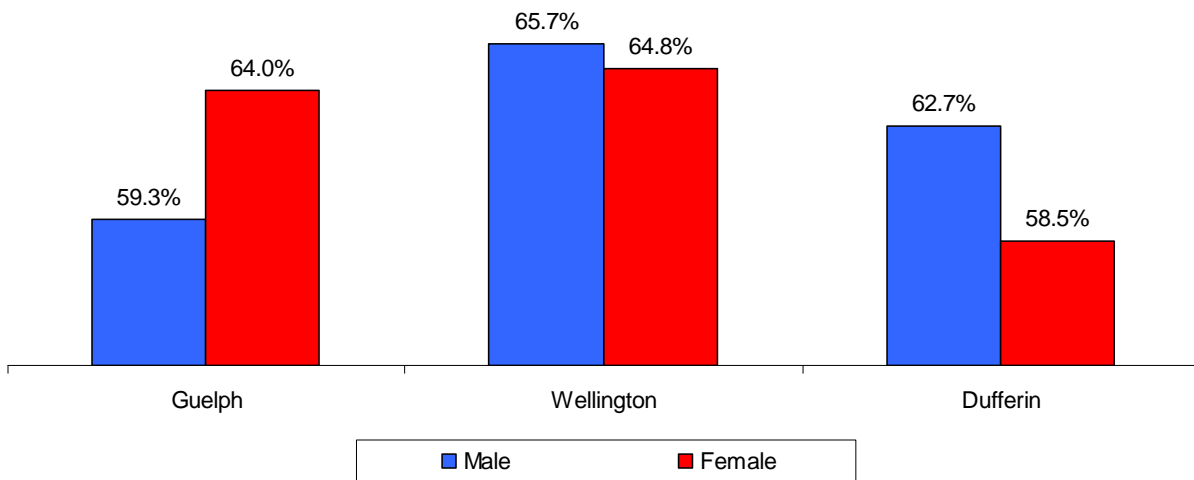
### 3.0 Physical Activity Overview

#### 3.1 Kilocalories per Kilogram per Day (KKD)

Approximately 59.3% of the male residents of Guelph, 65.7% of the male residents of Wellington, and 62.7% of the male residents of Dufferin have energy expenditure greater than or equal to 3 KKD from light, moderate and vigorous physical activity. They therefore are considered to be meeting Canada's Physical Activity Guide recommendation of 60 minutes daily.

Approximately 64 % of female residents of Guelph, 64.8 % female residents of Wellington, and 58.5 % female residents of Dufferin have energy expenditure greater than or equal to 3 KKD from light, moderate and vigorous physical activity. They therefore are considered to be meeting Canada's Physical Activity Guide recommendation of 60 minutes daily.

Chart 1: Percent Meeting 3 KKD from Light, Moderate and Vigorous Physical Activity



However, as indicated from the data in the next section, a large portion of this activity is in light. When it is removed the % of the population benefiting declines dramatically.



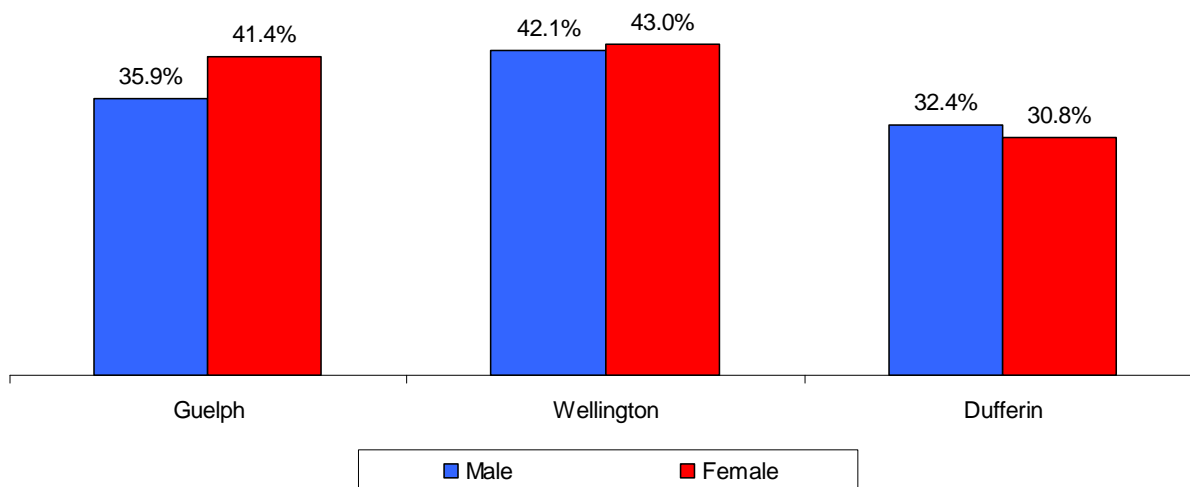
### 3.2 Kilocalories per Kilogram per Day (KKD) from Moderate and Vigorous Activity Only<sup>3</sup>

In Guelph, 35.9% males and 41.4% of females are receiving health benefits from moderate and vigorous activities only.

In Wellington, 42.1% males and 43% females are receiving health benefits from moderate and vigorous activities only.

In Dufferin, 32.4% males and 30.8% females are receiving health benefits from moderate and vigorous activities only.

Chart 2: Percent Meeting 3 KKD from Moderate and Vigorous Physical Activity Only



<sup>3</sup> William L Haskell et al. (2007), *Medicine and Science in Sports and Exercise*, pp 1423-1434, in their article on physical activity and public health suggest that adults should have at least moderate intensity activity to have health benefits from physical activity.

### 3.3 Most Common Light, Moderate, and Vigorous Physical Activities

In all three areas – Guelph, Wellington and Dufferin, the most popular light activity among males and females is walking followed by gardening.

The most popular moderate activity in Guelph, Wellington, and Dufferin among male and female is bicycling followed by fast walking.

The most popular vigorous activity in Guelph among males is jogging followed by hockey and aerobics and among females is jogging followed by aerobics.

The most popular vigorous activity in Wellington among males is jogging followed by hockey and swimming and among females is jogging followed by aerobics.

The most popular vigorous activity in Dufferin among males is jogging followed by aerobics and among females is jogging followed by hockey and aerobics.

Table 3: Most Common Light, Moderate and Vigorous Physical Activities Identified by Gender

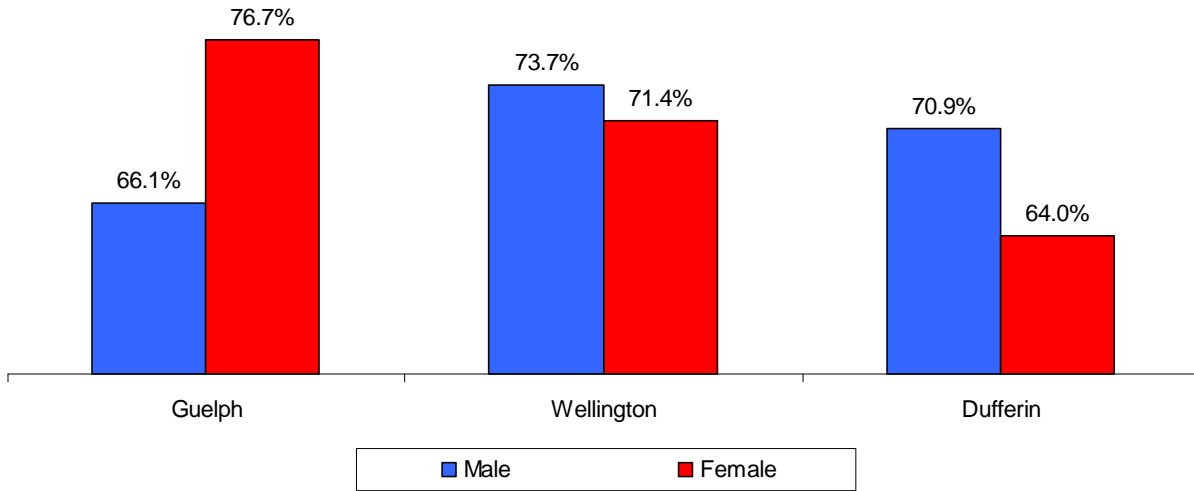
Region	Activity Level	Male	Female
Guelph	Light	Walking followed by gardening	Walking followed by gardening
	Moderate	Bicycling followed by fast walking	Bicycling followed by fast walking
	Vigorous	Jogging followed by hockey and aerobics	Jogging followed by aerobics
Wellington	Light	Walking followed by gardening	Walking followed by gardening
	Moderate	Bicycling followed by fast walking	Bicycling followed by fast walking
	Vigorous	Jogging followed by hockey and swimming	Jogging followed by aerobics
Dufferin	Light	Walking followed by gardening	Walking followed by gardening
	Moderate	Bicycling followed by fast walking	Bicycling followed by fast walking
	Vigorous	Jogging followed by aerobics	Jogging followed by hockey and aerobics

### 3.4 Regular Exercise and Readiness to Exercise

The percentage of males exercising regularly in Guelph is 66.1% compared to 73.7% in Wellington and 70.9% in Dufferin.

The percentage of females exercising regularly in Guelph is 76.7% compared to 71.4% in Wellington, and 64% in Dufferin (Chart 3).

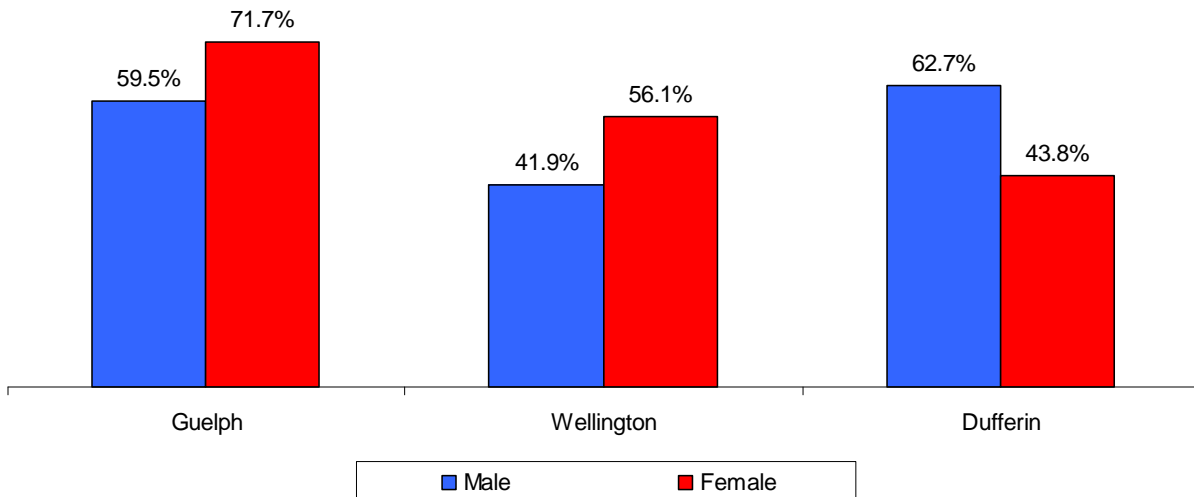
Chart 3: Percentage of Respondents by Gender that Exercise Regularly



The percentage of males who have been exercising regularly for the last 6 months or more in Guelph is 54.4% compared to 41.9% in Wellington and 62.7% in Dufferin.

The percentage of females who have been exercising regularly for the last 6 months or more in Guelph is 71.7% compared to 56.1% in Wellington and 43.8% in Dufferin (Chart 4).

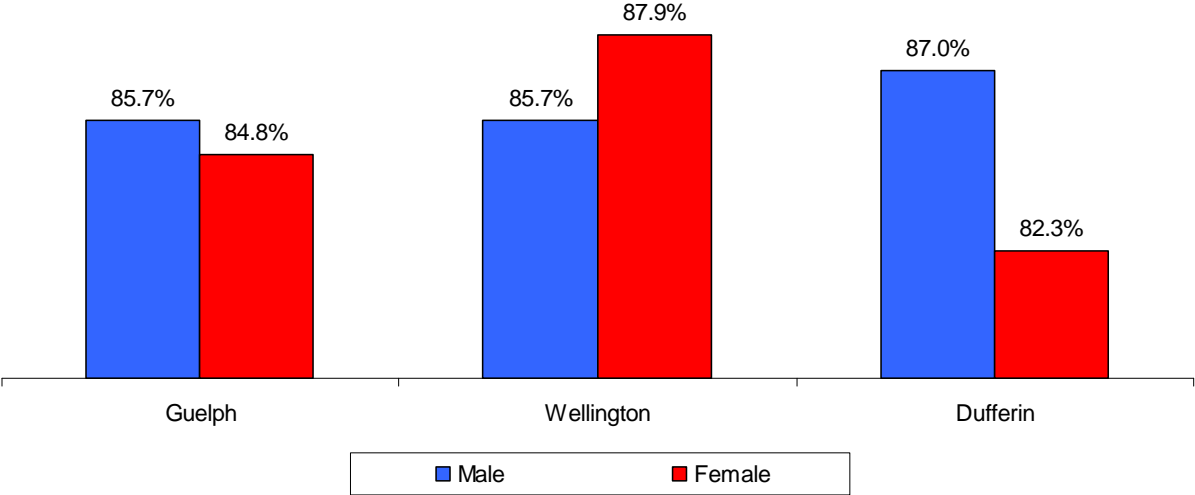
Chart 4: Percentage of Respondents by Gender that have been Exercising Regularly for 6 Months or More



The percentage of males who intend to begin regular exercise in the next six months in Guelph is 85.7% compared to 85.7% in Wellington and 87% in Dufferin.

The percentage of females who intend to begin regular exercise in the next six months in Guelph is 84.8% compared to 87.9% in Wellington and 82.3% in Dufferin (Chart 5).

Chart 5: Percentage of Respondents by Gender that Intend to Begin Exercising Regularly in the Next 6 Months

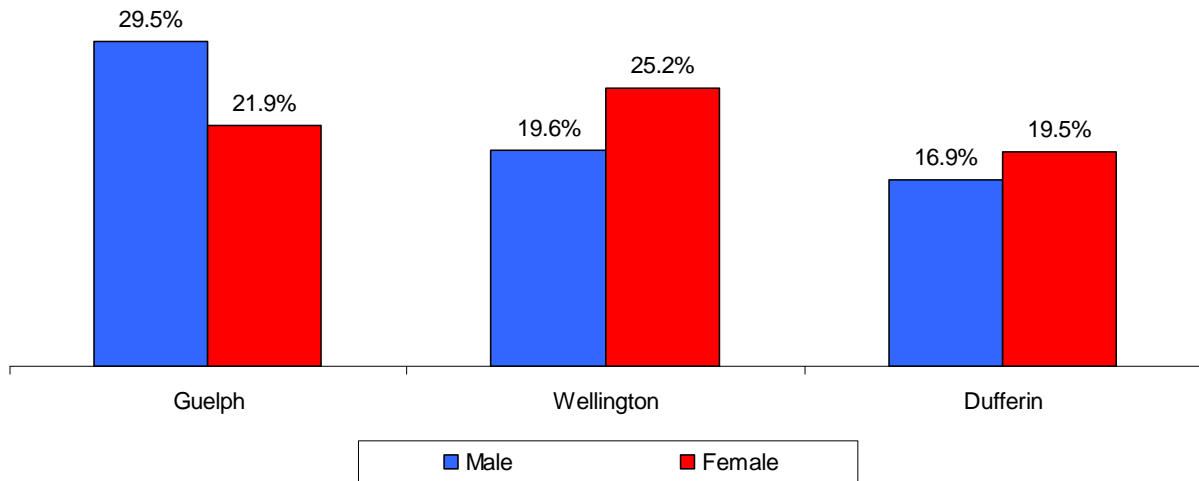


### 3.5 Use of Recreation or Fitness Centre

29.5% of male residents in Guelph, 19.6% of male residents in Wellington, and 16.9% of male residents in Dufferin are members of a recreation or fitness centre.

21.9% of female residents in Guelph, 25.2% of female residents in Wellington, and 19.5% of female residents in Dufferin are members of a recreation or fitness centre (Chart 6).

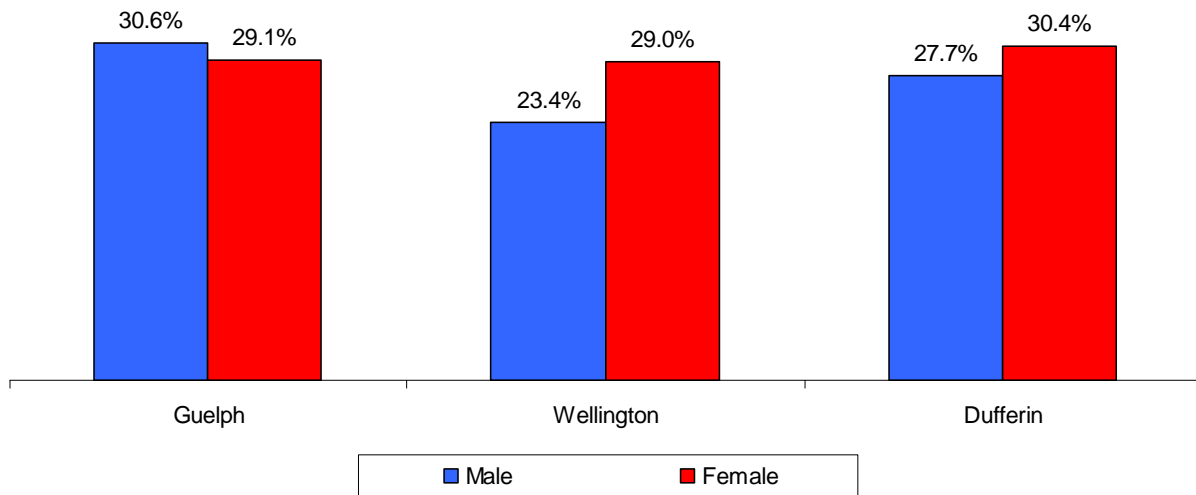
Chart 6: Percentage of Respondents by Gender who are Members of a Recreation/Fitness Centre



30.6% of male residents in Guelph, 23.4% of male residents in Wellington, and 27.7% of male residents in Dufferin exercised at a recreation or fitness centre in the last 7 days.

29.1% of female residents in Guelph, 29% of female residents in Wellington, and 30.4% of female residents in Dufferin exercised at a recreation or fitness centre in the last 7 days (Chart 7).

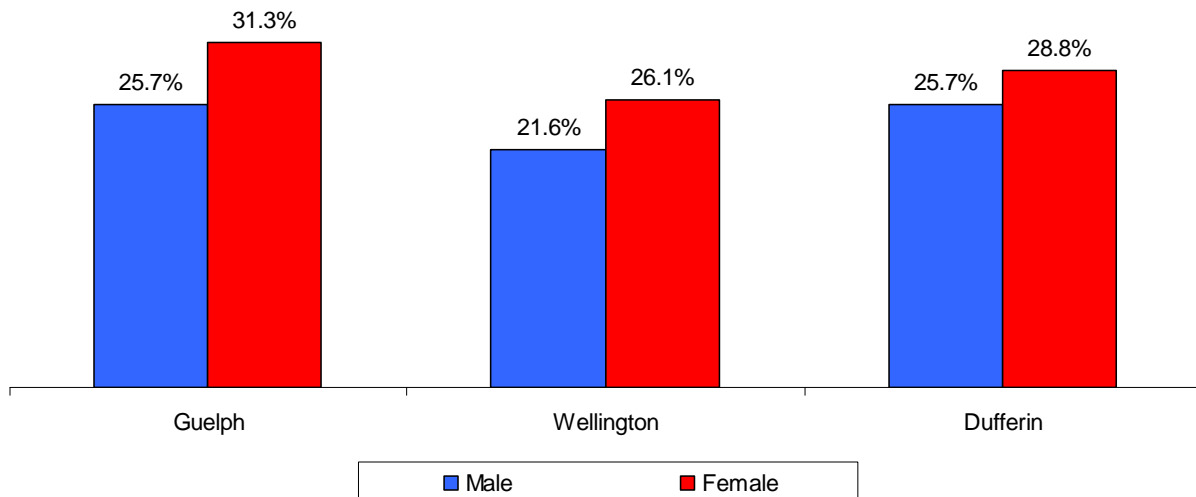
Chart 7: Percentage of Respondents by Gender that Exercised at a Recreation/Fitness Centre in the Last 7 Days



25.7% of male residents in Guelph, 21.6 % of male residents in Wellington, and 25.7 % of male residents in Dufferin would consider using a recreation or fitness centre at some time in the next year.

31.3% of female residents in Guelph, 26.1% of female residents in Wellington, and 28.8 % of female residents in Dufferin would consider using a recreation or fitness centre at some time in the next year (Chart 8).

Chart 8: Percentage of Respondents by Gender that would consider using a Recreation/Fitness Centre sometime in the Next Year

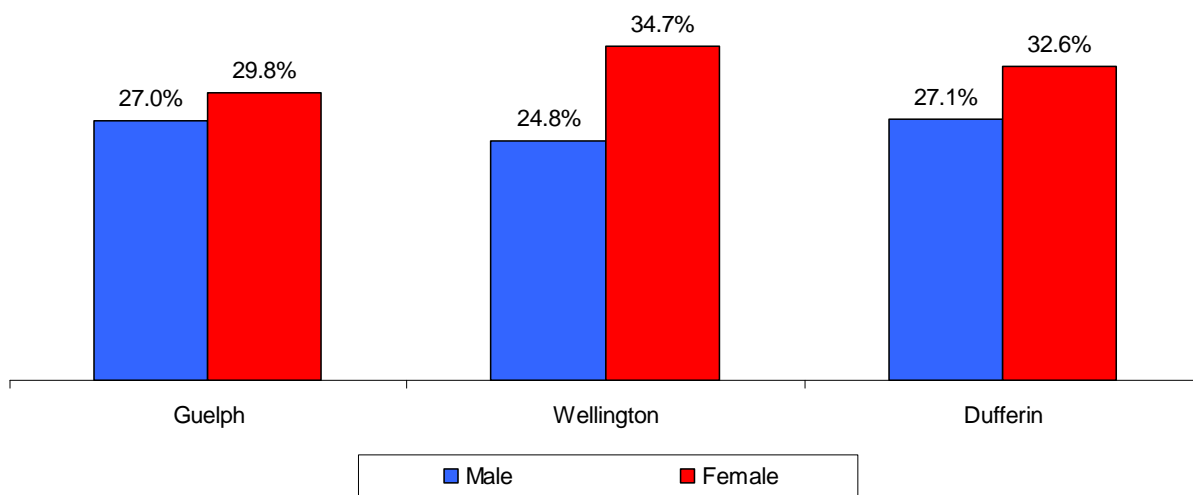


### 3.6 Physical or Mental Health Condition

27% of male residents in Guelph, 24.8% of male residents in Wellington, and 27.1% of male residents in Dufferin have a physical or mental health condition that has affected their overall health for longer than 6 months.

29.8% of female residents in Guelph, 34.7% of female residents in Wellington, and 32.6% of female residents in Dufferin have a physical or mental health condition that has affected their overall health for longer than 6 months (Chart 9).

Chart 9: Percentage of Respondents by Gender with a Health Condition that affected their overall Health for longer than 6 Months



Muscle bone or joint problems are most commonly reported health conditions among women (Guelph 11.8%, Wellington 12.7%, and Dufferin 16.4%) followed by breathing problems in Guelph(3%), heart problems in Wellington (3.9%) and Blood pressure and diabetes in Dufferin (2.9%).

The most commonly reported health conditions among men in Wellington (8.6%) and Dufferin (6.8%) is muscle bone/joint problems where as in Guelph (6.6%), heart problems are more common (Table 4).

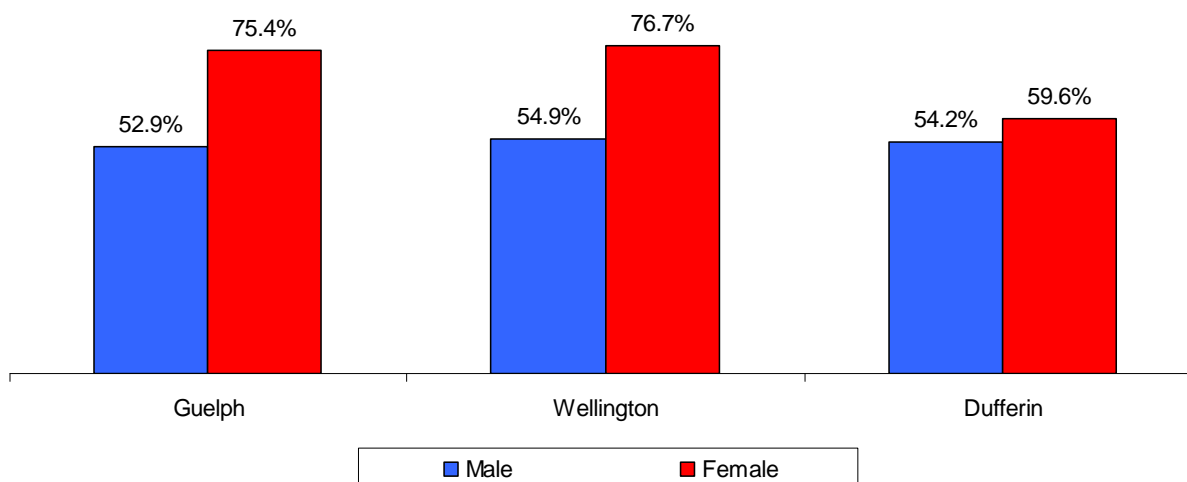
Table 4: Health Conditions Identified by Area and Gender

Health Condition or Problem	Guelph		Wellington		Dufferin	
	Male	Female	Male	Female	Male	Female
Muscle bone or joint	4.4%	11.8%	8.6%	12.7%	6.8%	15.4%
Breathing	1.6%	3.0%	1.9%	2.5%	1.7%	1.1%
Heart and circulation	6.6%	2.5%	6.7%	3.9%	4.0%	2.3%
Digestive system	0.5%	0.0%	0.0%	0.5%	0.0%	0.6%
Kidney, bladder, urinary	0.5%	0.5%	0.5%	0.5%	0.6%	0.0%
Neurological	0.5%	0.0%	0.5%	1.0%	0.6%	0.6%
Mental or emotional	1.6%	1.0%	2.9%	2.5%	1.1%	1.1%
Cancer	1.1%	1.0%	1.4%	1.0%	2.3%	0.6%
Blood	0.0%	0.5%	1.4%	0.5%	0.0%	0.0%
Blood pressure	2.2%	1.0%	1.0%	2.0%	0.0%	2.9%
Diabetes	3.3%	0.5%	1.9%	2.9%	1.7%	2.9%
Other problems	8.2%	10.3%	4.8%	11.3%	7.3%	9.1%

52.9% of male residents in Guelph, 54.9% of male residents in Wellington, and 54.2% of male residents in Dufferin report that this health condition prevented them from being physically active.

75.4% of female residents in Guelph, 76.7% of female residents in Wellington, and 59.6% female residents in Dufferin report that this health condition prevented them from being physically active (Chart 10).

Chart 10: Percentage of Respondents by Gender with a Health Condition that prevents them from being Physically Active





### 3.7 Tobacco Use

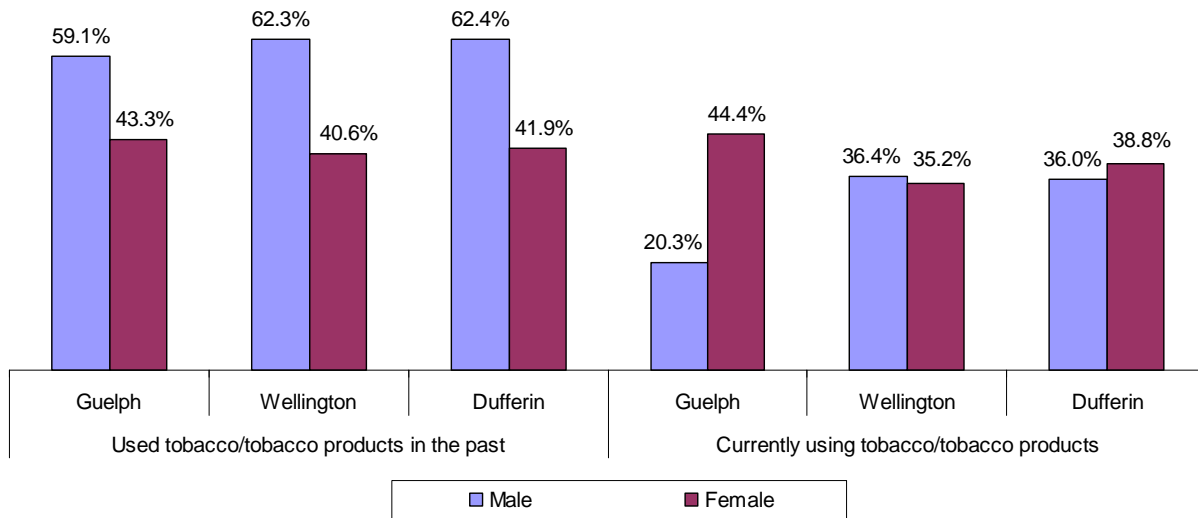
A little less than 2/3<sup>rd</sup>s of male residents in Guelph (59.1%), Wellington (62.3%), and Dufferin (62.4%) have used tobacco or tobacco products at some point in their life.

Approximately 40% of female residents in Guelph, Wellington and Dufferin have used tobacco or tobacco products at some point in their life.

Approximately 1/5<sup>th</sup> of male residents in Guelph (20.3%), and slightly more than 1/3<sup>rd</sup> of male residents in Wellington (36.4%), and Dufferin (36%) are currently using tobacco or tobacco products.

Less than half of female residents in Guelph (44.4%), and slightly more than 1/3<sup>rd</sup> of female residents in Wellington (35.2%) and Dufferin (38.4%) are currently using tobacco or tobacco products (Chart 11).

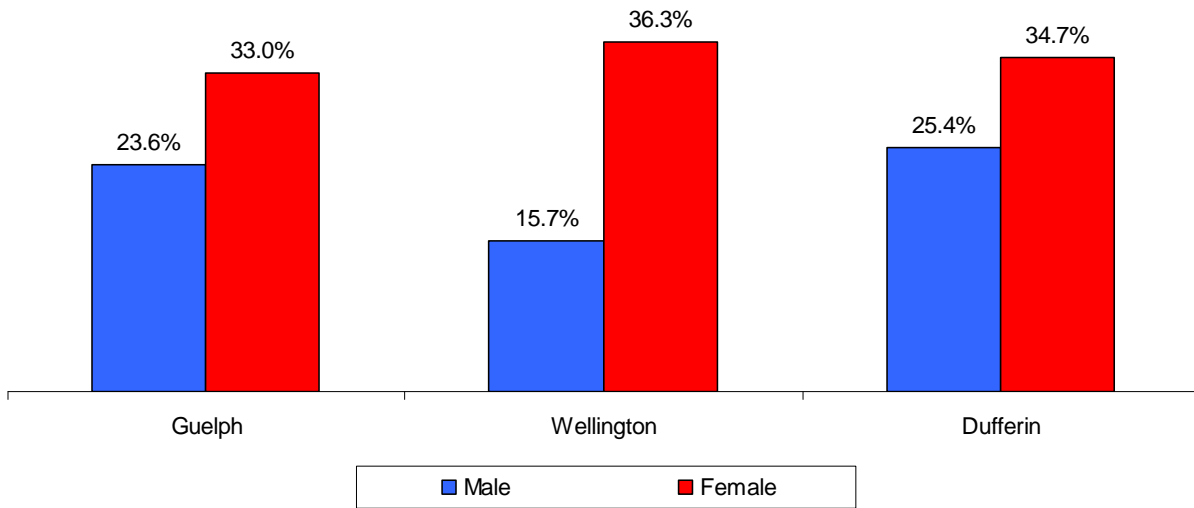
Chart 11: Percentage of Respondents by Gender and History of Tobacco/Tobacco Product Usage



### 3.8 Vegetable and Fruit Consumption

Vegetable and fruit consumption, in all three areas, was low. In the City of Guelph and Dufferin County only about 30% of the respondents (male and female combined) are consuming vegetables and fruits 5 or more times per day. In Wellington County only about 26% of the respondents (male and female combined) are consuming vegetables and fruits 5 or more times per day. Compared to adult women, fewer adult men are consuming 5 or more vegetables and fruit each day in all three areas (Chart 12).

Chart 12: Percentage of Respondents by Gender that Consume 5 or More Vegetables and Fruits Each Day

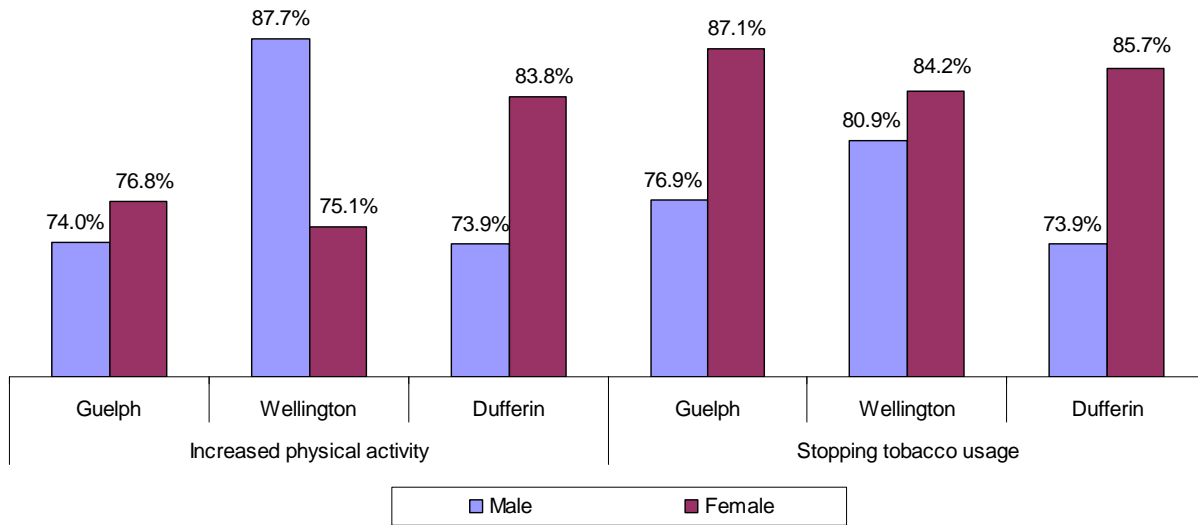


### 3.9 Attitude toward Physical Activity and Smoking in Relation to Disease

A large majority of the residents in Guelph (male: 74% and female: 76.9%), Wellington (male: 87.7% and female: 75.1%), and Dufferin (male: 73.9% and female: 83.3%) strongly believe that increasing physical activity reduces the incidence of certain diseases such as diabetes, cancer, and cardiovascular diseases.

A large majority of the residents in Guelph (male: 76.9% and female: 87.1%), Wellington (male: 80.9% and female: 84.2%), and Dufferin (male: 73.9% and female: 85.7%) strongly believe that stopping tobacco usage reduces the incidence of certain diseases such as diabetes, cancer, and cardiovascular diseases (Chart 13).

Chart 13: Percentage of Respondents by Gender that Believe Increased Physical Activity and Stopping Tobacco Usage Reduces the Incidence of Certain Diseases

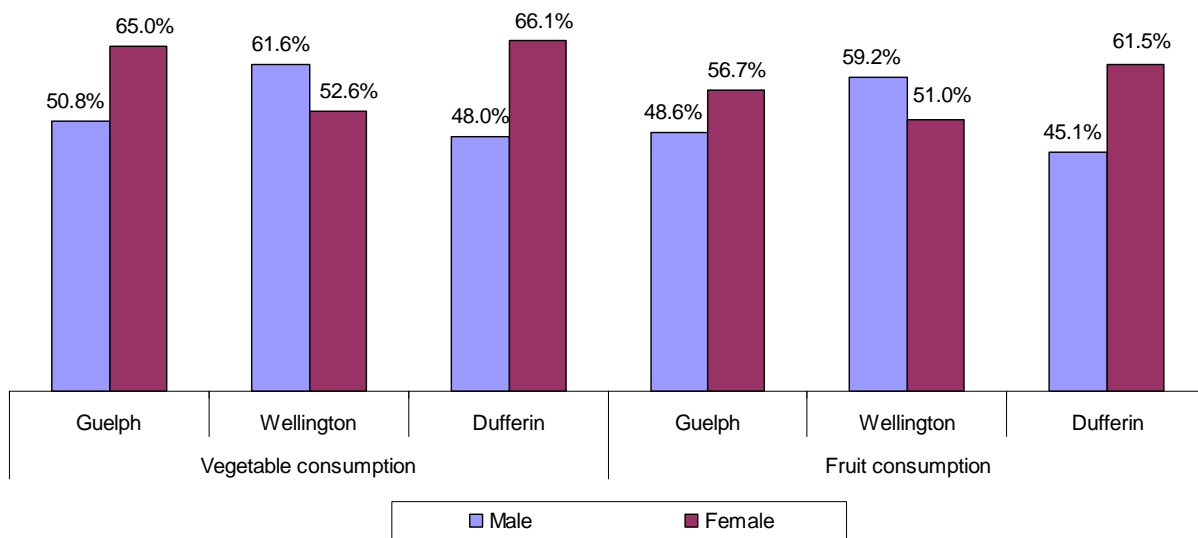


### 3.10 Attitude toward Vegetable and Fruit Consumption in Relation to Disease

Around half the residents of Guelph (male: 50.8% and female: 65.0%), Wellington (male: 61.6% and female: 52.6%), and Dufferin (male: 48% and female: 66.1%) strongly believe that vegetable consumption reduces the incidence of certain diseases such as diabetes, cancer, and cardiovascular diseases.

Around half the residents of Guelph (male: 48.6% and female: 56.7%), Wellington (male: 59.2% and female: 51%), and Dufferin (male: 45.1% and female: 61.5%) strongly believe that fruit consumption reduces the incidence of certain diseases such as diabetes, cancer, and cardiovascular diseases (Chart 14).

Chart 14: Percentage of Respondents by Gender that Believe Vegetable and Fruit Consumption Reduces the Incidence of Certain Diseases

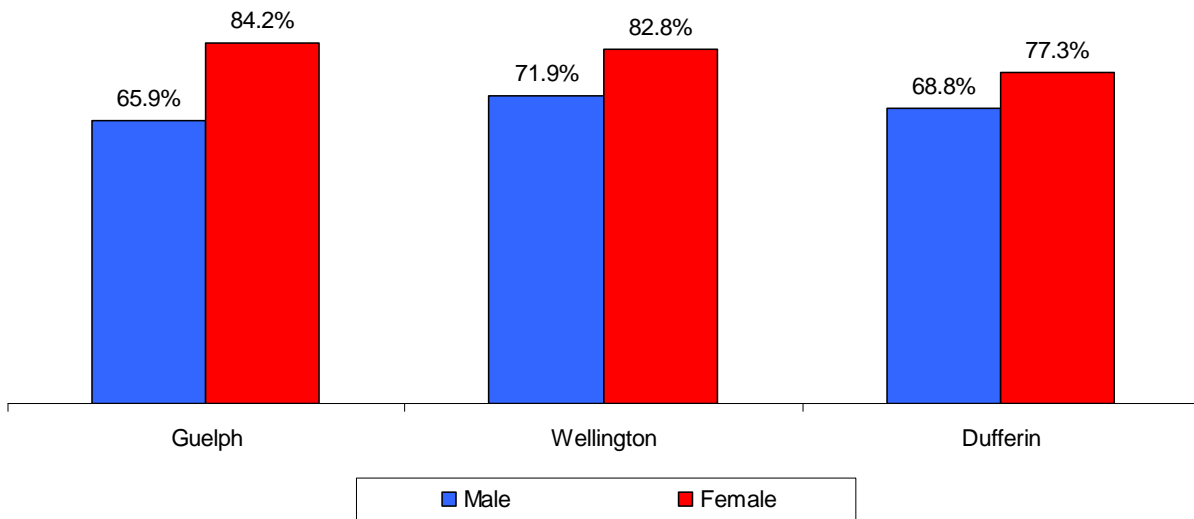


### 3.11 Awareness of Advertising

Approximately 2/3<sup>rd</sup>s of the male residents in Guelph (65.9%), Wellington (71.9%), and Dufferin (68.8%) have recently seen, heard, or read an advertising message promoting the benefits of physical activity.

More than 3/4 of the female residents in Guelph (84.2%), Wellington (82.8%), and Dufferin (77.3%) have recently seen, heard, or read any advertising message promoting the benefits of physical activity (Chart 15).

Chart 15: Percentage of Respondents by Gender that have Recently Seen/Heard/Read Advertising Messages Promoting the Benefits of Physical Activity



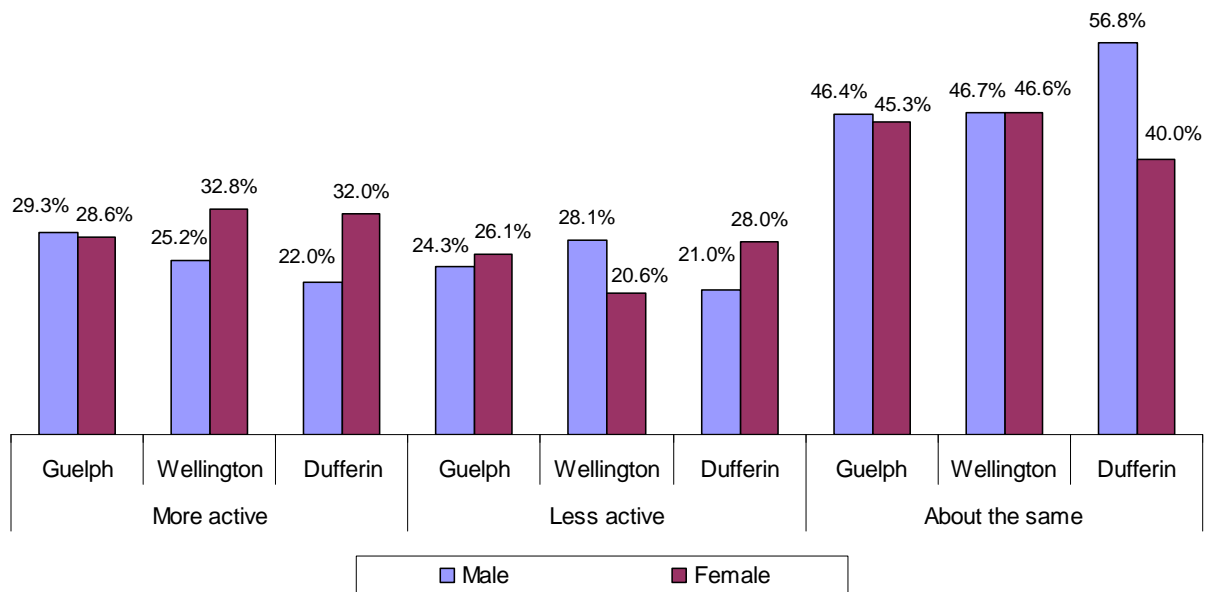
### 3.12 Current Level of Physically Activity Compared to Past Activity

Approximately 1/4 of the residents in Guelph (male: 24.3% and female: 26.1%), Wellington (male: 28.1% and female: 20.6%), and Dufferin (male 22% and female: 32%) are less physically active than they were two years ago.

A little less than 1/3 of residents in Guelph (male: 29.1% and female: 28.6%), Wellington (male: 25.2% and female: 32.8%), and Dufferin (male 21% and female: 28%) are more physically active than they were two years ago.

Around half of the residents in Guelph (male: 46.4% and female: 45.3%), Wellington (male: 46.7% and female: 46.6%), and Dufferin (male 56.8% and female: 40%) have the same level of physical activity as they did two years ago (Chart 16).

Chart 16: Percentage of Respondents by Gender and Level of Physical Activity Today Compared to Two Years Ago



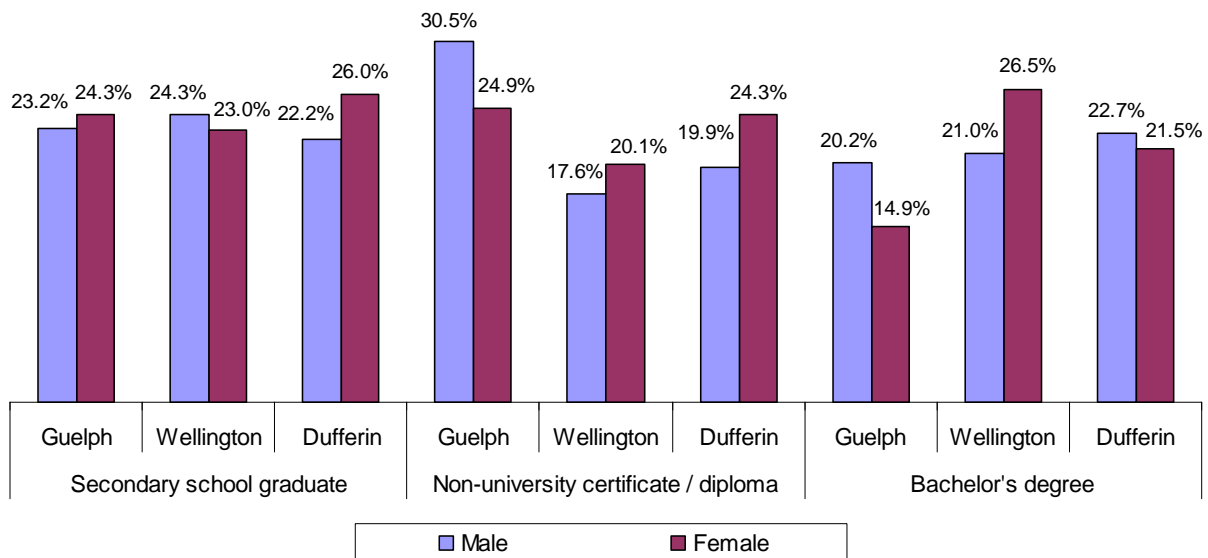
### 3.13 Highest Level of Education

The largest category of residents in Guelph (male: 30.5 % and female: 24.9%) have a non-university certificate or diploma followed by residents with a secondary school diploma.

The largest category of male (24.3%) residents in Wellington have a secondary school diploma followed by bachelors degree (21%) while the largest category of female residents have a bachelors degree (26.5%) followed by residents with a secondary school diploma (23%).

The largest category of male residents in Dufferin (22.7%) have a bachelors degree followed by a secondary school diploma (22.2 %) while the largest category of the female residents have secondary school graduation (26%) followed by residents with a non-university certificate or diploma (24.3%) (Chart 17).

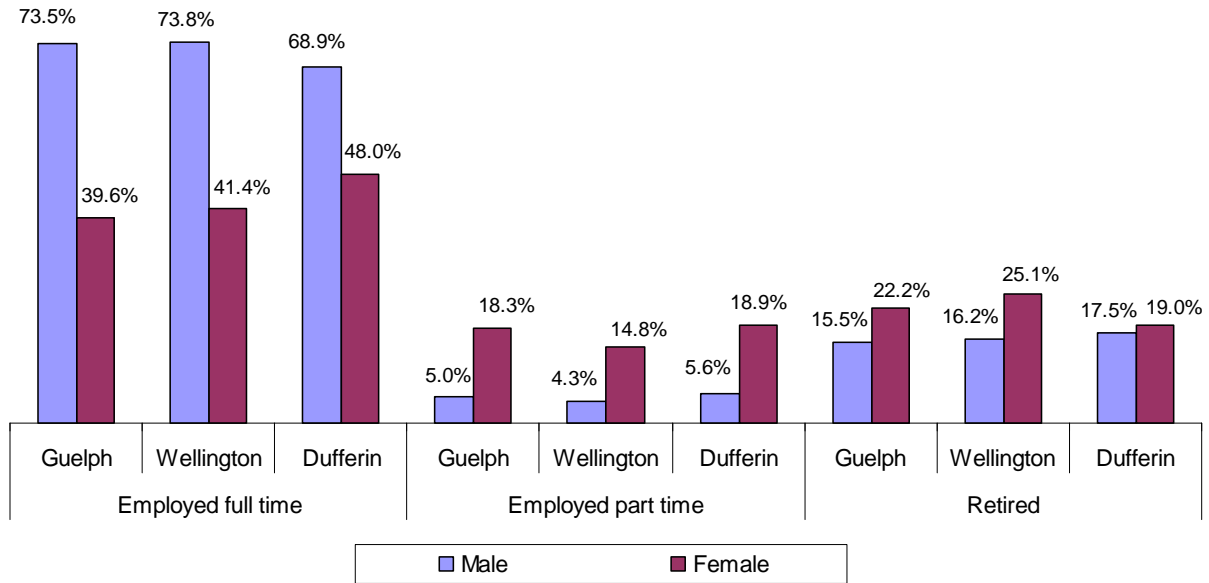
Chart 17: Percentage of Respondents by Gender and Highest Level of Education (Select Categories)



### 3.14 Employment Status

The large majority of male residents in Guelph (73.5%), Wellington (73.8%) and Dufferin (68.9%) are employed full time while less than half of the female residents in these three areas (39.6% to 48%) are employed full time (Chart 18).

Chart 18: Percentage of Respondents by Gender and Employment Status (Select Categories)



### 3.15 Household Income

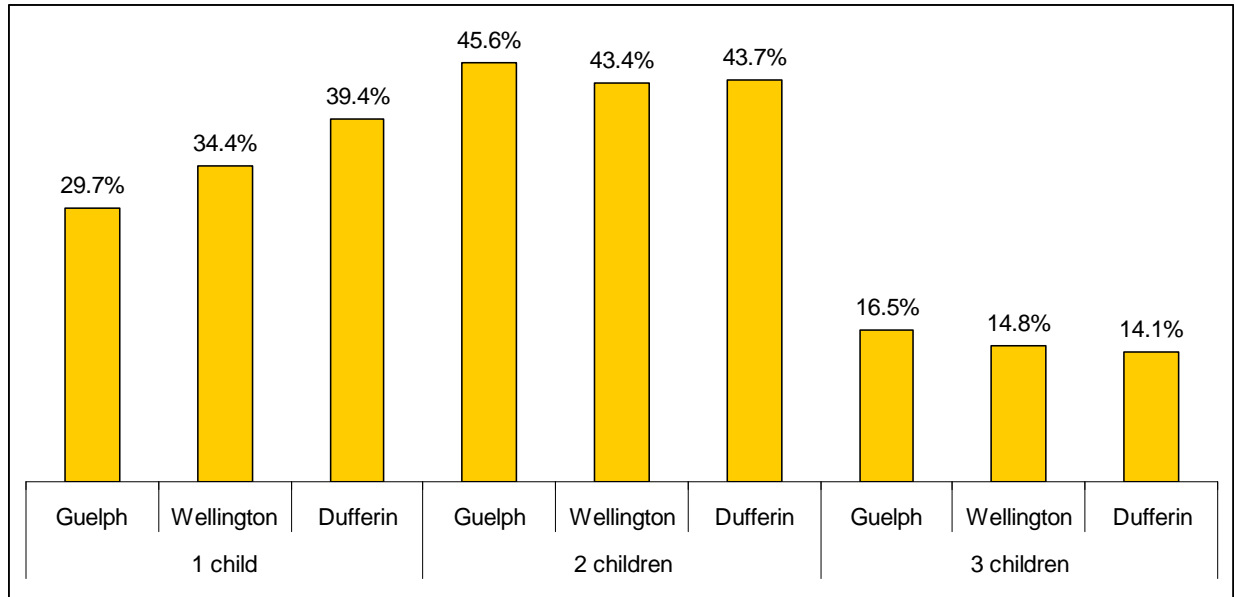
The median household income is \$75,000 for all three areas. However, it is important to note that only about 1/3 of the respondents provided this information during the survey.



### 3.16 Number of Children Living at Home (Under the Age of 18)

Just over 40% of the respondents in all three areas reported that they had two children under the age of 18 years living at home while fewer than 20% of the respondents reported that they had three children living at home (Chart 19).

Chart 19: Percentage of Respondents and Number of Children Under 18 Years of Age (Select Categories)



### 3.17 Correlation of KKD with Age and Income

In all three locations for each gender, the value of "P" is greater than 0.05, and the results are not-significant. There is no significant correlation between KKD, income, and age.