



Candidates must complete this page and then give this cover and their final version of the extended essay to their supervisor.

Candidate session number

Candidate name

School number

School name

Examination session (May or November)

May

Year

2012

Diploma Programme subject in which this extended essay is registered: Geography

(For an extended essay in the area of languages, state the language and whether it is group 1 or group 2.)

Title of the extended essay: What are the most important factors in determining where the next Olympic athletes will come from in Canada?

**Candidate's declaration**

*This declaration must be signed by the candidate; otherwise a grade may not be issued.*

The extended essay I am submitting is my own work (apart from guidance allowed by the International Baccalaureate).

I have acknowledged each use of the words, graphics or ideas of another person, whether written, oral or visual.

I am aware that the word limit for all extended essays is 4000 words and that examiners are not required to read beyond this limit.

This is the final version of my extended essay.

Candidate's signature:



Date:

Jan. 13/12



### Supervisor's report and declaration

The supervisor must complete this report, sign the declaration and then give the final version of the extended essay, with this cover attached, to the Diploma Programme coordinator.

Name of supervisor (CAPITAL letters) [REDACTED]

Please comment, as appropriate, on the candidate's performance, the context in which the candidate undertook the research for the extended essay, any difficulties encountered and how these were overcome (see page 13 of the extended essay guide). The concluding interview (viva voce) may provide useful information. These comments can help the examiner award a level for criterion K (holistic judgment). Do not comment on any adverse personal circumstances that may have affected the candidate. If the amount of time spent with the candidate was zero, you must explain this, in particular how it was then possible to authenticate the essay as the candidate's own work. You may attach an additional sheet if there is insufficient space here.

[REDACTED] began his research early in the summer of 2011. He collected a lot of data and did his best to compile it through the summer months. We kept in contact via email and BlackBerry Messenger. He spent a great deal of time writing his essay and incorporating his data, and he and I reviewed it a number of times. He was willing to listen to suggestions about ideas that would enhance his work, yet he was committed to working with the core value of his essay to keep it authentically his.

This declaration must be signed by the supervisor; otherwise a grade may not be issued.

I have read the final version of the extended essay that will be submitted to the examiner.

To the best of my knowledge, the extended essay is the authentic work of the candidate.

I spent ~ 3 hours with the candidate discussing the progress of the extended essay.

Supervisor's signature [REDACTED]

Date: Jan. 13/12

**Assessment form (for examiner use only)**

Candidate session number

**Achievement level**

Criteria	Examiner 1	maximum	Examiner 2	maximum	Examiner 3
A research question	1 ✓	2	2 ✓	2	
B introduction	2 ✓	2	2 ✓	2	
C investigation	3 ✓	4	3 ✓	4	
D knowledge and understanding	3 ✓	4	3 ✓	4	
E reasoned argument	2 ✓	4	2 ✓	4	
F analysis and evaluation	2 ✓	4	2 ✓	4	
G use of subject language	3 ✓	4	3 ✓	4	
H conclusion	1 ✓	2	1 ✓	2	
I formal presentation	3 ✓	4	3 ✓	4	
J abstract	0 ✓	2	0 ✓	2	
K holistic judgment	2 ✓	4	2 ✓	4	
Total out of 36	22 ✓		23 ✓		

Name of examiner 1: \_\_\_\_\_  
(CAPITAL letters)

Examiner number: \_\_\_\_\_

Name of examiner 2: \_\_\_\_\_  
(CAPITAL letters)

Examiner number: \_\_\_\_\_

Name of examiner 3: \_\_\_\_\_  
(CAPITAL letters)

Examiner number: \_\_\_\_\_

IB Cardiff use only: B: ✓

IB Cardiff use only: A: 99018

Date: 22/5/12

**What are the most important factors in determining where  
the next Olympic athletes will come from in Canada?**

Geography

IB Candidate Number:

May 2012

Word Count = 3665



## ABSTRACT

This essay will explore the most important factors in determining where the next elite Canadian Olympic athletes will come from. The provinces of Ontario, Quebec, Alberta and British Columbia consistently produce the highest number of Olympic athletes. This was not surprising based on the relative population of these provinces; however, a deeper review into the research question found that there are other contributing factors. Some anomalies were also found. A number of factors were evaluated including cultural and social impacts, population, government support and an athlete's support system. The results concluded that there are not one but many factors that influence and determine where the next Olympic athletes will come from.

Short abstract  
with one or  
more required  
element missing.

✓ K&L present  
not something  
of the findings!  
but no  
mention of  
how the  
study was  
carried  
out.

# Table of Contents

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<b>Canada and the Olympics</b>	<b>4</b>
<b>Discussion of athlete distribution</b>	<b>5</b>
<b>Macro economic level</b>	<b>8</b>
<b>Meso economic level</b>	<b>10</b>
<b>Own the Podium</b>	<b>10</b>
<b>Elite Athletes by Major Cities</b>	<b>13</b>
<b>Micro Economic Level</b>	<b>14</b>
<b>Conclusion of Investigation and key findings</b>	<b>15</b>

## EXTENDED ESSAY TOPIC

What are the most important factors in determining where Canada's next Olympic athletes will come from?

geographical?

RQ clearly focussed

## INTRODUCTION

On three separate occasions Canada has hosted the Olympic Games. The summer Olympics were held in Montreal in 1976, the winter Olympics in Calgary in 1988, and most recently Vancouver held the winter Olympics in 2010. Overall Canada has produced very strong Olympic athletes, but there are some areas of Canada that produce greater concentrations of these elite athletes. This essay will review a number of factors that are believed to contribute to the success of the elite Canadian Olympic athletes. It will look at where these athletes come from and explain any provincial or territorial trends and patterns that exist. The essay will also review the geographical and economic circumstances that exist to understand what factors might account for the development of elite Canadian athletes.

justification present

The on-line Merriam Webster dictionary defines an Olympian as "a participant in Olympic games" (Merriam-Webster Incorporated). In the same dictionary elite is defined as "the best in a class; superachiever". An athlete is defined as "a person trained to compete in sports or exercises involving physical strength, speed, or endurance; a person who has natural aptitude for physical activities. (Farlex Inc) This essay will determine the most important factors that are necessary for these superachievers of strength, speed or endurance to participate in the Olympic Games.

I chose this topic because I am an athlete and very interested in sports. Learning what it takes to permit athletes to reach their full potential that allows them to participate at an Olympic level is an appealing topic. Another reason I chose this topic is because in the 2010 Olympics in Vancouver, Canada won more gold medals than it has ever won before, won the most gold medals out of all the countries

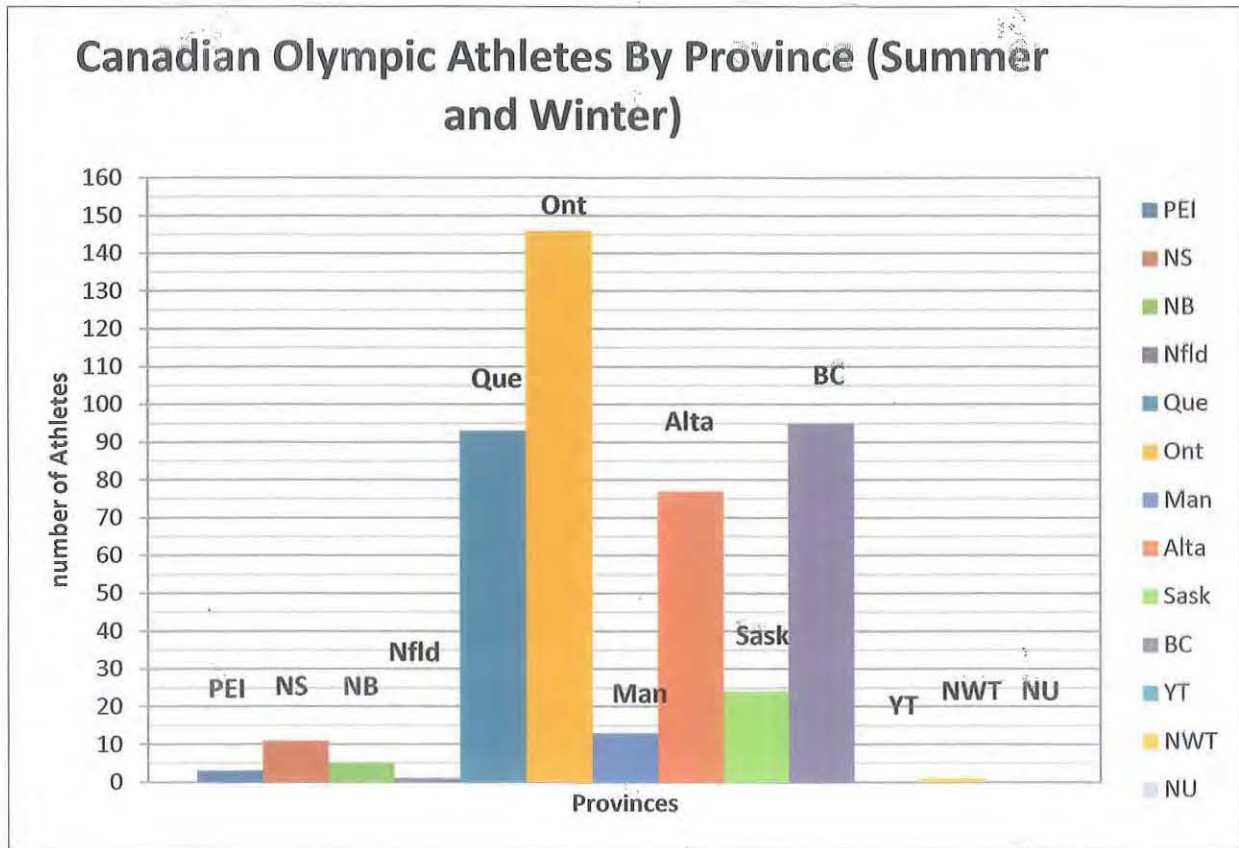
that participated, broke the world record for most gold medals won in any Winter Olympic games by a country, and placed third in the overall medal count (olympic.org). Another factor that interested me about the Vancouver 2010 Olympics was that, for the very first time ever, a Canadian won a gold medal on home soil. His name was Alexandre Bilodeau (The Canadian Olympic Committee). Where do these athletes come from and what makes them so good at what they do. Is it all related to government funding for sports programs, genetics, hard work, dedication, devotion? Do they come from families that can afford special coaching and training? Are they exposed to superior coaching or are they located in close proximity to state of the art training facilities?

#### **DISTRIBUTION OF ELITE OLYMPIC ATHLETES**

In the Beijing summer Olympics in 2008, 285 of Canada's best elite athletes competed against other countries around the world. In the 2010 winter Olympics in Vancouver, Canada sent 184 of its best athletes. Surprisingly, Canada won more medals in 2010 with fewer elite athletes than it did in 2008 with a larger number of elite athletes.



Figure 1 shows the distribution by province/territory of the Canadian Olympic athletes. This graph includes all Canadian athletes that participated in the 2008 Beijing China summer games and 2010 winter Vancouver Canada Olympic Games.

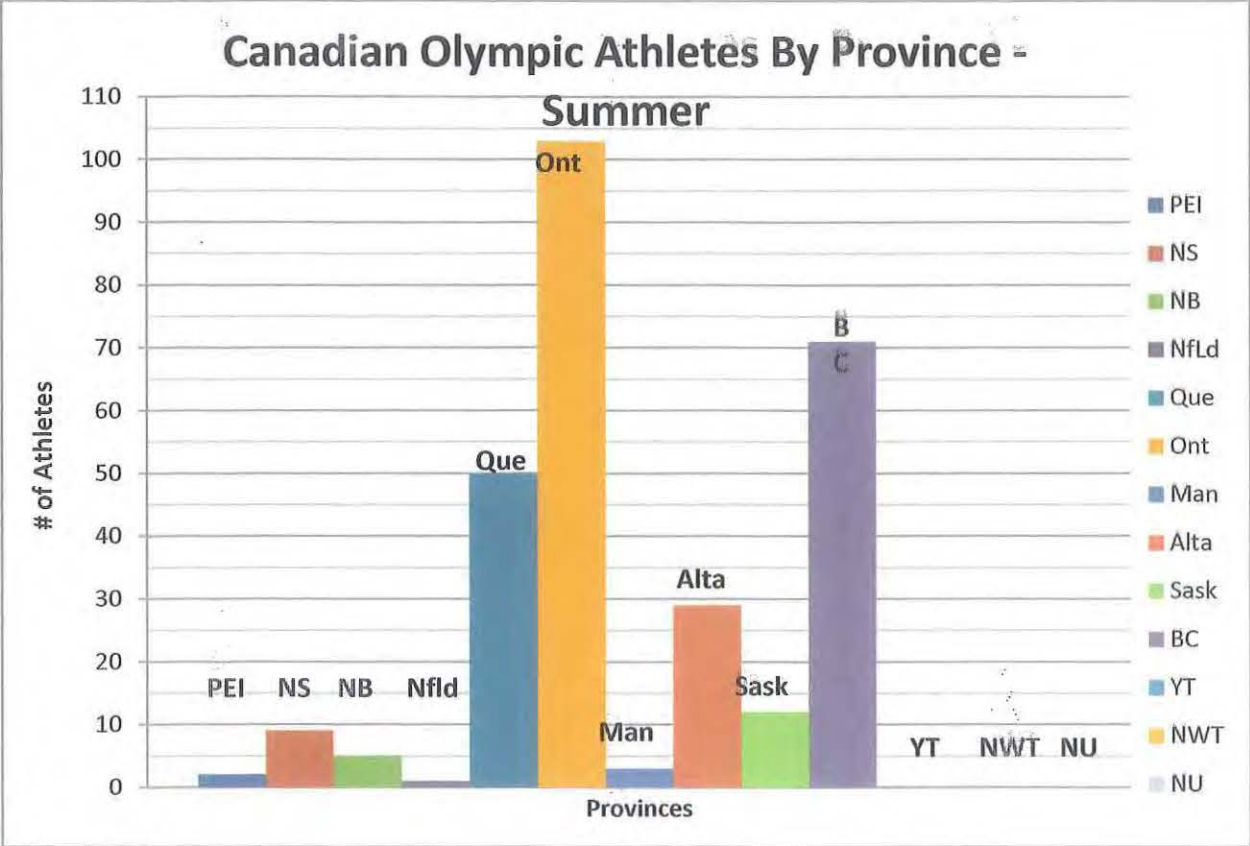


(olympic.org)

Looking exclusively at the number of athletes by province and territory, Ontario has the highest number of elite athletes participating at an Olympic level. This is followed by British Columbia, Quebec and Alberta.

*Location map of provinces ?*

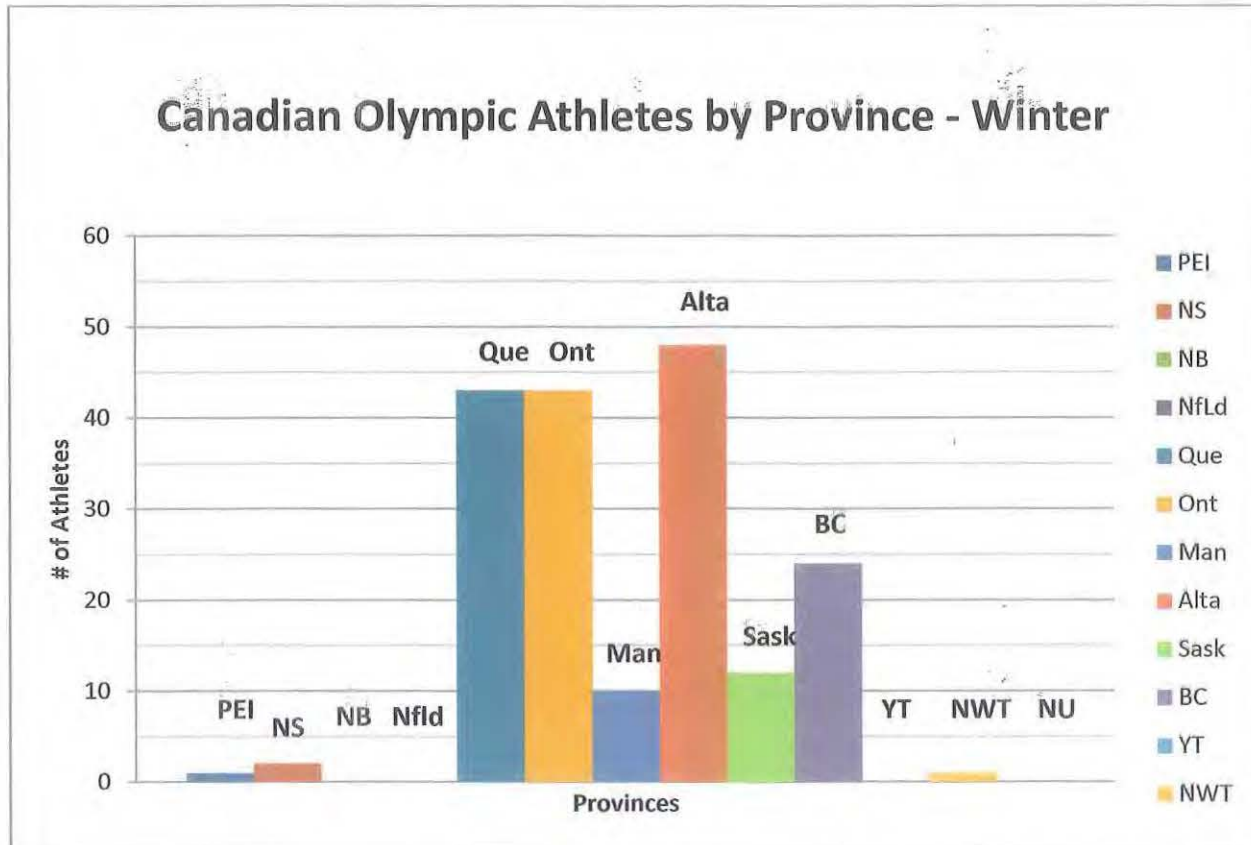
Figure 2 shows the Canadian provincial and territory breakdown for the 2008 summer Olympics.



(olympic.org)

The graph in Figure 2 almost mirrors the distribution shown in Figure 1. The highest number of summer Olympic athletes comes from Ontario, followed by British Columbia, Quebec and Alberta.

Figure 3 shows the Canadian provincial/territory breakdown for the 2010 winter Olympics in Vancouver, Canada.



(olympic.org)

While Figure 3 has a different distribution than the Figure 1 or Figure 2, the top four provinces with the largest number of elite Olympic athletes remain the same with Alberta, Quebec, Ontario and British Columbia. This is consistent with Figure 1 and Figure 2.

Comparisons of elite athletes have been completed across countries that participate in the Olympic Games, but there is very little comparison done within countries and across the provinces and territories within Canada. Through my research, I have found that work done in Australia (Sotiriadou, K.P., Shilbury, D) is very applicable to Canada. The research done in Australia was used to determine why



"Australia has demonstrated the most notable sustained improvement in efficiency regarding output of Olympic medals" (Sport Management Review, page 2).

To understand the factors in determining where elite olympic athletes come from, it is important to explore in detail the environment and economics that are required to create and develop elite athletes. These can be looked at across many perspectives. Most of the research I have conducted groups the information on a macro, meso or micro economic level (Sports Management Review, page 2-3).

### MACRO ECONOMIC LEVEL ANALYSIS

At a macro economic level, consideration is given to things such as the cultural and social context in which people live. This includes such things as population, political and economic stability, cultural systems, geography and climate changes.  
*or just climate?*

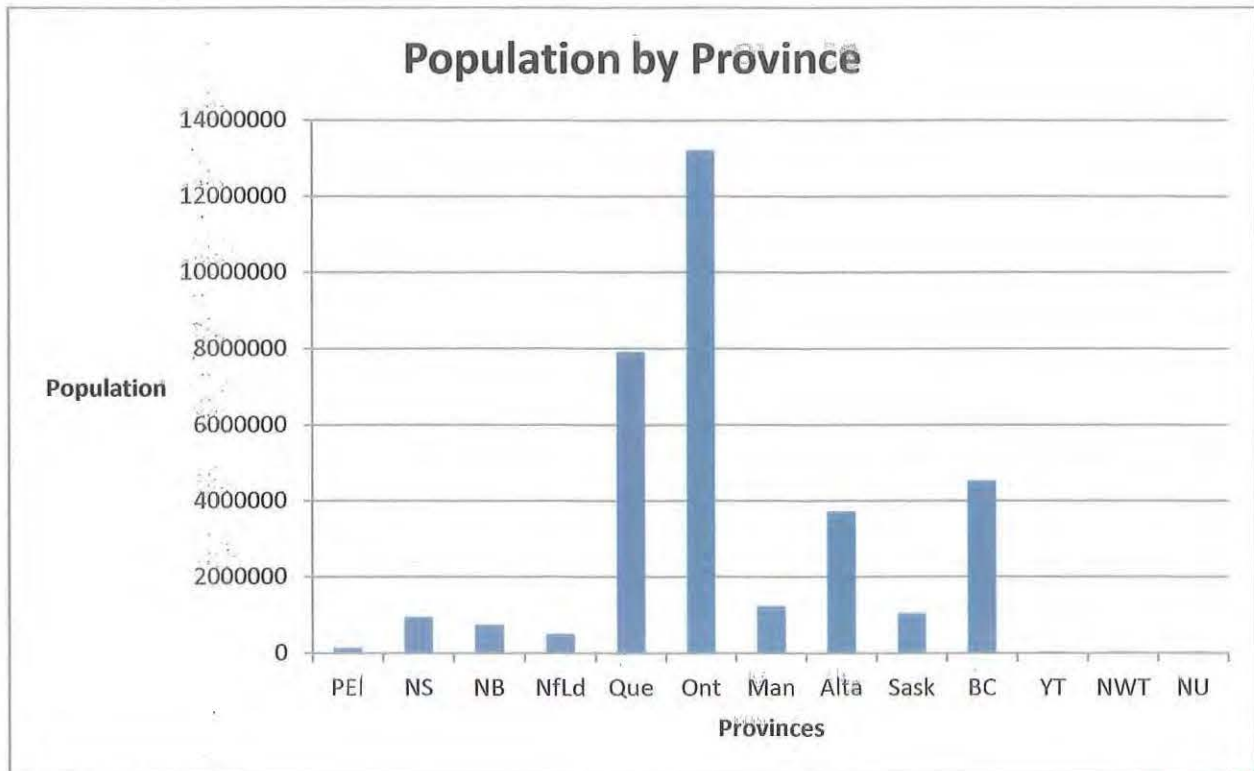
In Canada, no research could be found that would demonstrate that cultural or social factors are a major contributor or inhibitor in developing elite olympic athletes. Given that Canada's political environment is relatively stable, this was not seen as a factor that could explain any provincial variations. Although there are climate and geographical differences between provinces in Canada, for the most part all provinces and territories experience four seasons in the year. There are temperature variations, time changes and varying degrees of daylight hours across the provinces and territories, however these items were not seen as significant contributing factors to the development of elite athletes.

*evidence for rejection //*

*why?  
more daylight hours and longer training?*

Population, Gross Domestic Product (GDP) and birthplace of olympic athletes were seen as potential differentiating factors.

Figure 4 shows the population of each province in Canada.



(Statistics Canada)

*appears to match*

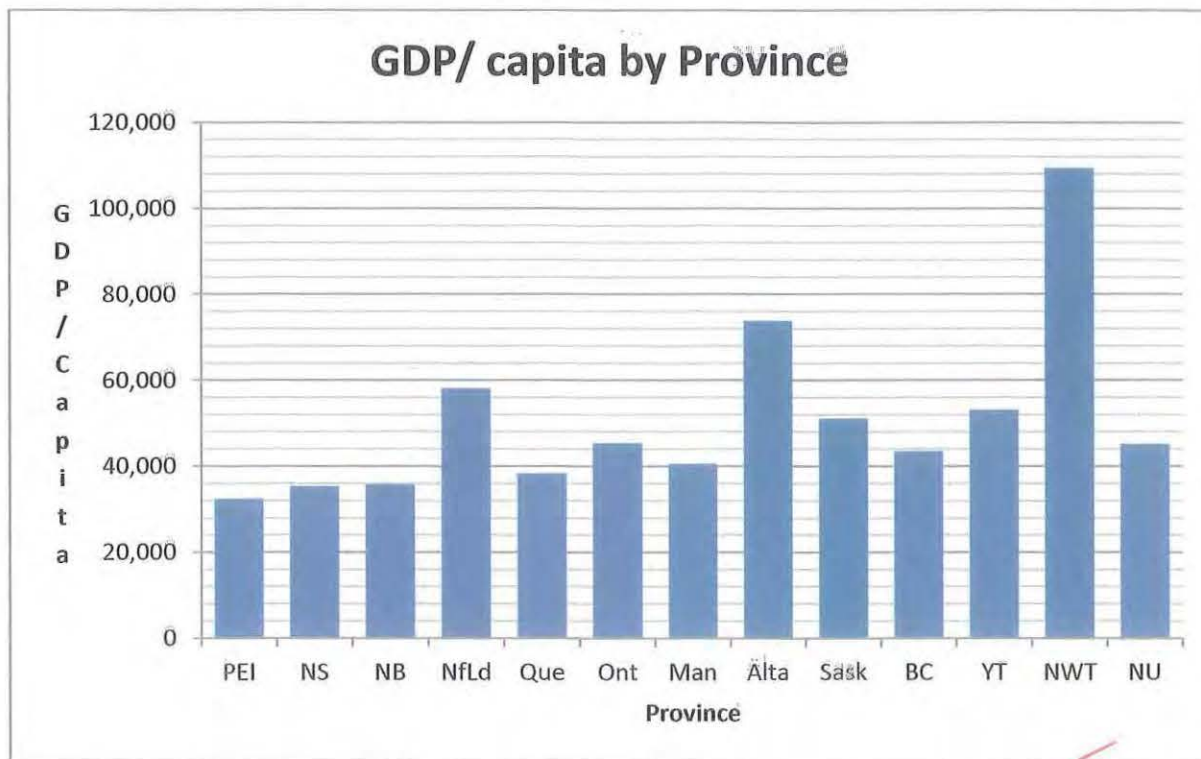
*Scattergraph pop vs. athletes?*

Population by province correlates very closely with the the distribution of elite Olympic athletes. Ontario, Quebec, British Columbia and Alberta have the highest overall provincial population. It is logical to expect that the larger the population, the greater the number of elite athletes from which to pick. Because the overall population is higher, the talent pool for sourcing elite athletes should increase. ✓

GDP per capita is an indicator of the standard of living of an economy (<http://wiki.answers.com>) or its relative prosperity (<http://answers.yahoo.com>). One could expect that provinces with a higher GDP per capita would have a higher standard of living and may have more funding for non-essential items such as support and development for sports at an elite level of play. This could also translate into more disposable income for parents to support their children in allowing them access to better facilities ✓

to train, expensive equipment or private coaching lessons. This development at an early age is viewed as essential as athletes normally are not considered “elite” until approximately 15 years of age.

Figure 5 graphs the GDP per capita of each of the provinces in Canada.



(Government of Canada)

*Graphs useful but one dimensional - would like to see some scatter plot, say pop and no. of athletes*  
*Agreed*

The birth place of the elite Olympic athletes is shown in Figures 1, 2, and 3. Research has shown that the size of the town where athletes were born can have an impact on the elite athletes long-term development (Joe Baker). The research indicated that elite athletes were more likely to come from communities with a population of between 250,000 - 1,000,000. Although the research was not limited to hockey or ice sports the research was summarized as follows “top players are more likely to come from communities large enough to build rinks, but not so large that the demand for ice time outweighs opportunities to skate” – (Curtis & Birch (1987) Sociol Sport J). It should be noted; however, athletes

*evidence*



often move at an early age from their birth place to access better coaching and facilities to enhance their development. ✓

## **MESO ECONOMIC LEVEL ANALYSIS**

At a meso economic level, consideration must be given to the sports policies and strategies and allocation of resources. Governments and national sporting organizations can significantly influence elite athlete development. This can be in both a positive and a negative way. Often times a government's changing priorities, desire to focus on fiscal restraint or deficit reduction and their time span in political office limit their ability to provide continued support for long-term programs and policies. On the positive side, over the past few years a significant amount of effort and funding has gone into the development of elite Canadian athletes, coaches and sports to achieve success at the Olympic Games. The Canadian Olympic Committee (COC) is responsible for all aspects of Canada's involvement in the Olympics. It was first formed in 1907 and has evolved into an organization that provides financial support, services and leadership to the Canadian high performance sports community. The mission of the COC is "to lead the achievement of Canadian Olympic Teams' podium success and to advance the Olympic values in Canada." – (Canadian Olympic Committee). ✓

"Own the Podium" is a joint partnership between Sport Canada and the COC (and the Canadian Paralympic Committee). Own the Podium is a Canadian initiative to increase medal counts by Canadian athletes at the winter and summer Olympics. The federal government is the largest contributor to the Own the Podium initiative. It contributes approximately \$62 million in funding to the Canadian winter and summer Olympics. (Canadian Olympic Committee) Funding is also supplied by provincial, territorial and other fundraising initiatives. There are many official Olympic fundraising activities (e.g. 2010 Red Olympic Mittens) as well as corporate national sponsors (e.g. Bell, Hudson's Bay Company, Royal Bank of Canada, Petro-Canada, RONA, Air Canada). ✓

Over the past few years, there has been a significant strategy. Funding and program development in the area of developing elite athletes and the Canadian sports system, including public support for sport in Canada. The COC has launched programs such as:

- o Own the Podium – The goal is to give sports increased technical support in order to achieve greater Olympic results. This includes coaching development, specialized training camps for athletes, enhanced training programs and facilities, the use of cutting edge technology and the use of sports medicine.
- o Athlete Excellence Fund – This is a fund created to provide Canadian athletes with performance awards. Olympic medal winners receive \$20,000, \$15,000 and \$10,000 for winning Olympic gold, silver or bronze medals. It also provides money during non-olympic years. Athletes that place in the top seats in certain competitions are eligible for funding.
- o Post Olympic Excellence Series – These sessions are held after the Olympics are competed. The goal is to allow the athletes to celebrate their achievements in the Olympics in Canada and help to prepare them for transition into the the next steps of their career. This includes creating awareness for the Olympic movement through public and private speaking engagements for Olympic athletes and other awareness campaigns such as allowing students to “adopt an Athlete”.
- o Canadian Olympic School Program – This program was developed to spread word and create interest in the Olympic movement through the education system. This initiative provides canadian teachers with Olympic themed resources for teaching purposes.
- o Olympic Partners in Action – This initiative encourages and promotes corporate partnerships and donations to support the Olympic movement.

*Descriptive*

- o Social Media Change – Social media has grown to include much more than radio and television coverage in Canada. This initiative incorporates some of the new trends in social media including use of Twitter and Facebook to spread word about the Olympics.

(Own the Podium)

The federal, provincial and territorial governments along with Sports Canada and the Canadian Sports Centers across Canada have been working hard and diligently to improve sports policies, strategies and the distribution of funding to support these olympic programs.

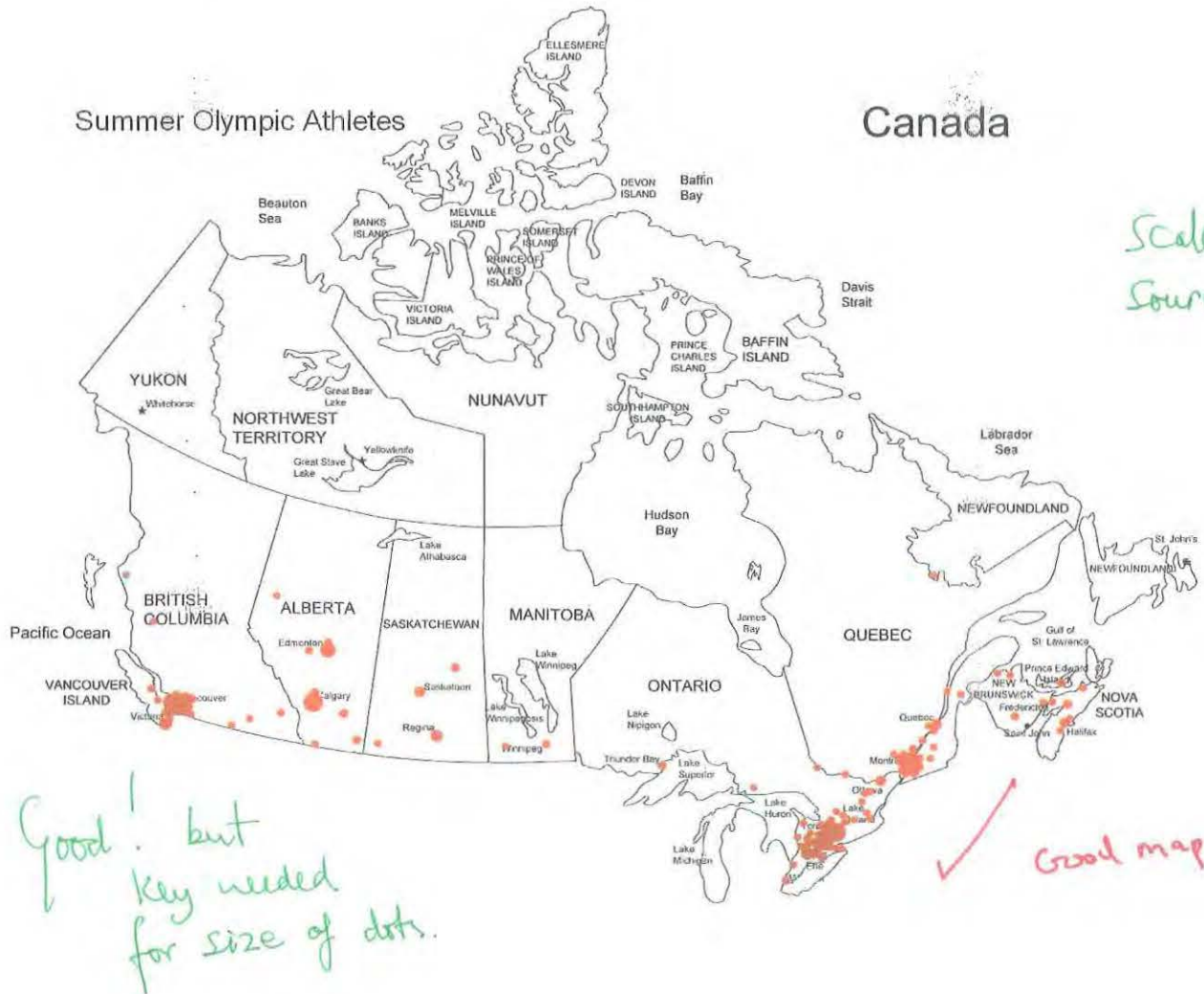
*Evidence of knowledge gained from research*

While this information helps explain the increase in the overall number of Olympic medals in Canada, it does not provide significant insight into the distribution across provinces and territories. The National Sport Organizations tend to distribute funding across sports as opposed to within provinces or territories. For example, funding appears to be distributed primarily by sport (e.g. Bobsleigh Canada, Skate Canada, Hockey Canada, Archery Canada, Diving Canada, Rowing Canada, etc.) (Own the Podium Sports – Sports Partners ). What may explain some of the provincial and territorial difference is the location of the major Canadian Sports Centres specifically designed to provide services and program to elite athletes and coaches. There are seven of these centres located across Canada. They are located in New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. While these are not the only training facilities for elite Olympic athletes, it is very interesting to note that the provinces that produce the highest number of elite Olympic athletes (i.e. Ontario, Quebec, Alberta and British Columbia) also have one of these training facilities in their province. Of particular note is the fact that because the Olympics have been held in Montreal, Calgary and Vancouver, the facilities in these areas would be top-notch training facilities for development of elite athletes and would provide excellent preparation for Olympic competition.

*Precise locations? Map?*



Figure 6 shows the distribution of elite Olympic athletes across the country including where they are clustered.



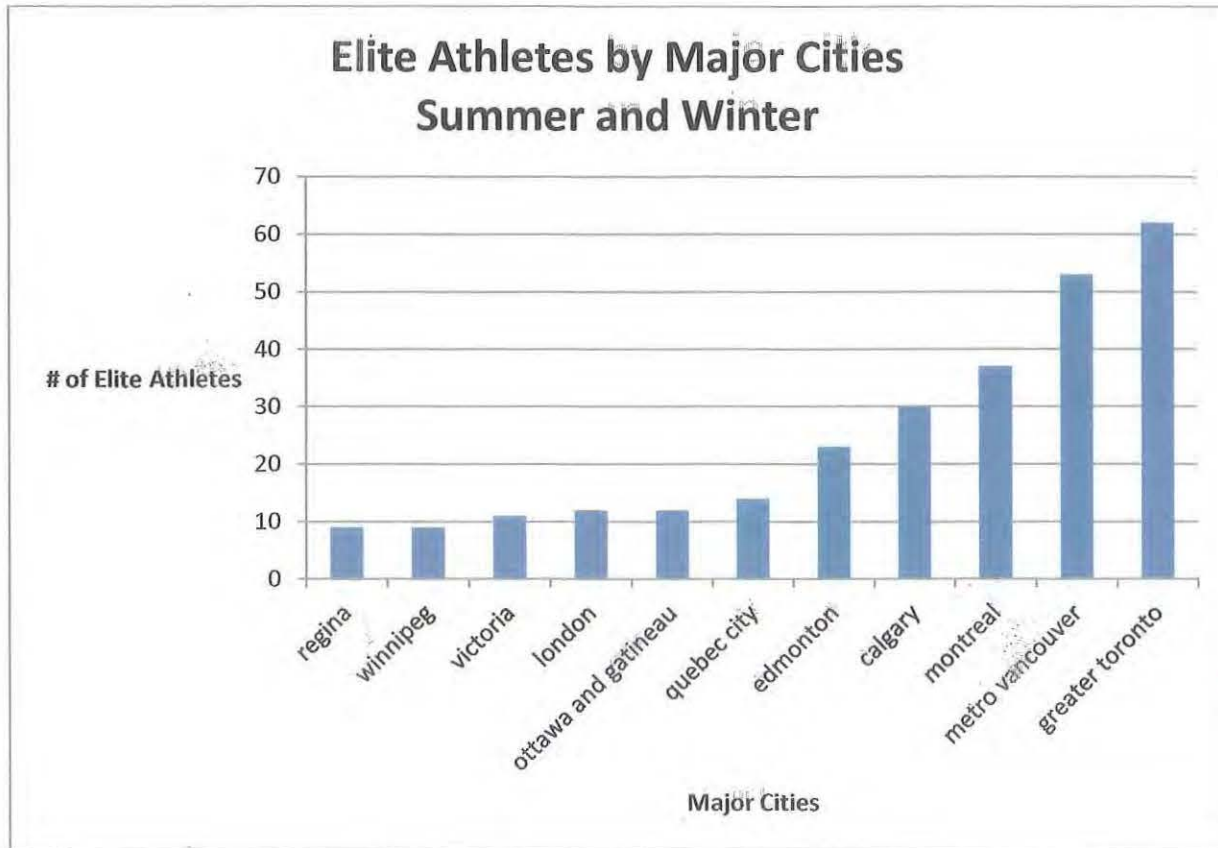
This map of Canada shows the more specific location of each athlete inside the province in which they were born. The major cities, or areas near major cities, appear to be the largest producer of elite Olympic athletes. This supports the population analysis and conclusion in that the higher the population, the higher the talent pool for sourcing elite Olympic athletes. Montreal and Quebec City have a large number of elite athletes. This trend could be explained by the attraction to the facilities created to support the 1976 Olympics in Montreal. It appears that major cities in each province seem to

A NNE would have been terrific too

candidate has not ruled out the chance factor of his clustering

be producing the bulk of these elite athletes. This supports the birthplace analysis that the central locations typically have more and better access to training facilities.

Figure 7 shows a more detailed view of elite Olympic athletes by city.



These are the major Canadian cities that have the highest number of elite athletes. It is expected that the Greater Toronto Area would have a high number of elite Olympic athletes considering their population size of 5.5 million. It is interesting to note that the cities that held previous Olympic Games (Montreal, Calgary and Vancouver) have very high concentrations of elite athletes. The Ottawa and Gatineau area appears to be underachieving based on its population. Another surprise is London, Ontario. With a population of 352 395 it would not be expected to produce the number of elite Olympic athletes. This means that population is not the only factor in determining where Olympic athletes come from.

The development of sports policies, strategies and allocation of resources is a key element in the success of elite Olympic athletes. The Canadian Olympic Committee and its partners have developed program and strategies that address the following key areas (Own the Podium – Pillars of Excellence)

- Coaching and technical excellence – aimed at developing coaches and technical leaders, and providing resources and program to enhance performance and leadership capability
- Athlete/team excellence – aimed at providing regular training and competition environments, elite athlete and team development, and processes and programs for the development of the next generation of Olympic athletes.
- Sports science, medicine and innovation excellence – aimed at providing athletes with access to trained sports practitioners, providing research and innovation and supporting coaches with integrated support teams
- National Level Performance Excellence – aimed at providing the national sporting organization with performance assessment tools and processes, access to networks of sports institutes and leadership capacity.

Research has shown that focus on these key areas can improve the performance of elite Olympic athletes. There are also other factors that are worthy of mention. Talent development and identification at an early age, through programs like those described above, will improve the identification and potential of future elite athletes. Olympic athletes can serve as “role model” or someone a young person can identify with. This, in turn, can lead to an increase in the level of interest and participation in sporting activities. This leads to an increased talent pool from which elite athletes can be sourced.



Media focus and attention and the creation of sporting heroes also cause awareness for elite athletes that create interest in young, future athletes. This can generate pride and inspire other athletes and the country in general. This can create unity, increased public interest and awareness and improved financial support for elite athletes. (Sport Management Review – page 6 – 10)

The meso economic factors appear to have a significant impact on the success of Olympic athletes. For the most part, they appear to create the foundation upon which current and future success is built. They also create awareness and processes for the early identification of elite athletes. It is likely to account for the significant year over year improvement in the Canadian Olympic movement. If continued effort is utilized by these programs, strategies and policies it will help determine future success. As indicated, other than the location of some of the high level facilities it does not give specific information on the variances by province or territory, but does explain the factors that contribute to the success of elite athletes across the country.

#### **MICRO ECONOMIC LEVEL ANALYSIS**

The micro economic level considers the other factors that can influence an elite athletes success. This includes the initiative and dedication of the individual athlete, genetics, support systems, financial factors, role models, facilities, specialists, coaching, and competition. Many of these items are significantly impacted by the factors discussed in the macro and meso economic levels. A solid foundation, as created in the macro and meso economic levels, creates the necessary environment for all athletes to reach their full potential. At a micro economic level the focus is more on the individual. How does the individual contribute?

Studies have shown that elite athletes train differently in that they train more, train for longer durations and the training is higher in quality than non-elite athletes (Joe Baker, PhD, York University). Thus it is apparent from the research that elite Olympic athletes have a very high level of initiative and

dedication to their area of sport. The research also indicated that early exposure to essential training resources is critical to the development of the elite athlete. This includes such things as training facilities, coaching and specialists.

Another significant factor of the development of an elite athlete is the relationship with and quality of the coach. A coach's ability can be improved through training, but the relationship with the athlete is as, if not more, important than the coach's ability and credentials. The coach is the person that can motivate, encourage and take the athlete to the next level.

*Good point*

There is much debate around an athlete's talent and genetics. Are people born with athletic ability or will training, motivation and other factors allow an athlete to develop into an elite level? Regardless of whether genetics play a factor, genetics alone cannot make a "good" athlete "great". There are numerous factors that play a large role in the development and progression of an elite athlete.

Although not found in my direct research, it is apparent through personal experience, albeit not at an olympic level, that there is a significant level of dedication, commitment and sacrifice required on the part of the athlete and the athlete's family. There are times when the athlete may have to train or compete as opposed to do something with friends. Families are required to provide emotional, physical and financial support for athletes to meet their full potential. Although some level of funding is available to elite athletes, there is a significant financial commitment required by families. This can help propel an athlete to a level that could get them noticed by those that can put them on the elite track. In addition, the athlete's proximity to sporting facilities and their ability to compete at an international level raises the bar in terms of expectations and performance and appear to have an impact on their development and progression.

*How many athletes were born in the provinces? They train in? Might help prove a link with athletes moving to find the best coaches.*

### SUMMARY OF KEY FINDINGS



The key findings can be summarized as follows

- The majority of the Canadian Olympic athletes come from Ontario, Quebec and British Columbia and Alberta ✓
- Population size is one factor that contributes to where elite Olympic athletes come from; however, it is not the only factor. ✓
- Government sponsored programs, policies and strategies play a significant role in the development of elite Olympic athletes and Canada's progressive success at the Olympic games. ✓
- The proximity to sporting facilities specifically designed to promote and enhance athlete development is a significant factor in the development of an elite Olympic athlete. *where are these?*
- Elite Olympic athletes have a very high level of initiative and dedication to their area of sport. This is essential to their success. It requires a significant level of training and commitment on the athlete's part. *Does this influence where they are based or come from?*

## CONCLUSION

It appears that there are many important factors in determining where the next Olympic athletes will come from. There is no single factor that contributes to the development of an elite Olympic athlete. There are a number of factors at the macro, meso and micro economic level that collectively impact where, how and if athletes develop into an elite level. Population appear to have the greatest impact at the macro economic level. At the meso economic level, the programs, strategies and policies have a significant impact on creating the foundation for success for today's athletes and the athletes of the future in Canada. ✓ These programs also create awareness, public interest, pride and



inspiration which further enhance and support Canadian athletes development and success. These programs, strategies and policies are key to the development of a sustainable athletic program in Canada. At a micro economic level, an athletes commitment, support, dedication, coaching and access to the appropriate resources are key in an athletes development towards becoming an elite olympic level athlete.

Good topic and some impressive research.  
The statistical analysis of the data is simplistic however and the candidate does not convey knowledge of associations that are possible in comparison to those that might have positive or negative correlation. There was also no consideration that the distribution could be random.  
Some method of measuring the distribution would have added an important spatial element. Opportunity to employ some sophisticated methods of geographical analysis has been missed.

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*Substantial  
sources*