Wrap Around Analysis of the Affordances and Constraints for Girls with Physical Disabilities Participating in Physical Activities

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Abstract

This is a qualitative study exploring the physical activity patterns of a group of women with physical disabilities through their lifespan. In-depth interviews were done with a group of 6 women aged 19 to 31. The data were analyzed via content and demographic strategies. Participants in this study reported that their physical activity patterns and their experiences related to their physical activity participation changed over their lives. They were most physically active in their youth (under 14 years of age) and as they reached high school age (over 14 years of age) and to the present time, they have become less physically active. They also reported both affordances and constraints to their physical activity participation through their lifespan. In their youth, they reported affordances such as their parents’ assistance, an abundance of available physical activity opportunities, and independent unassisted mobility, as all playing an important factor in their increased youth physical activity. In adulthood, the participants’ reported less time, fewer opportunities for physical activity, and reliance on power mobility as significant constraints to their physical activity. The participants reported fewer constraints to being physically active in their youth when compared to adulthood. Their reasons for participation in physical activity changed from fun and socialization in their youth instead of for maintenance of health, weight, and function in adulthood. These affordances, constraints and reasons for physical activity participation were supported in the literature.
Acknowledgment

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CHAPTER ONE: INTRODUCTION

This is a study of the affordances and constraints to participation in physical activity for girls with physical disabilities during their lives.

The purpose of this study was to (a) explore the physical activity patterns of a sample of females with physical disabilities throughout their lifespan, (b) retrospectively investigate the positive and negative influences in the participants’ lives that impact their current and past physical activity levels and choices, (c) explore how or if the participants’ perceptions of the importance of physical activity in their lives have changed as they age (from youth to young adulthood), and (d) explore how or if being a woman with a disability has influenced their physical activity choices at different times in their lives.

The topic of physical activity participation by women and girls with physical disabilities is a relatively understudied topic. Therefore, this investigation will expand the knowledge in the field of education as it relates to promotion of health-related physical activity for adolescent and adult females with disabilities. This study will help people to understand some of the factors that influence the physical activity patterns of women with disabilities at various stages of their lives.

For unfamiliar terms used within this document, the reader may refer to the glossary (Appendix A) for definitions.

Background of the Problem/Context

As a pediatric physical therapist, I have worked with a number of girls with physical disabilities and have found that a great number of them are leading a sedentary lifestyle rather than a more physically active one. They seem to have little knowledge of
how important it is for them to be physically active or that their choices leave them at risk for secondary health complications such as heart disease, muscle weakness, decreased flexibility, chronic pain, obesity, and diabetes. These secondary conditions leave them vulnerable for a life of decreasing independence as they age.

It has been my observation that a lack of education regarding the consequences of leading a sedentary lifestyle is a general problem among the young people I treat. I cannot speak for all young people in this population, just the small sample with whom I have had the pleasure to work in my career.

This tendency for girls with physical disabilities to lead a sedentary lifestyle concerns me as a professional and a member of the community at large. I want to understand more fully why this seems to be the trend among this population and how, despite the mass education of the general public about the benefits of exercise for the prevention of secondary health complications, this population of young girls has not accepted or integrated this information into their lifestyle choices.

I am particularly interested in investigating what happens during specific stages of their lives, because I have noted in my practice that during adolescence (12 to 15 years of age), there is a striking change in the amount of structured physical activities available to these girls, and this seems to subsequently be the time when they are adopting more sedentary lifestyles.

As the trend toward a sedentary lifestyle is less pronounced for young men of a similar age group whom I have treated in my practice, I am also interested in exploring how gender and the sociocultural construct of disability influence these girls’ choices with respect to physical activity during their lives.
I have chosen to investigate this trend retrospectively to take advantage of the fact that adults have the ability and life experience to reflect on their past and have the vocabulary to verbally express themselves much better than children. In addition, I felt that collecting data in this fashion would allow for the participants in this study to reflect and articulate their physical activity experiences through their lives thus far. I am ultimately interested to see if the participants believe that these physical activity patterns or influences have changed over their lives and why they believe this may be.

**Purpose of the Study**

The purpose of this study is to (a) explore the physical activity patterns throughout the lives of a sample of girls with physical disabilities, (b) retrospectively investigate the positive and negative influences in their lives that impact their past and present physical activity levels, (c) explore how or if their perceptions of the importance of physical activity in their lives has changed as they age (from adolescence to adulthood), and (d) explore how or if being a woman with a disability has influenced their physical activity patterns at different times in their lives.

The information derived from this study can be utilized by the participants to reflect on their physical activity patterns and experiences to help them better understand any influences that impact their current physical activity patterns. The end result of this reflection could ideally lead to positive changes in their physical activity levels, thereby reducing their risk for potential secondary health conditions associated with sedentary lifestyles.

In addition, the findings from this investigation could help health care professionals, health care providers, health promotions specialists, caregivers, physical
education specialists, fitness instructors, individuals who work closely with people with physical disabilities, and people in the community to better understand some of the circumstances and factors that influence the physical activity patterns and relative choices that women with disabilities make throughout their lifespan.

The findings of this study will add to the existing body of knowledge regarding some of the affordances and constraints to the physical activity participation of girls and women with physical disabilities. A better understanding of the factors that affect women’s participation in physical activity could lead to more physical activity and could therefore help to improve the overall quality of life that will be experienced by more informed girls and women with physical disabilities. The findings of this study could also trigger further research in the area of physical activity patterns of adolescent females and women with disabilities.

Conceptual Framework

Though people with disabilities experience many health benefits from participating in physical activities, women and girls with physical disabilities are a physically inactive population (DePauw, 1996; Rimmer, Rubbin, Braddock & Hedman, 1999; Steele, Kalnins, Jutai, Stevens & Brotolessus, 1996; Torrance, 1991; US Department of Health and Human Services, 2003). Having a primary disability puts people at risk for developing many secondary health conditions, and some of these secondary health conditions, like physical deconditioning and all the difficulties associated with it, can be mediated by physical activity. Participation in regular physical activity has been reported to improve physical functioning, health, and well-being in women with disabilities (Blinde and Taub, 1999; Cooper, Quatarano, Axelson, Harlan, Stineman et al., 1999;
Coyle & Santiago, 1995; DePauw, 1996; Goodwin, Thurmeirer, & Gustafson, 2004; Midha, Schmitt, & Sclater, 1999; Pang, Eng, Dawson, McKay & Harris, 2005; Taylor, Dodd & Larkin, 2004). Women and girls with physical disabilities encounter facilitators for and constraints (environmental and/or psychological) to their participation in physical activities (DePauw, 1996; Rimmer, Riley, Wang & Rauthworth, 2005; Rimmer, 2005; Torrance, 1991; US Department of Health and Human Services, 2003). These facilitators and constraints differ for different women and can be dependent on a variety of situations such as: age, size, type of disability, experiences, and impairments (Bedini & Anderson, 2005; Henderson & Bedini, 1995; Rimmer, Rubbin, Braddock & Hedman, 1999; Rimmer, 2005; Rimmer et al., 2005).

This research is grounded in the theory that disability is socially constructed. The medical model of disability acknowledges disability in a strictly biological sense and does not give the opportunity for interpretation of the whole experience for women and girls with disabilities. Disability, in the medical model, is viewed only in relation to deficits, which in turn has an impact on the approach physical activity and rehabilitation specialists take in trying to understand how to improve or increase the physical activity levels of women and girls with disabilities (DePauw, 2000). For women with physical disabilities, physical activity experiences and perceptions about physical activity are impacted by their gender (Bedini & Anderson, 2005; Blinde & Taub, 1999; Guthrie, 1999; Guthrie & Castlenuovo, 2001; Henderson & Bedini, 1995). Physical activity experiences and perceptions about physical activity differ in some respects for women versus girls with physical disabilities (Bedini & Anderson).
Scope and Limitations of the Study

This study has a limited number of participants, and the information gathered is specific to the individuals that participated in this study. The participants that were interviewed in this study were not a representative sample of the population of women with disabilities. All the participants had congenital rather than acquired disabilities. They reported little financial hardship, the majority had a post-secondary education, and they were young, all under 35 years of age (Canadian Mortgage and Housing Corporation [CHMC], 1992, Hammond & Grindstaff, 1992; Hughes, 2006). The recruitment process, which included age restrictions and the institutions targeted for participants, significantly impacted the aforementioned issues.

All of the respondents volunteered to participate in the process, and they all had an interest in the topic under investigation. All of the participants who were interviewed had congenital disabilities. One of the participants that answered the questionnaire had an acquired brain injury at 12. An acquired brain injury is not a congenital disability rather, in the case of this participant, a closed head injury that resulted in physical impairments. Therefore, because this sample is obviously not a representative sample of the population of women with disabilities in the country, this limits the generalizability of the data.

Despite a conscious effort on the part of the interviewer not to influence the findings, I came into this research with some preconceived ideas regarding the physical activity patterns of girls with physical disabilities, the importance of physical activities for these girls, and some ideas about the potential barriers they may encounter. This is as
a direct result of my professional experiences as a physiotherapist working with young people with disabilities.

Using retrospective data collection can result in some less than accurate recollection of information by the respondents due to memory recall difficulties. The questions posed regarding past experiences for the purposes of this study did not require recall of extremely specific information regarding duration or amount of physical activity during their youth. Rather, this study required the participants to remember their experiences and interpretations of these experiences. One participant did struggle with recalling some information during the interview; consequently her answers to these questions were not used for analysis.

Using self reported data gathering methods has the potential to impact the accuracy of estimations of the amount of physical activity engaged in by participants and cannot be relied upon to accurately reflect the amount of physical activity the participants had actually performed. Since the focus of this study is less concerned with specific amounts of time than with the participants' general experiences, the data collected were limited to the latter.

**Importance of the Study/Rationale**

This study is important because everyone has a right to the best quality of life. Physical activity has been shown to improve overall quality of life by decreasing some of the secondary health conditions associated with a primary disability.

Currently, little research exists on the physical activity patterns and choices made by girls with physical disabilities, and similarly, not much more exists about women who experience disabilities throughout their lives.
Understanding these women’s experiences and the factors that influence their behavior is important if we wish to help them increase their physical activity levels. The findings of this study can assist health care professionals, physical education specialists, caregivers, and health promotion specialists by facilitating health promotion strategies that more appropriately target the negative influences and enhance the positive influences to encourage participation in regular physical activity by women with physical disabilities.

The best people to get this information from are those living the experience. Gender and the sociocultural construct of disability influence the meaning and experience of physical activity for women with physical disabilities. If we are to successfully target health promotion strategies to increase physical activity in women and girls with disabilities, we first need to understand the perceptions and personal experiences of these girls and women.
CHAPTER TWO: LITERATURE REVIEW

Population-based studies report that people with disabilities are generally less physically active than people without disabilities (Steele et al., 1996; Torrance, 1991; US Department of Health and Human Services, 2003). These studies combine both genders when comparisons are made with respect to the physical activity patterns of people with and without disabilities.

However, gender-specific information is available comparing physical activity patterns of women/girls and men/boys without disabilities (Provincial Data-Canada, 2004). In this survey, women were found to be more inactive than men. The investigators found that 54% of women reported being inactive (walked no more than 15 minutes per day) compared to 48% of men. Within this preceding report, data regarding the physical activity patterns of youth between 12 and 19 years of age showed that 33% of girls reported being inactive as compared to only 23% of boys. Further data breakdown showed that the largest portion of girls reporting inactivity was between the ages of 15 and 19 (38% inactive).

Steele et al. (1996) investigated the lifestyle health habits of youth with physical disabilities aged 11 to 16 years old. They found that “thirty-nine percent of youth with physical disabilities indicated that they never exercised compared with only 6% of the national sample” (p. 182). Again, gender was not specified, and comparisons were made as a whole group (boys and girls).

The research regarding the physical activity patterns of women with disabilities specifically is scarce. The Fitness Canada Women’s Program study (cited in DePauw, 1996) found women in their study with disabilities were participating in less physical
activity than women without disabilities. Rimmer et al. (1999) studied the activity patterns of African American women with physical disabilities and established that these women also lived a very inactive lifestyle. The descriptive demographic data demonstrate that women/girls tend to be less physically active than men/boys, and people with disabilities, in particular women, tend to be the most physically inactive population.

Regular physical activity has been shown to have positive health benefits for people without physical disabilities, and physical inactivity has also been shown to have deleterious affects on their health and physical functioning (Warburton, Nicol, & Bredin, 2006). In a narrative review of current literature, it was noted that “physical activity is a modifiable risk factor for cardiovascular disease and a widening variety of other chronic diseases, including diabetes mellitus, cancer (colon and breast), obesity, hypertension, bone and joint diseases (osteoporosis and osteoarthritis), and depression” (Warburton et al., p. 801).

Findings have shown that people with disabilities can benefit from physical activity in similar physical and psychological ways to those experienced by people without disabilities (Blinde & Taub, 1999; Cooper et al., 1999; Coyle & Santiago, 1995; DePauw, 1996; Goodwin et al., 2004; Midha et al., 1999; Pang et al, 2005; Taylor et al., 2004). These benefits include improvements in cardiovascular fitness (aerobic capacity), improved physical functioning (increased strength, flexibility, mobility, decreased pain), and psychological feelings of well-being (less depression, feelings of empowerment, less stress).

A person with a primary disability undergoes some physiological alterations that can put them at increased risk for experiencing secondary health conditions (Coyle,
Santiago, Shank, Ma & Boyd., 2000; Pope & Tarlov, 1991; Rimmer, 1999; Santiago & Coyle, 2004; Seekins, Clay & Ravesloot, 1994; Turk, 1996). There are specific secondary health conditions associated with physical inactivity in people with disabilities (Nosek et al, 2006; Pope & Tarlov,) including increased risk for cardiovascular disease, obesity, musculoskeletal problems (decreased flexibility and strength), diabetes, respiratory problems, and depression, to name a few. These secondary conditions impact physical and psychological functioning of people with disabilities.

In studies specifically investigating the report of secondary conditions among women with physical disabilities and their relationship to quality of life, women reported experiencing many secondary conditions within the past year (Coyle et al., 2000; Nosek et al, 2006). Some of the secondary conditions reported to be “most problematic were mobility and access concerns, pain (both joint and chronic), spasticity, fatigue, physical deconditioning, and depression” (Coyle et al., p. 1384). These findings were consistent with those of a study of the secondary conditions experienced by people, both men and women, with disabilities in a rural area (Seekins et al., 1994). Secondary conditions greatly impact quality of life and overall health status for women with physical disabilities (Coyle et al.).

In a consensus statement on physical activity and health among people with disabilities, Cooper et al. (1999) found that increasing levels of physical activity could be a very effective way of improving the function and independence of people with disabilities. Physical activity can help mediate some of the health risks associated with the development of cardiovascular disease by lessening high blood pressure, improving blood insulin levels, and decreasing the risk of obesity. Other benefits of physical
activity include an improvement in muscle strength, muscle flexibility, and pulmonary function.

In one study that examined leisure time physical activity and secondary conditions specifically in women with physical disabilities, these women reported experiencing several secondary conditions but also reported that leisure time physical activity lessened their experience of some of these secondary conditions (Santiago & Coyle, 2004). The investigators concluded that when functional status was statistically controlled, participation in physical activity by moderately impaired women with physical disabilities was inversely related to two of the most prevalent secondary conditions reported (physical deconditioning and isolation).

From a health promotion perspective, this is important, because some of these secondary conditions, which have the potential for decreasing physical function, health, and independence of people with physical disabilities, could be modified by promoting healthy active living behaviours through education (White & Gutierrez, 1996). For example, increasing physical activity levels leads to a decrease in physical deconditioning and consequently a decrease of all the problems potentially associated with this deconditioned state.

People with disabilities encounter many barriers to their physical activity. Reported barriers can be physical, such as environmental factors including the inaccessibility of the exercise facility, lack of appropriate exercise equipment, or inaccessible equipment within the facility. Physical barriers can also be structural and restrict outside physical activity due to factors such as uneven pavement, no curb cutouts, and narrow paved trails. Physical barriers can also be the lack of financial resources,
difficulty with transportation, or lack of time (DePauw, 1996; Rimmer, 2005; Rimmer et al., 2005; Torrance, 1991; US Department of Health and Human Services, 2003). Psychological barriers also exist for people with physical disabilities such as lack of motivation, lack of social support, a negative perception of their own ability to exercise as a result of their disability, and finally, a lack of knowledgeable instructors and lack of information regarding appropriate physical activities to do (Cardinal, Kosma & McCubbin, 2004; Hughes, 2006; Kinne, Patrick & Maher, 1999; Rimmer; Torrance; Turk, 1996; US Department of Health and Human Services).

Few studies have examined the physical activity experiences of women with physical disabilities and reported on the specific barriers that exist for these women (Bedini & Anderson, 2005; Henderson & Bedini, 1995; Rimmer et al., 1999). Similar physical activity barriers are encountered by women and men with physical disabilities such as difficulties with accessibility of facilities (DePauw, 1996; Rimmer, 2005; Rimmer et al., 2005; Torrance, 1991; US Department of Health and Human Services, 2003); however, in women only studies, women with disabilities have reported that the nature of their disabilities was not a barrier in their physical activity participation (Guthrie & Castelnuovo, 2001; Guthrie, 1999; Henderson & Bedini, 1995, Kinne et al., 1999). In one exploratory study of the experiences and meanings of physical activity for women with mobility impairments, lack of choice, control, or manipulation of those choices seemed to be the key barrier for these women with regard to getting benefits from participation in meaningful physical activity (Henderson & Bedini).

Some studies have emerged that recognize the existence of a sociocultural construct of disability (Blinde & Taub, 1999; Goodwin et al., 2004; Guthrie &
Castelnuovo, 2001; Guthrie, 1999; Henderson & Bedini, 1995). We live in an ablest society that has body and beauty ideals. Women with physical disabilities have bodies that are in direct conflict with these ideals (Guthrie). This must be considered when trying to understand the physical activity experiences of women with physical disabilities.

Gender also impacts the physical activity experiences of women with physical disabilities (Blinde & McCallister, 1999). Being a woman with a physical disability is often referred to as a “double whammy” because of the fact we live in not only an ablest society, but a sexist one as well (Bedini & Anderson, 2005; Blinde & McCallister, 1999; Guthrie & Castelnuovo, 2001; Henderson & Bedini, 1995).

One consistent finding among these studies is that women with physical disabilities believe that physical activity is important for them (Guthrie & Castelnuovo, 2001; Guthrie, 1999; Henderson & Bedini, 1995). However, women with disabilities may use physical activity for a variety of different reasons. They use physical activity to help maximize their physical functioning, to “normalize” their bodies, to balance their mind and body function, for empowerment, as a form of political activism, and/or for socialization (Blinde & McCallister, 1999; Guthrie & Castelnuovo; Guthrie; Henderson & Bedini).

The gender-related aspects of participation in physical activity were reported in a study of sport and physical fitness activity experiences of women with physical disabilities (Blinde & McCallister, 1999). Women within this study “perceived the gap between sport and physical fitness activity and disability as less for men with physical disabilities than for women with physical disabilities” (Blinde & McCallister, p. 309).
Due to the fact that sport and physical fitness activity have been associated with masculinity and physicality, men with disabilities better fit the ideals for participation than women with disabilities and are therefore often provided with more support and encouragement to participate. However, these women reported that in life situations their disability was much more limiting than their gender. Physical activity and sport is one area that people with disabilities can use to challenge society’s perception of disability associated with weakness and dependency (Blinde & McCallister; DePauw, 2000; Goodwin et al., 2004; Guthrie, 1999; Guthrie & Castlenuovo, 2001;).

In a study to examine the perceptions of girls with physical disabilities toward physical recreational activities, many similarities existed between their responses and those of adult females with disabilities (Bedini & Anderson, 2005). They believe that physical activity is important. They also reported that the girls had very few opportunities to participate in formal physical activity programs because of lack of accommodations and availability. In addition, very few of the study participants reported active role models that were either women or had disabilities.

The girls in this study differed in some of their responses when compared with women. The girls enjoyed participating in physical activities and seemed to accept their bodies more than the women in other studies (Guthrie & Castelnuovo, 2001; Henderson & Bedini, 1995). The women were reported to use physical activity as a way to manage their disability. The girls also responded that physical activity could be used to help improve their physical state and make them more normal in the future, but they generally participated in physically activity more for fun.
Overall, women and girls with physical disabilities are an understudied group. Their perceptions about the meaning of physical activity are important if we are to see how these perceptions may change over time. This information will have a definite impact on any health promotion strategies that target girls and women with disabilities in order to help increase their physical activity levels and consequently improve the condition of their health.
CHAPTER THREE: METHODOLOGY

The methodology used to explore the physical activity experiences of women with physical disabilities throughout their lifespan is qualitative by design. A phenomenological approach was used in this investigation. This approach is one that is well suited to explore the physical activity experiences of women with physical disabilities. "The aim of the researcher is to describe as accurately as possible the phenomenon, refraining from any pre-given framework, but remaining true to the facts" (Groenewald, 2004, p. 5). The phenomenological approach allows the informants to describe to this investigator their experiences and relate the meaning of these experiences with regard to their past and present physical activity patterns.

To truly understand a phenomenon, experience is an essential component (Patton, 1990). As it is impossible for this researcher to live the experience of a woman with a disability, one way to try to better understand such a situation is to conduct in-depth interviews with women with disabilities who do live this experience daily. Through this interview process, they can share their experiences and interpretations of these experiences with this researcher.

In-depth interviews also allow for an understanding of how culture influences, especially with relation to attitudes regarding gender roles, affect the participants' experiences. This interview process gives the respondents an opportunity to share with the investigator any information they feel is significant from their experiences. Interviews allow the respondents not only to answer specific questions but to express in dialogue their own perceptions of the world in which they live (Kvale, 1996). This
method of information gathering is further facilitated by the open-ended interview guide approach to the interviews.

This type of interview structure helps to better ensure fluidity of the interview while allowing specific information with regard to the participants' physical activity experiences to be revealed. It is extremely import to acknowledge that from the phemonlogist’s point of view, the researcher “cannot be detached from his/her own presuppositions and that the researcher should not pretend otherwise” (Hammersley cited in Groenewald, 2004, p. 7). In other words, an interview guide allows the interviewer to pose specific questions of interest but also allows the participants to add detail and descriptions that they feel are important to their personal experience and to expand on the predetermined areas the researcher wishes to cover.

Heterogeneous, purposeful sampling was used for the recruitment of the potential participants. The physical activity experiences of women with physical disabilities were those specifically investigated. The aforementioned sampling method was the chosen method of recruitment because “qualitative inquiry typically focuses in depth on relatively small samples, even single cases (n=1), selected purposefully” (Patton, 1990, p. 169). The purpose of this research was not to generalize the findings but rather explore in depth a small sample of participants' experiences; this sampling approach was deemed the most appropriate method to obtain a wealth of important information desired within the constraints of this investigation.

A sample size of 6 interview participants was chosen by this researcher because of the wealth of rich information that could be attained through in-depth interviews of this number of participants.
The validity, meaningfulness, and insights generated from qualitative inquiry have more to do with the information-richness of the cases selected and the observational/analytical capabilities of the researcher than the sample size. (Patton, 1990, p. 185).

As a result of the information that can be obtained from a small sample of participants, this proposed sample size did provide this investigator with a wealth of valuable information.

**Selection of Site and Participants**

The study participants were all women with physical disabilities either attending a University in southern Ontario, women associated (current/past clients or volunteers) of a regional Children’s Treatment Center, and co-workers or friends of the researcher’s acquaintances.

The respondents in this study were between 19 and 31 years of age. After 6 months of recruiting for participants between 19 and 25, the proposed age range for participation between 19 and 25 was modified to include individuals up to 31 years of age.

The original age range was chosen because this investigator felt that memory recall of adolescent experiences could become less clear as the respondent’s age increased. After careful consideration, after experiencing recruiting difficulties, the investigator felt that expanding the age range up to 31 would not negatively affect the validity or value of this study.

Expanding the age range opened the study up to a larger number of potential participants to facilitate recruitment. Adjusting the age limits was deemed necessary to
get 6 good interview candidates. Due to the interview questions being broad and requiring more experiential information than specific information regarding physical activity in youth, increasing the age of the participants was not felt by this investigator to increase any potential memory recall difficulties within the study.

The number of participants that were interviewed for this study was six. Two other participants filled out the questionnaire but did not participate in the interview process.

The study participation was limited to those individuals with the ability to respond to questions and express themselves in a verbal or written format. Initially, the investigator attempted recruitment only with assistance of the manager of the services for students with disAbilities. This manager approached prospective participants with information sheets about the study and contact information for the principal investigator. Flyers were also e-mailed by the services for students with disAbilities to potential participants.

As this recruitment was relatively unsuccessful and resulted in the recruitment of only one prospective respondent within a 4-month timeframe, the researcher applied for a modification to the Ethics Review Board to add other institutions as recruitment sites for this study. This modification was approved and two other agencies were involved in participant recruitment.

These two new agencies were a regional Children’s Treatment Center and a local Independent Living Center. The Treatment Center allowed flyers to be posted within the facility and appropriate candidates were given flyers by staff members. Two participants were recruited through this process. The manager of the local Independent Living Center
posted flyers within the facility and had the staff approach potential participants. Recruitment through the Independent Living center was unsuccessful.

The final 4 participants were recruited through word of mouth through friends of the researcher by discussing the proposed study with acquaintances or colleagues that met the criteria for participation.

The participants were each given contact information from one of the aforementioned sources. The interested participants then contacted the researcher, and more details regarding the study and their individual participation were given to them by the investigator. Their voluntary participation, right to refuse to answer any questions, and their right to withdraw from the study at any time were explained during their initial contact with the investigator. When the participants agreed to take part in the study, the consent forms were either sent to the participants in a stamped, self-addressed envelope or these consent forms were explained and signed at the first face-to-face meeting with the researcher.

For the 2 participants that were to fill out the questionnaire (Appendix B), they were sent the questionnaires by their chosen method once consent forms were signed and returned. One of the participants preferred to use a computer to answer the questionnaire, so that questionnaire was sent to her via e-mail. She had difficulty with writing by hand because of her disability and felt more comfortable with using her computer. The other participant preferred to fill out the questionnaire in a handwritten format.

The questions on the questionnaire were developed after a literature review of the topic of interest: physical activity experiences of women and girls with physical disabilities. The questionnaire questions were more specific than the interview guide
questions. This specificity was intentional because the investigator used the questionnaire answers to examine the topic areas that were going to be included in the interview guide.

After the two questionnaires were returned, the researcher reviewed the answers. In addition, the investigator asked for feedback regarding any ambiguity in the questions. When questioned about the specific questionnaire questions, neither respondent felt the questions in the questionnaire were ambiguous or dichotomous. The interview guide questions were developed and fine-tuned after the completion of the questionnaire and after written and verbal feedback from the participants who completed the questionnaire was received. The only topic area that was added to the final interview guide questions (see Appendix C) was the topic of physical education experiences.

At this point, the interview participants were contacted to set up interview times. A one-on-one taped interview was the final data collection method used for this research project. The interviews were transcribed verbatim by either a transcriptionist or the primary investigator for analysis. Upon completion of the transcriptions, the respondents were then e-mailed a copy of their completed interview transcript. The participants reviewed the transcripts for accuracy and were asked to make any additions or clarification they desired. Any additions or corrections by the respondents were then added to the final transcribed document, prior to the analysis of the data. Three of the 6 participants made corrections/additions to their transcripts.

**Data Collection**

After initial contact was made with the participants, the researcher quickly determined whether they met the following criteria for participation: that they were
women between the ages of 19 and 31 with a physical disability and with the ability to communicate in a written or verbal format.

The investigator then explained to each informant how they would be participating in the study, what the study was about, as well as their right to withdraw from the study at any time or to refuse to answer any of the proposed questions. The respondents were then given a written copy of the consent to participate forms, either by mail or in person; they had to sign consent forms in person or by mail and return them to the investigator. When the researcher received the consent forms, the first 2 of the participants to respond were chosen to fill out a questionnaire.

The questions on this questionnaire were used to help the researcher ensure that the interview guide questions were unambiguous, nondichotomous, were not leading, and covered the topic areas of interest to the investigation.

The interview guide questions were similar to the questionnaire questions and were organized by themes. The areas of interest covered in the questionnaire were translated into the interview guide questions for the remaining 6 participants.

The concepts or themes investigated within the questionnaire were developed as a result of the literature review and personal professional experience of this investigator. As a result, the interview questions were also developed as a result of the literature review, professional experience of the investigator, and after review of the questionnaire answers and feedback. This literature review indicated that women and girls with physical disabilities are less physically active than women without disabilities and men with disabilities, so the questionnaire and interview guide contained inquiries into the
participants' physical activity patterns throughout their lives. This trend has also been noted in this investigator's professional practice.

Many health benefits have been reported for people with physical disabilities who participate in physical activities. Having a primary disability puts people at risk for developing many secondary health conditions. Some of these secondary health conditions, like physical deconditioning, can be mediated by physical activity. As a result, questions were also included regarding the benefits the respondents believed they had experienced or could achieve by participating in physical activity.

Women and girls with physical disabilities encounter barriers to their participation in physical activities. Questions were also included concerning the influences (positive and negative) and barriers the participants had experienced in their physical activity patterns and choices.

Gender can also impact choices and types of physical activities available for women with physical disabilities. This investigator has also noted that the girls in her professional experience have many fewer physical activity choices available to them. Therefore, questions regarding gender impact in physical activity choices were also included in this inquiry.

There is evidence in the literature that the meanings/perceptions of physical activity for girls versus women with disabilities may differ, so the questionnaire and interview also included questions about physical activity participation at different times in the respondents' lives.

After reviewing the answers to the questionnaire, questions were included in the interview guide about the participants' physical education experiences, because this
investigator felt that this question would reveal valuable information that could be derived from this topic of questioning.

Finally, questions were included that required the participants to compare and contrast their physical activity choices and patterns throughout their lives.

From the questionnaires, the researcher clarified any questions and revised them for the interview guide (see Appendix C) in conjunction with the research supervisor. Some common themes/issues could be identified through analysis of the questionnaire answers. Questionnaire responses were helpful in ensuring the interview guide questions would be open-ended, unambiguous, nonleading, and nondichotomous. This is due to the fact that some of the questions in the questionnaire were similar to those within the interview guide. Questions regarding physical education experiences were addressed in the interview guide after a review of the questionnaire answers.

**Data Analysis**

The chosen method of data analysis was inductive. With this type of analysis "categories and patterns emerge from the data rather than being imposed on the data prior to data collection" (McMillan & Schumacher, 2001, p. 462). A rigorous cross-case analysis was done of each verbatim transcript from the one-on-one interviews. The data were analyzed via content, pattern, constant comparison and demographic strategies.

Using an interview guide facilitated analysis allowing the researcher to analyze each question and search for similarities and differences within the participants' answers. Probing questions were also analyzed for content, again searching for similarities and differences, despite slight variations within these questions amongst participants. This
content analysis was done to seek confirming and disconfirming themes and elements. Categorization of the information was then done with the data.

Once analysis was completed, the data were compared to existing literature regarding the topic under investigation, specifically women and girls with physical disabilities and their experiences with physical activity. In addition, the data were compared to the professional experiences of the investigator.

**Ethical Considerations**

Some of the questions posed within this study had the potential to cause some participants negative emotions. Bad past memories may have been relived when answering some of the questions posed in the study. The participants had the option to refuse to answer any of the questions posed to them during the investigation. This right of refusal was explained to the respondents prior to their participation. In addition, this problem was addressed by making the participants aware of the counseling services available through student services. Contact information for the counseling service would be provided by the researcher to the participants upon their request, though none of the participants made such a request. To fulfill the researcher’s objectives for this investigation, these potentially emotional questions needed to be asked.

An application to the Ethics Review Board at Brock University was submitted and approval (see Appendix D) was received for this study. A modification of the initial application was submitted for ethics review in order to allow the recruitment of additional prospective participants through the other agencies and expand the age range. This modification also received approval.
Upon initial contact with the participants, the investigator reviewed the consent to participate forms (including information about study and withdrawal rights). Written consent was obtained prior to the respondents' involvement in the study. The participants were provided with the investigator's address, e-mail, and phone number to allow them to withdraw from the study at any time.
CHAPTER FOUR: PRESENTATION OF FINDINGS

In the following chapter there will be a summary of the research findings. The data in the following chapter are presented in two ways. There is a written description of the data as well as summary tables. The depth and breadth of the participants’ responses to the interview questions provided much more detail than was summarized in the proceeding tables. The tables provide general summaries of the findings.

This study had 8 participants in total, 6 of whom completed an in-depth interview and 2 of whom completed only a questionnaire. In the following table, participants seven and eight were the respondents who answered the questionnaire only. Participants 1 through and 6 were interviewed.

*Age of Participants (Table 1)*

The study participants were all females with physical disabilities who ranged in age from nineteen to thirty one years old. Their mean age was twenty four years, seven months.

*Medical Diagnosis of Participants (Table 1)*

The participants in this investigation have a variety of different medical diagnoses: Cerebral Palsy (CP n=5), Duchenne’s muscular dystrophy (DMD n=1), acquired brain injury (ABI n=1). The final participant did not specify a medical diagnosis but rather described her many congenital neuromuscular impairments to the interviewer. Therefore, all but one of the participants had a congenital disability rather than an acquired disability.
Table 1

*Interview Participants' Demographics*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Diagnosis</th>
<th>Education</th>
<th>Functional community mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>31</td>
<td>CP</td>
<td>Master's degree (completing)</td>
<td>Scooter (part of time)</td>
</tr>
<tr>
<td>F2</td>
<td>26</td>
<td>CP</td>
<td>High school (starting undergrad within next year)</td>
<td>Walks</td>
</tr>
<tr>
<td>F3</td>
<td>25</td>
<td>Duchennes muscular dystrophy</td>
<td>High school with one year college (completed)</td>
<td>Power wheelchair (all the time)</td>
</tr>
<tr>
<td>F4</td>
<td>19</td>
<td>Congenital neuromuscular impairments</td>
<td>Undergrad degree program (completing)</td>
<td>Power wheelchair (walks at home)</td>
</tr>
<tr>
<td>F5</td>
<td>25</td>
<td>CP</td>
<td>Undergrad degree program (completing)</td>
<td>Walks</td>
</tr>
<tr>
<td>F6</td>
<td>27</td>
<td>CP</td>
<td>High school (completed)</td>
<td>Walks</td>
</tr>
<tr>
<td>F7</td>
<td>19</td>
<td>CP</td>
<td>High school (completing)</td>
<td>Walker</td>
</tr>
<tr>
<td>F8</td>
<td>25</td>
<td>CP</td>
<td>Undergrad degree program (completing)</td>
<td>Walks</td>
</tr>
</tbody>
</table>

Questionnaire Participants
Education Levels of Participants (Table I)

The majority of the respondents in this study \((n=5)\) reported that they were full-time students. Three of these respondents were completing an undergraduate degree program, and 1 was working toward the completion of a Master's degree. The final full-time student reported that she was completing her high school diploma with the plan to commence taking college courses. Another respondent reported that she would be commencing an undergraduate degree program within one year. Two participants indicated that they had completed high school, with one of these participants reporting that she also completed one year of a college program.

Functional Community Mobility (Table I)

The majority of the participants in this study \((n=6)\) ambulate unaided within their residences. Only 1 respondent is completely dependent on a wheelchair for all her mobility within her primary residence \((n=1)\). The final participant reported the use of a walker for assistance with her balance while walking in her residence \((n=1)\). Half of these participants ambulate without the use of an aid (walker, cane, or crutches, etc.) within their community \((n=4)\). The other participants require the use of power mobility aids as their primary means of functional community mobility \((n=3)\) and one participant uses a manual wheelchair and walker outside her residence \((n=1)\).

Primary Residence of Participants

The primary residence for half of the participants was reported to be their parents' home \((n=4)\). One of the respondents lived in a self-contained apartment in the basement of her mother's home \((n=1)\). The remaining participants reported living in their own residences \((n=3)\).
Areas of Canada where Participants Reside

The participants were from a variety of different regions of Canada. These regions included: southern Ontario \((n=5)\), eastern Ontario \((n=1)\), western Canada \((n=1)\) and a large urban area in southern Ontario \((n=1)\).

Other Important Descriptors of Participants

All of these participants were Caucasian and reported little financial hardship in their lives.

Types of Physical Activities Participation (Table 2)

These participants reported participating, although not regularly, in a variety of physical activities. They reported physical activities that included: lifting weights, doing push-ups, doing traditional gym activities (stationary bicycle, treadmill, rowing machines, and weight machines), swimming, walking, performing stretching/strengthening exercises, and skiing. In only one case was housework, such as washing dishes and dusting, included in one participant’s interpretation of what she classified as physical activity.

Reports of Daily Physical Activities Done by Participants (Table 2)

The majority of the study participants reported that they get very little daily physical activity. Only 2 of the participants reported daily physical activity. One study participant reported that her daily physical activity was walking around the university campus and at the mall on weekends. Another participant reported her daily physical activity as housework (doing dishes and other cleaning). Of the participants reporting no regular daily physical activity, 2 reported that they believed their use of a motorized
### Table 2

*Present Physical Activity (PA) Patterns of Participants*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Types of PA</th>
<th>Frequency of PA</th>
<th>Reasons for choice</th>
<th>Purpose of PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>gym exercises none in 6 months</td>
<td>none b/c injured</td>
<td>gym close, easy, enjoyment</td>
<td>maintain health</td>
</tr>
<tr>
<td></td>
<td>skiing none in 6 months</td>
<td></td>
<td>easy, no pain</td>
<td>maintain health</td>
</tr>
<tr>
<td></td>
<td>swimming none in 6 months</td>
<td></td>
<td></td>
<td>pride in accomplishment maintain health</td>
</tr>
<tr>
<td>F2</td>
<td>swimming 2-3 times/week</td>
<td></td>
<td>easy, no pain</td>
<td>maintain health</td>
</tr>
<tr>
<td></td>
<td>gym exercises 2-3 times/week</td>
<td></td>
<td>easy, no pain</td>
<td>maintain health</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>maintain weight</td>
</tr>
<tr>
<td>F3</td>
<td>strengthening 2-3 times/week</td>
<td></td>
<td>easy, no equipment</td>
<td>maintain independence</td>
</tr>
<tr>
<td></td>
<td>inconsistent</td>
<td></td>
<td></td>
<td>maintain weight</td>
</tr>
<tr>
<td></td>
<td>housework daily</td>
<td></td>
<td>fun, easy, no equipment</td>
<td>maintain function</td>
</tr>
<tr>
<td>F4</td>
<td>push-ups not regularly</td>
<td></td>
<td>easy, no equipment</td>
<td>maintain health be in &quot;shape&quot;</td>
</tr>
<tr>
<td>F5</td>
<td>cardio exs summer 2-3/week</td>
<td></td>
<td>easy</td>
<td>weight control decrease pain</td>
</tr>
<tr>
<td></td>
<td>tandem bicycle summer 2/month</td>
<td></td>
<td>fun and easy</td>
<td>maintain function</td>
</tr>
<tr>
<td></td>
<td>walking daily for 1-2 hours</td>
<td></td>
<td>to get around school</td>
<td>maintain function</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>maintain independence</td>
</tr>
<tr>
<td>F6</td>
<td>bicycle summer 2-3/week</td>
<td></td>
<td>easy, get around</td>
<td>maintain health independent mobility</td>
</tr>
<tr>
<td></td>
<td>swimming 2x/week (when has transportation)</td>
<td></td>
<td>easy, no equipment</td>
<td>maintain health</td>
</tr>
</tbody>
</table>
mobility aid (wheelchair or scooter) considerably impacted their daily walking and therefore their daily physical activity.

*Frequency of All Participation in Physical Activity (Table 2)*

The study participants reported quite a variation in the amount of weekly/monthly participation in physical activity. One participant, F2 (CP), who worked in the fitness industry, reported doing regular physical activity other than walking. She reported that she went to the gym two to three times per week, and for about one week a month she went to the gym five times per week. In addition, she swam at work. Another participant, F5 (CP), reported that when she is on a health kick (generally only in the summer months), she would participate in 40 minutes of cardio exercise (treadmill, stationary bicycle, and rowing machine) two to three times per week and in addition to the cardio exercise she would ride a tandem bicycle two to three times per week. However, during the school year she did no physical activity other than walking. Another respondent, F3, a woman with Duchenne’s muscular dystrophy (F3, DMD), stated that she occasionally does leg/arm strengthening exercises two or three times per week and cleans (washing dishes, dusting) her house daily for physical activity. Another study informant, F6 (CP), reported swimming sometimes two to three times per week. About once per month, F4 (multiple congenital impairments) reported doing push-ups and lifting weights. Finally, the last participant, F1 (CP), reported no regular physical activity in the last 6 months because of a wrist injury.

*Reasons for Physical Activity Choices (Table 2)*

The physical activities the participants chose to take part in were made generally based on the ease of participation in that particular physical activity by the participants.
activity. The participants reported that they did these activities at home, as part of their daily routine (walking), or at their place of employment (F2 is employed at the YMCA). F4, who used a power wheelchair for community mobility, summed up why she chose to lift weights and do push-ups:

*These activities are not hard to do; you don’t need someone there to tell you how to do it; you can do it on your own.*

Another participant, F5 (CP), reiterated the importance of the ease of participation with regard to her decision to engage in physical activity.

*I do walking and biking because I can. It is the easiest thing for me to do.*

These participants chose to participate in physical activities that did not require a lot of extra equipment (walking, swimming, or housework) and those activities that caused the participants the least amount of pain. F2 (CP) expressed her limited physical activity choices because of pain.

*Basically, I do whatever doesn’t cause pain, and so swimming is something I can do and I have always done, and it doesn’t cause me a lot of pain. So basically, I would like to run, but I cannot do it because I know the next day I won’t be able to walk on my foot. So I stick to what is not painful.*

Another reported reason for participating in physical activity was for fun. F3 (DMD), a participant with no voluntary lower extremity function, stated that housecleaning was a fun physical activity for her.

*It would be nice if I could go out and do other physical activities, but I am very limited, so I kind of try to do what I can. So when it is easiest for me to still do*
dusting and to do dishes and to do things like that, so I just kind of do whatever I can. I actually like cleaning.

F5 (CP) reported that she rode a tandem bicycle in the summer two to three times per week for enjoyment.

I can’t ride a bike but if I ride with someone else on the back [of a tandem bike] then it’s ok because they do all the balancing and I just have to sit there and pedal. So we go all around the city down to the lake and stuff like that. It is fun.

Purpose of Physical Activity for Participants (Table 2)

The purposes of participating in physical activity were to prevent weight gain, to maintain independence/function, to socialize, to feel good both physically (decrease pain), and psychologically (pride in accomplishment). F5 (CP) also stated that she was physically active to keep up with her boyfriend and be “normal.”

I try to do it to be a normal person in society. I am physically active to lose weight, because my weight fluctuates.

F2 (CP), who works at the YMCA, reported the purpose for physical activity.

I don’t want to gain weight. I want to look good. I want to stay vital and things like that.

F4 (multiple congenital impairments), a young woman who uses a power wheelchair for mobility, reports that physical activity makes her feel good.

It feels rewarding [to be active] or whatever, like sometimes I lift weights or do push ups or whatever and you feel good afterward because you think you are doing a good job being active and healthy.
Physical Activity Patterns of Participation in Youth (Table 3)

When these women reflected on their past physical activity patterns, they all unanimously reported that they were much more active in their youth. Youth, for the purposes of this study, was defined as 12 to 15 years of age. F1 (CP), a woman who now uses a scooter to get around in her community, felt that she used to walk more in her youth, which increased her physical activity considerably.

_I think I had a lot more physical activity [in youth], obviously because I didn't have a scooter. I think the scooter has made me a bit inactive. So when I was in school I walked everywhere._

This feeling was reiterated by F3 (DMD), who reported that she was still able to walk during her youth. Due to her ability to walk, she had a larger repertoire of physical activity choices available to her. She reported that she began to use her power wheelchair at school in grade 9 and required its use full-time by grade 12.

The majority of the respondents reported that physical education time as well as recess time within school were large portions of time in which they could be physically active during their youth. All the respondents reported that they took physical education only until they were no longer required to participate in physical education for school credit (until approximately grade 9).

Frequency of Participation in Physical Activity and Types of Activities (Table 3)

Most of the participants reported that they participated several times per week in physical activity in their youth. They reported participating in activities such as physical education (biweekly for 30 to 45 minutes), playing at recess (daily at school for up to 60
Table 3

Physical Activity Patterns of Participation in Youth

<table>
<thead>
<tr>
<th>Participant</th>
<th>Types of PA</th>
<th>Frequency of PA</th>
<th>Reasons for Choices</th>
<th>Purpose of PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>walking</td>
<td>all day no scooter</td>
<td>functional mobility</td>
<td>community mobility</td>
</tr>
<tr>
<td></td>
<td>phys ed.</td>
<td>1-2x/week (45 min)</td>
<td>no choice</td>
<td>school credit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>socialization</td>
</tr>
<tr>
<td></td>
<td>swimming</td>
<td>1-2x/week (60 min)</td>
<td>easy, classes available</td>
<td>fun, sense of pride</td>
</tr>
<tr>
<td></td>
<td>skiing</td>
<td>2x/month (winter)</td>
<td>classes available</td>
<td>fun, socialization</td>
</tr>
<tr>
<td></td>
<td>horseback riding</td>
<td>as often as possible</td>
<td>classes available, fun</td>
<td>fun and socialization</td>
</tr>
<tr>
<td></td>
<td>playing at recess</td>
<td>daily (up to 60 min)</td>
<td>fun and available time</td>
<td>socialization</td>
</tr>
<tr>
<td></td>
<td>synchronized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>swimming</td>
<td>1-2x/week (60 min)</td>
<td>classes available, no pain</td>
<td>fun and socialization</td>
</tr>
<tr>
<td></td>
<td>recreational</td>
<td></td>
<td></td>
<td>fun and self</td>
</tr>
<tr>
<td></td>
<td>swimming</td>
<td>1-2x/week (45 min)</td>
<td>classes available, no pain</td>
<td>confidence</td>
</tr>
<tr>
<td></td>
<td>phys ed. exercises</td>
<td>1-2x/week (30 min)</td>
<td>mandated</td>
<td>for credit</td>
</tr>
<tr>
<td></td>
<td>from Physio recess</td>
<td></td>
<td></td>
<td>maintain strength and</td>
</tr>
<tr>
<td></td>
<td>recess</td>
<td>daily for 30 min</td>
<td>parents insisted</td>
<td>flexibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>daily (up to 60 min)</td>
<td>fun and available time</td>
<td>socialization</td>
</tr>
<tr>
<td></td>
<td>recreational</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td>soccer</td>
<td>daily for 30 min</td>
<td>easy, no equipment</td>
<td>fun and socialization</td>
</tr>
<tr>
<td></td>
<td>exercise bike</td>
<td>almost daily (20 min)</td>
<td>easy (had on at home)</td>
<td>maintain strength and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>flexibility</td>
</tr>
<tr>
<td></td>
<td>swimming</td>
<td>1-2x/week (60 min)</td>
<td>classes available</td>
<td>fun and socialization</td>
</tr>
<tr>
<td></td>
<td>walking</td>
<td>daily at school</td>
<td>functional mobility</td>
<td>to keep up with</td>
</tr>
<tr>
<td></td>
<td>phys ed. recess</td>
<td>1-2x/week (30 min)</td>
<td>mandated</td>
<td>friends</td>
</tr>
<tr>
<td></td>
<td>sledge hockey hours</td>
<td>daily (up to 60 min)</td>
<td>fun and available time</td>
<td>school credit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>socialization</td>
</tr>
<tr>
<td></td>
<td>phys ed.</td>
<td>1-2x/week (30 min)</td>
<td>mandated</td>
<td>school credit</td>
</tr>
<tr>
<td></td>
<td>1-2x/week (1-2 hours)</td>
<td>classes available, no limitations due to health</td>
<td>fun and socialization</td>
<td></td>
</tr>
</tbody>
</table>

(table continues)
Table 3

*Physical Activity Patterns of Participants in Youth*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Types of PA</th>
<th>Frequency of PA</th>
<th>Reasons for choices</th>
<th>Purpose of PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>F5 phys ed.</td>
<td>1-2x/week (30 min) mandated</td>
<td>school credit</td>
<td>fun and socialization</td>
<td></td>
</tr>
<tr>
<td>sailing/canoeing</td>
<td>seasonal</td>
<td>recess daily school</td>
<td>easy and friends doing</td>
<td>fun and socialization</td>
</tr>
<tr>
<td>ball games</td>
<td>recess</td>
<td>daily (up to 60 min)</td>
<td>parents insisted</td>
<td>maintain flexibility and strength</td>
</tr>
<tr>
<td>physio exercises</td>
<td>daily (30 minutes)</td>
<td></td>
<td>fun and available time</td>
<td>socialization</td>
</tr>
<tr>
<td>recess</td>
<td>weekly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F6 phys ed.</td>
<td>1-2X/week (30 min) mandated</td>
<td>fun and school credits</td>
<td>socialization</td>
<td></td>
</tr>
<tr>
<td>recess</td>
<td>daily (up to 60 min) fun and available time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>swimming</td>
<td>weekly</td>
<td>classes available</td>
<td>enjoyment</td>
<td></td>
</tr>
</tbody>
</table>
minutes), swimming (one to two times/week), skiing (seasonal), sledge hockey (2 hours/week), horseback riding (as much as possible), stretching and strengthening exercises provided through therapy (daily 30 minutes), sailing/canoeing (while at camp every summer), and walking during the course of an average day.

Reasons for Physical Activity Choices (Table 3)

The participants reported a variety of reasons for the physical activity choices in their youth. These factors ranged from the availability of group activities, to the fact that physical education was mandated for school credits, and then simply the activities were fun (playing at recess with friends). Parents were also influences on these women’s choices in youth, as they were often a positive guiding force that encouraged them to do the daily therapist-suggested exercises, as well as the fact that they were enablers who gave the women the opportunities to experience a variety of activities. These women reported having more physical activity groups available for them in their youth, and finally they participated in more physical activity because they liked being physically active. F1 (CP) reiterated that her parents were a positive influence with respect to her physical activity.

My parents really got me active with swimming lessons, skiing and horseback riding.

F5 (CP) was influenced to be physically active by her parents.

My parents always pushed me. I did therapy probably until I was in my teens. A workout every day that I never wanted to do, but they kind of wouldn’t take that.

F3 (DMD) explained how physical activity was fun and a social activity.
I used to love swimming. When I was younger I used to go regularly every week, and I thoroughly enjoyed that; it was just nice to be around other kids my age and stuff. It was always fun playing in the water.

F4 (multiple congenital impairments) also reported why she was physically active in her youth.

[Regarding sledge hockey, see glossary for description]: It was fun. You got to interact with other kids around your age. [Regarding gym]: Gym was mandatory into grade 9.

Purpose of Physical Activities in Youth (Table 3)

The participants believed that, in their youth, the purpose of these activities was to socialize, to have fun, to be functionally independent, to keep up with their peers, to be "normal", to experience a sense of accomplishment through the achievement of new skills, for school credit, and to maintain their flexibility and strength.

F5 (CP) expressed how she used physical activity to be like other people (normal).

All of my friends were normal girls and boys, and whatever they did I did. So if they were outside playing at recess, so was I. If they went to the movies on the weekend or the mall, so did I.

F6 (CP) reported that she participated in sports for fun in her youth.

I did baseball, basketball, and swimming in school. I liked sports. It was fun.

F1 (CP) expressed how she used physical activity to experience a sense of accomplishment.
When I went into the [swimming] class, I didn't know how to swim at all. I was 10 years old, by the time I ended at 18, I can say that I am [sic] pretty proficient. I can do things I never thought I would do.

F2 (CP) also expressed how she received a sense of pride in her development of proficiency in a physical activity.

I have been told from a very young age that I was really good at swimming and you’re a really good swimmer [by others]; those are the first things people told me and I just kind of stuck with it.

F3 (DMD) reported how important socialization was for her in making physical activity fun.

[Attending swim group] When I was younger it was a fun-filled day. I met a lot of kids my own age.

Positive Influences on Physical Activity Patterns throughout Lifespan (Table 4)

Participant 6 struggled to answer the remainder of the interview questions and, due to her inability to answer the questions; her input was not used in the rest of the data analysis.

Each participant described some positive influences (facilitators) they experienced in their lives relating to their physical activity participation. Two of the participants listed swim instructors as very positive influences on them. F2 (CP), who is currently working in the field of aquatics, reports the positive ways her instructors influenced her.

I just remember there were a few teachers, not school teachers, but teachers that I had with swimming, who really encouraged me as they thought I was great because they knew how hard it is to do and some of them really encouraged me.
Table 4

**Positive Influences on Physical Activity Patterns throughout Lifespan**

<table>
<thead>
<tr>
<th>Participants</th>
<th>Positive influences for PA</th>
<th>How participants' were influenced</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>swim instructor - volunteers</td>
<td>helped to develop love of swimming, which she would be doing regularly if she could find a suitable facility</td>
</tr>
<tr>
<td></td>
<td>skiing instructor - volunteers</td>
<td>help her develop the ability to ski and develop a love for the sport which she continues to do in her adulthood</td>
</tr>
<tr>
<td></td>
<td>friends</td>
<td>motivated to be physically active with friends and one helps her with her gym program</td>
</tr>
<tr>
<td></td>
<td>parents</td>
<td>encouraged and supported her in allowing to try a variety of different PA through her youth, transported her to PA and paid for the activities</td>
</tr>
<tr>
<td></td>
<td>programs for youth with disabilities</td>
<td>allowed her to experience some different PA in a supportive environment, which she can do in adulthood</td>
</tr>
<tr>
<td></td>
<td>therapists</td>
<td>provide her with appropriate exercise to do</td>
</tr>
<tr>
<td>F2</td>
<td>swim instructor - volunteers</td>
<td>encouraged her and made her feel great about her skills in the pool and admittedly influenced her current job</td>
</tr>
<tr>
<td></td>
<td>parents of other swimmers</td>
<td>made her feel good about herself and her swim accomplishments by encouraging her with positive comments</td>
</tr>
<tr>
<td></td>
<td>parents</td>
<td>helped to encourage and give her opportunities to try a variety of PA</td>
</tr>
<tr>
<td></td>
<td>chosen occupation</td>
<td>surrounded by knowledgeable professionals, which motivates her to be physically active</td>
</tr>
<tr>
<td>F3</td>
<td>brother</td>
<td>encouraged her to be physically active by playing outside with her</td>
</tr>
</tbody>
</table>

(table continues)
Table 4

*Positive Influences on Physical Activity Patterns throughout Lifespan*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Positive Influences for PA</th>
<th>How participants were influenced</th>
</tr>
</thead>
<tbody>
<tr>
<td>F3</td>
<td>Children's Center staff</td>
<td>met a lot of people who showed her that PA could be fun</td>
</tr>
<tr>
<td></td>
<td>parents</td>
<td>encouraged and supported her in allowing her to try a variety of different PA through her youth, transported her to PA, and paid for activities</td>
</tr>
<tr>
<td>F4</td>
<td>parents</td>
<td>encouraged and supported her in allowing her to try a variety of different PA through her youth, transported her to PA, and paid for activities</td>
</tr>
<tr>
<td></td>
<td>positive feelings associated with PA</td>
<td>received a sense of accomplishment when she did well in sport and sense of pride with exercise. She felt she was doing a good &quot;job being healthy&quot;</td>
</tr>
<tr>
<td>F5</td>
<td>parents</td>
<td>encouraged and supported her in allowing her to try a variety of different PA through her youth, transported her to PA, and paid for activities</td>
</tr>
<tr>
<td></td>
<td>boyfriend</td>
<td>encourages her to be physically active</td>
</tr>
<tr>
<td>F6</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
F1 (CP) also reported positive influences from swim instructor volunteers and ski
volunteers that have allowed her to do these activities through her lifespan.

*I think it is funny, because a lot of the positives I’ve had in my life have come from
volunteers that have given their time to make things work.*

Family, namely parents and in one instance a sibling, were also cited as positive
influences. Parents encouraged the participants to be active by signing them up for
activities while the participants were young, paying for these activities, transporting them
to and from the activities, and encouraging the respondents during their participation.

F4 (multiple congenital impairments) summed up her parents’ facilitation of her
participation in sledge hockey.

*My parents were the biggest influence since they got me into it in the first place
and they took me to all the games.*

F5 (CP) feels her parents were also a big influence on her physical activity during
her youth.

*My parents always pushed me. I did therapy until I was probably in my teens like
a workout every day that I never wanted to do but they wouldn’t take that.*

F3 (DMD) mentioned that her brother was her biggest positive influence toward
being active in her youth.

*During that time I always loved playing soccer with my brother, so we
would always play ball in the backyard and stuff.*

Friends were also deemed very important facilitators for the participants’ activity
levels. Making friends and socializing during physical activities in their youth made
these activities fun. F1 (CP) expressed the help she gets from a friend regarding physical activity participation.

*I have one friend that is a really good influence on me. She is the one that has come with me a couple of times to the gym to alter my program.*

F1 (CP) also reported that, for her, classes for individuals with disabilities were very positive because of the small adult-to-participant ratio, which allowed her to have the support and time necessary to be successful in those particular activities. This helped her to become proficient at the physical activities (swimming and skiing), which translated into making them fun and an activity she still enjoys.

F5 (CP) reported her boyfriend as a positive influence on her level of physical activity.

*He doesn’t see me as disabled so that kind of pushes me to not be like ‘of course I am’ but you can sit at home and be disabled or you can go out drinking and be disabled like it’s just whatever you want to do.*

**Negative Influences on Physical Activity Patterns (Table 5)**

The participants described many negative influences relative to physical activity that have impacted their physical activity patterns throughout their lives.

F1 (CP) decided that she would try to join her high school swim team. She wanted to join for the team camaraderie rather than the competition.

*The [swim] teacher kind of made it impossible for me to meet the criteria. After, I found out that the criteria that they set out for me was not being met by half the team. I was prevented from the participating in that group sport.*
### Table 5

**Negative Influences on Physical Activity Patterns throughout Lifespan**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Negative influences</th>
<th>How participants were influenced</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>high school phys ed teacher</td>
<td>made it impossible to join leisure/recreation exploration gym class in school - does not seek out recreational activities because of this disappointment</td>
</tr>
<tr>
<td></td>
<td>teacher/swim team coach</td>
<td>did not allow her to join high school swim team - did not try to join any other competitive sporting activities for the rest of her life</td>
</tr>
<tr>
<td></td>
<td>health care system (over 18 years old)</td>
<td>forced to join groups now for therapy - doesn't seek out PA because of fear of being lumped into a group of people unlike herself</td>
</tr>
<tr>
<td>F2</td>
<td>phys ed teachers</td>
<td>did not know how to modify gym class or do more inclusive activities to encourage her participation - often sat out of gym and dropped out once in high school</td>
</tr>
<tr>
<td>F3</td>
<td>phys ed teachers</td>
<td>due to the fact that she was not able to do the same activities as peers and no attempt was made to include her, she often did not participate and dropped out in high school</td>
</tr>
<tr>
<td>F4</td>
<td>phys ed teachers</td>
<td>was not included in a lot of activities and main reason for dropping out in high school</td>
</tr>
<tr>
<td>F5</td>
<td>none reported</td>
<td></td>
</tr>
<tr>
<td>F6</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
F1 (CP) was also prevented from taking a specialized gym program in high school.

*I actually had to withdraw from the course because it was quite obvious that he [the teacher] would not have let me participate in all the things even though I could do them. So I had to go into another phys ed. class.*

These two episodes were very discouraging to her. *I never really tried to join any other teams, because I think I knew I wouldn’t succeed, or I thought I wouldn’t, and I thought I wouldn’t be allowed to be on it so I never bothered to try other than those two, because look how they turned out.*

Physical education classes were reported to be a large source of physical activity for the respondents in their youth. Physical education teachers were reported by the participants as seemingly unsupportive to them in most cases. These teachers often discouraged participation by some participants through their reported lack of ability or desire to modify the activities during the class to help the participants effectively engage in all aspects of the class. Some of the participants felt that the physical education teachers didn’t care or were unconcerned with their participation, while other respondents felt that the teachers just didn’t know what to do to modify the gym activities for them due to lack of knowledge about disabilities.

F2 (CP) explained her physical education experience.

*I don’t think they know how to handle disabled people in terms of trying to manipulate an activity so I could do it better or do an activity so it would be more appropriate for me.*
Most of the participants did not enjoy physical education classes. F3 (DMD) summed it up well, when she said “gym was not fun.”

F4 (multiple congenital impairments) reiterated this sentiment.

*A lot of my memories of phys ed were sitting on the bench through the whole period.*

Reportedly, most often in these physical education classes, the types of activities being done were things that they couldn’t do (for example tag, volleyball, soccer, etc.).

F5 (CP) also had negative experiences in physical education because the activities in her classes were often things she struggled to do and there were no adaptations made to help her fully participate.

*I hated taking gym but took it anyway.*

Often cited was the lack of support they felt from their physical education teachers in their youth. F4 (multiple congenital impairments) described feeling like an “outcast” because she wasn’t able to participate in gym activities. These feelings were one of the major factors in her decision not to participate at all in high school physical education. She took drama instead of physical education classes in high school.

F5 (CP), despite hating gym, never felt that it was a negative influence to her physical activity participation and reported that she experienced no negative influences at all and considered herself very lucky.

*Barriers to Participation in Physical Activity (Table 6)*

The most commonly reported barrier to physical activity participation among the respondents was lack of time. School took up so much of their time (between classes and assignments as well as work) that it was difficult fitting physical activity into their
Table 6

*Barriers to Physical Activity Participation*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Barriers to physical activity participation</th>
</tr>
</thead>
</table>
| F1          | lack of knowledgeable people to help guide her in proper exercises  
difficulties with pool temperature in various facilities (too cold)  
unaware of any group physical activity (recreational sports) for her  
fear of hurting herself with improper exercises  
concern regarding other people’s judgement of her capabilities  
lack of variety of activities available to those with disabilities  
fatigue  
fear of failure at trying new and varied physical activities  
limited available exercise specialists (after 18 years of age)  
lack of time because of school work |
| F2          | limited types of physical activities that do not cause pain and discomfort  
fatigue from long work day  
lack of time because of busy work schedule  
fear of failure at not being good enough to try competitive sport  
lack of knowledge about group programs for people with disabilities |
| F3          | transportation to facilities difficult (must rely on paratranspo)  
weather-difficulty getting out because of the snow and heaviness of warm clothes  
costs money to join programs and get attendents for help  
physical health status (progressive weakness/fatigue) limits physical activities she can do  
lack of access to exercise professionals since turning 18 years of age  
inaccessibility of community (curb cut outs and traffic) |
| F4          | physical health status (heart condition) limits physical activities she can do  
lack of time because of school work  
physical size-became too small to compete in sledge hockey  
lack of availability of programs for women with disabilities  
inaccessibilities of facilities for wheelchair users such as bathrooms and doorways |
| F5          | lack of time because of school work  
exhaustion at the end of the day |
| F6          | lack of transportation to and from pool  
weather-when it is winter she is unable to ride her bicycle or scooter to be active |
schedule. F5 (CP), an undergraduate student, reported participating in more physical activity in the summer when school slowed down. She was able to increase her physical activity level significantly during this time.

*When I am on a health kick, I will go to the gym. I usually do that in the summer more. I tend to be more physical because I am not in school so much. Two to three times per week I usually do 40 minutes of cardio workout.*

Physical exhaustion was also cited as a barrier to physical activity. F3 (DMD) reported physical fatigue as a barrier to her participation in physical activities.

*[Reference to all physical activity in her youth versus adulthood] It was always good coming in and being tired from physical activity, like just that kind of fun, exhaustion, like as I got older it was just exhaustion, exhaustion.*

F2 (CP), who reports being pretty physically active, feels fatigue impacts her physical activity level.

*Like everyone else I am just too tired sometimes and just want to go home [instead of working out].*

F5 (CP) reports fatigue as a barrier as well.

*My school takes a lot of time and a lot of my energy. At the end of a long day I’m just exhausted.*

F3 (heart condition) reports fatigue as a barrier as well.

*I have a heart condition, and physically strenuous activity is draining, and with school I don’t have a lot of extra time.*

Cost was reported to be a barrier for only one participant (F3). F2 (CP) reported that she also has to consider the added expense of specialized equipment for some sports,
she still is able to participate in all her desired physical activities with the financial assistance of her family. However, considering all the difficulties associated with getting the necessary equipment (AFOs, adapting equipment to fit her body) this difficulty has prevented and continues to prevent her from trying some new physical activities.

At the end of the day, you’re like, do I really want to do this activity if I know I have to wait 6 months to get a brace fixed or anything like that, so you know if I do this I could get tendonitis for the next 3 months. I want to cycle, but I don’t want to cycle that much.

F3 (DMD) was the only participant to express that the cost was a barrier to her participation in certain physical activities, such as swimming.

I would say financially the only thing that is a barrier is paying for the bus and possibly paying for services for an assistant [to help in dressing and accessing the pool].

Three of the respondents reported their physical pain as a significant barrier for their participation in physical activity. F1 (CP) reported that when she experiences any pain related to physical activity her fear of doing the wrong activities causes her to stop doing that physical activity and makes her afraid to try it again.

I will exercise, but the second something starts hurting me I think that I’ve hurt it because I’ve done the exercises wrong. So instead of asking for help I will just stop altogether.

F2 (CP) also reported that her selected physical activities were limited by pain. Basically, I do whatever doesn’t cause me a lot of pain, and so swimming is something I can do. So basically, I would like to run, but I cannot do it because I
know the next day I won’t be able to walk on my foot.

Many of the participants expressed that having little access to knowledgeable professionals for assistance in helping them to understand what physical activities were good for them and how to adapt activities so they could do them without injuring themselves was another big constraint. This lack of support in knowing appropriate exercises to do in turn leads to fear of doing something that could lead to injury and therefore stops them from doing some physical activities.

F1 (CP), a very articulate woman, expressed this well.

I go to places to work out, like Premiere Fitness or the University gym, and there is no one there to really help me in terms of saying no or that you shouldn’t be doing that because that is going to impede you more. They don’t know a lot about CP. So I had to give them my exercise schedule from Rehab [a local Rehabilitation Center], and usually they would make up an individualized program for you [members], but I had to give them one. It was tailored for me when I was at the Rehab, but that was like 2 years old. So I know if things had changed.

Physical condition was also reported as a constraint for physical activity participation. F4 (multiple congenital impairments) expressed her limitations because of her heart condition, which sometimes causes her to become very exhausted during physical activity. In addition, F3 (DMD), who no longer has voluntary movements of her legs and significant weakness of her upper extremities because of her progressive neuromuscular disease, reported her limited physical activity choices due to the barriers of decreased physical strength and exhaustion.
F3 (DMD) was the only participant in this study to report transportation and attendant care as barriers to her physical activity participation in swimming.

A lot of it [the reason for not swimming] has to do with traveling. Getting to the pool you have to take the bus [paratranspo] and book the bus and everything, which is kind of difficult. You have to book 3 weeks in advance, so it’s not very easy. Even then, also getting help to help me into my bathing suit, into the pool, and back out to get dressed, it’s just, it’s really a long, hard process kind of, which definitely keeps me back from doing something like that. I think even if I didn’t get so exhausted from doing it, I think I still wouldn’t do it because of the barriers of transportation and of trying to get people to come and help exhausts me.

F3 (DMD) was also the only respondent in this study to report external barriers, such as snow and lack of sidewalk cutouts, which limit her ability to get out in the winter months. The extra clothing needed in the winter makes moving her arms extremely difficult, so it is easier to stay inside in the winter.

F4 (multiple congenital impairments) reported that her physical size became a barrier to her participating in sledge hockey and was one of the main reasons for her quitting the team. As she got older there were more men playing, and she could no longer physically match their strength. Moreover, she reported that some facilities struggled to find dressing rooms for her separate from the male participants.

Fear of failure was a reported barrier for the participants in trying new physical activities. F1 (CP) reported her hesitation at trying exercise classes at the gym.
I would like to go to an exercise class, but I think there is a fear, a fear that I won't be able to do it, so I just don't go.

This fear of failure limiting physical activity was also reiterated by F2 (CP).

*I have chosen never to have gone competitive in things [relating to sport] because I always think that I am not going to be able to keep up with people or I am not going to be good enough, even though I am not too disabled.*

F5 (CP), who is independently mobile and describes herself as having mild CP, stated emphatically that she has no barriers to her physical activity.

*You just take any barrier and make it not there.*

*Gender’s Role in Influencing Physical Activity Patterns throughout Lifespan*

When questioned specifically about their feelings regarding how or if being a woman with a physical disability has impacted their physical activity choices throughout their lives, all but one participant denied it had any effect.

F3 (DMD) reported that she, as a girl, had limited physical activity choices compared to the boys at her middle school.

*In our school, we had the male basketball and volleyball teams. There weren't girls’ teams. So you were never tempted to just like hang out and dribble a ball during recess. The girls never participated, like they would never start a game of basketball or anything like that, they were more concerned with going to the mall and stuff like that. My friends weren't interested in going and doing physical activities besides walking around the mall.*
It was interesting to note that upon closer analysis of some of the questions in the interview, embedded information with respect to gender’s influence on physical activity experiences and choices was noted in the informant’s responses.

F5 (CP) reported that she actually dropped physical education in high school because it became coeducational, at that time.

As long as I was with my girlfriends and [we] could sit there and laugh, it was ok, but at the age when boys came in, I wasn’t comfortable and I dropped out.

F4 (multiple congenital impairments) reported that she stopped playing sledge hockey because, as she aged, the male players became larger and stronger. Due to the increased roughness in play and the fact that she was much smaller than the other players, she decided that she could not keep it up anymore, that it wasn’t safe, and she consequently quit playing the sport. For her, there were no options for a women’s only sledge hockey team during that time and in the area where she was living.

Although somewhat unrelated to the question specifically concerning gender and physical activity choices, F5 (CP) reported that she believes that it is easier to be a girl with a physical disability than a man with a disability. She felt that girls without disabilities are less likely to make fun of girls that struggle with physical activity and other aspects of life.

I think it [being a girl with a disability] made it easier for me. I think people are already more sympathetic to women and girls. It was easier for me to ask for help. You’re cute as a girl, like you’ve got that cuteness factor that you need help, and it’s ok to ask for help when you’re a girl, but boys have that thing where they have to do it themselves and they don’t think they need help from anyone.
F1 (CP) reported that when she goes to the gym she is intimidated by
the big guys there with mega muscles. I will go and see them, and then it is like
here comes [F1] you know, and it is like oh oh. They were like lifting 100 pounds,
and here I am lifting 5 pounds and barely getting it upright.

Perceptions of Changes in Physical Activities through the Lifespan

A large portion of the increased physical activity levels in their youth were
reported to be due to their involvement in playing at recess and outside with their friends
while at home. All but one of the participants reported swimming on a regular basis
during their youth. This participant did not have ready access to a pool year-round as her
home town did not have an indoor facility. All those respondents that swam weekly
reported having easy access to a pool year-round. All the participants reported swimming
in their youth as a very enjoyable physical activity that was a positive opportunity for
socialization. They either took swimming lessons or swimming was part of their therapy
program at that time in their lives. One respondent described such positive feelings about
swimming in her life that she chose an occupation in the field (as a lifeguard). Another
participant described the pride she had about becoming a proficient swimmer.

All of the respondents reported that they were much more physically active in
their early youth, but as they hit high school age they then started to lead more sedentary
lifestyles that have become increasingly more sedentary right up to and including the
time they were interviewed.

The participants provided a variety of reasons for this trend, but in a majority of
the cases limited time was the biggest factor influencing their physical activity patterns.
This could be unique to this particular sample because the majority of them were enrolled in and completing some form of post secondary education.

The reasons for increased physical activity in youth were reportedly similar. They felt that it was a more active time because of school-mandated physical education, activity at recess, higher level of energy for activity, more free time, and that they had more opportunities naturally for physical activity than they did as they got older.

Most of the participants reported that in their youth they were still having regular physical activity through therapy services. Once they reached adulthood (18 years of age), there were a lot less of these therapy services available in which to be physically active. Two of the participants said that they believe they need these services for direction regarding appropriate physical activity and so they know what physical activities are safe for their bodies and those that will help them achieve optimum health.

These participants all described attributes that they possessed unrelated to their disability when asked to describe themselves. All the participants, when asked about themselves, described personality traits, occupations, hobbies, and lifestyles rather than their disability.

**Summary of Findings**

The majority of the participants in this study were reportedly living rather sedentary lives. Despite this report, they all said they believed that being physically active was important for health and wellness. These participants are receiving the global message about the physical and psychological benefits of being physically active for an improved overall quality of life. They all expressed their belief that physical activity was
an important factor in maintaining a healthy mind and body as well as maintaining independent functioning now and for their future.

The participants reported feeling good, experiencing less pain, and being able to function more easily when they are physically active. However, they experience constraints to their participation in physical activity such as fatigue, lack of time, inaccessibility of facilities, lack of knowledgeable professionals to help them, difficulty with transportation, prohibitive costs to participation, physical condition, and fear of failure.

None of the aforementioned constraints were reported to have impacted these study participants in their youth. They all reported that they believed they were much more physically active in their youth. A large proportion of this increased physical activity during their youth was reported to have been in activities in which their parents got them involved. Their parents sought out the physically active programs for them, transported them to and from the activities, encouraged them while they participated, and paid for the activities.

They all reported walking as an important source of physical activity in their youth. As they aged, 3 of the participants received power mobility to assist their mobility in their community. One participant with DMD, because of her progressing weakness, now uses her power wheelchair at all times since the age of 16. For the participants that now use some form of assisted power mobility, their reliance on these mobility aids to move about in their homes and/or communities was reported to be a large contributor to their more sedentary lifestyle in adulthood.
The respondents’ purposes for participating in physical activities as they aged were reported to have changed. When the participants were younger the main reasons and purposes for participating in physical activities were for fun and socialization. However, the participants reported that the main reasons and purposes they would be physically active in adulthood were to maintain or improve their health and wellness, and to improve their appearance. Contributing to this trend could be the fact that there were reportedly more opportunities for group physical activities for these participants during their youth. Swimming groups, skiing groups, gym classes, recess, and outside play with friends were all reported as physical activity opportunities for these participants present in their youth that are no longer options in their adulthood. They expressed that these group activities were fun and that they all enjoyed they socialization aspects of the groups as well.

One participant (F5, CP) uses physical activity to achieve a feeling of being like everyone else. She felt that she has always used physical activity to allow her to keep up with her peers and boyfriend. She never wanted to stand out or be different. She never participated in group physical activities with other people with disabilities. These participants reported that they experienced both affordances and constraints to their participation in physical activities through their lives. They reported people and situations in their lives that encouraged and discouraged their physical activity participation and which influenced their physical activity choices through their lifespan.

Physical activity experiences with parents, family members, and group volunteers were cited as affordances for the study participants becoming and remaining physically
active during their youth. Also in their youth, friends were cited as both an affordance and constraint to participation in physical activities.

Physical education experiences in youth were almost unanimously reported to have negatively influenced the participants’ physical activity participation as they aged. In only one case was physical education experience reported to have positively influenced physical activity choices throughout a participant’s life.

These participants felt that some of their successes in physical activity gave them a sense of pride in their accomplishment. A benefit of this physical activity experience was increased self-esteem, so much so that one of the participants decided to work in the field of aquatics because of her positive experiences with swimming. The participants were proud of becoming proficient at the activities and of being able to complete tasks on their own. This pride in accomplishment seems to have also influenced their physical activity choices through their lifespan.

A variety of constraints were also acknowledged by participants to have effected their physical activity participation through their lifespan. They also reported lack of time, lack of knowledgeable people to assist and instruct them with appropriate exercise choices, lack of available programs, inconvenience of getting the specialized equipment required to participate in specific activities (like special bracing for cycling), and difficulty in transportation as constraints to physical activity participation. Cost, despite being mentioned by a few participants as a potential barrier, was a limiting factor for only one participant. This was not a barrier for the majority of the study participants, probably because of the financial assistance these respondents received from their families.
For 2 of the participants their physical health status was reported to be a constraint for participation in certain physical activities. A congenital heart defect limited one respondent’s ability to participate in many physical activities. In one other informant’s situation, a progressive weakness related to her medical condition was a limiting factor for her participating in a variety of physical activities. She also had a difficult time accessing facilities in which to exercise. This participant was dependent on her power wheelchair for her entire mobility. All of the remaining participants were able to walk at least short distances unaided. They could ambulate without difficulty to get around in their homes.

Constraints were reported to be different for these participants in their youth. Time wasn’t reported as such an issue because they had many opportunities to participate in physical activity during their regular day and had much less school work at that time. Their access to knowledgeable people to help them participate in appropriate and helpful physical activities was not an issue in their youth (more access to therapy personnel until age of 18). In addition, their parents reportedly paid for and transported them to and from physical activities in their youth. Their parents sought out programs for them in which to participate. They reported more available extracurricular activities such as swimming, skiing, horseback riding, canoeing, sailing, sledge hockey, and bicycling.

The participants all felt that when they were younger, they never gave much thought to the importance of physical activity as it relates to maintenance of health, except with therapeutic exercises they were given to maintain range of motion, strength, and function from their therapists.
Several mentioned the negative influence of physical education classes and teachers on their physical activity levels. All but one participant stated that their physical education experiences were very negative. This participant (F6, CP) appreciated that her teacher gave her an opportunity to participate in all the activities in the class and let her “figure out how to do things my own way.” The other respondents all reported that they did not enjoy their experiences in gym, and when it was no longer mandated for them to take physical education classes, they dropped out in favor of more sedentary activities.

They expressed affordances related to their physical activity participation throughout their lifespan. They all reported people who played a role in their participation. For most, they recognized their parents as positive influences, as they were the ones who would seek out and give them opportunities to try a variety of physical activities in their youth. Some of these activities are reported to be ones in which they still participate in their adulthood such as, swimming and skiing. Therapists who encouraged the participants were also reported to be positive influences to their physical activity levels, but this was mostly during their youth as the service decreased after they reached the age of 18.

Friends were often reported as encouraging the respondents to be physically active. Volunteers and coaches of swim teams were reported to have helped to give the participants positive feelings regarding their confidence in being able to become proficient at a particular activity such as swimming and skiing. One participant reported that her brother was a big influence in getting her to be active in her youth by playing ball games outside.
They all generally felt that they were more active in their youth until they reached high school age (approximately 14 to 16 years of age). At this time in their lives, they no longer had to participate in physical education. One of the participants (F3, DMD) reported that at this time she was no longer able to walk and had to use a power wheelchair to get around. They reported more opportunities to participate in group physical activity until around this age, and then the opportunities for them decreased dramatically. Physical activity was not a priority, and they did not want to do therapy regularly anymore because they had other priorities (friends). One participant (F1, CP) reported that she was so discouraged by a swim team coach who made it impossible for her to join the high school swim team that she never again tried to join a physical activity group.

All the respondents reported that they did not believe being a woman with a disability impacted their physical activity choices or participation. However, upon close analysis of the answers to the interview questions, interesting embedded gender related effects on physical activity participation emerged to the researcher. The informants reported incidents where their gender did indeed impact their physical activity choices and participation. One respondent reported that she had to stop participating on a sledge hockey team because of her physical size. This particular participant (F4, multiple congenital impairments) was too small to compete with all the men on the team, and no option existed for an all-girls team. She did not stop playing because she no longer enjoyed the activity. There was also the difficulty of facilities providing her with a change room. Another participant (F1, CP) reported that she has been intimidated in the gym by the large muscle-bound men watching her, and she feels judged because of her
struggles. Still another participant (F5, CP) reported that when gym became coeducational she dropped out because she was no longer comfortable in such an environment and she felt judged. Finally, yet another participant (F3, DMD) reported no opportunities for sport at her school because there were no available teams for girls. The school had only boys' sports teams.
In this final chapter there will be a discussion of the analyzed data for this study. Conclusions will be reported in this chapter as well as recommendations for further possible academic exploration.

Discussion

There is a paucity of research exploring the physical activity experiences of women with disabilities. There is even less research exploring the physical activity experiences for girls with physical disabilities. This study makes contributions to both areas of research as it is a study of the physical activity experiences of women with physical disabilities through their lifespan.

It is well known that women/girls tend to be less physically active than men/boys (Steele et al., 1996; Torrance 1991; US Department of Health and Human Services, 2003). People with disabilities also tend to be less physically active than their peers without disabilities (Torrance; US Department of Health and Human Services). Finally, women with disabilities tend to be the most physically inactive population (Davison, Werder, Trost, Baker, Birch, et al., 2007; DePauw, 1996; Rimmer et al., 1999; Torrance; Trost, et al., 2002; US Department of Health and Human Services).

This lack of physical activity is a growing societal concern for youth and adults with and without disabilities because of the effects of physical inactivity on health and consequently their quality of life (Blinde & Taub, 1999; Cooper et al., 1999; Coyle et al., 2000; Coyle & Santiago, 1995; DePauw, 1996; Goodwin et al., 2004; Lafreniere, D, 2007; Midha et al., 1999; Pang et al., 2005; Pope and Tarlov, 1991; Rimmer, 1999; Santiago & Coyle, 2004; Seekins et al., 1994; Taylor et al., 2004; Turk, 1996;).
A person with a primary disability undergoes some physiological changes that can put them at increased risk for secondary health conditions such as obesity, hypertension, physical deconditioning, diabetes, and cardiovascular disease (Coyle et al., 2000; Pope & Tarlov, 1991; Rimmer, 1999; Santiago & Coyle, 2004; Seekins, et al., 1994; Turk, 1996; White et al., 1996). These secondary conditions impact the physical and psychological functioning of people with physical disabilities.

It is well known that people with disabilities can benefit from physical activity in similar physical and psychological ways to people without disabilities (Blinde & Taub, 1999; Cooper et al., 1999; Coyle & Santiago, 1995; DePauw, 1996; Goodwin et al., 2004; Midha et al., 1999; Pang et al., 2005; Taylor et al., 2004; Warburton et al., 2006). These benefits include improvements in cardiovascular fitness (aerobic capacity), improved physical functioning (increased strength, flexibility, mobility, decreased pain), and psychological feelings of well-being (less depression, feelings of empowerment, less stress). Secondary conditions greatly impact the quality of life and overall health status of women with physical disabilities (Coyle et al., 2000).

From a health promotion perspective, the preceding benefits from increased physical activity are important because secondary conditions, which have the potential to decrease physical functioning, health, and independence of people with physical disabilities, can be modified by promoting healthy active living behaviours through education (White et al., 1996; Kosma, Cardinal, & McCubbin, 2004).

In a consensus statement on physical activity and health among people with disabilities, Cooper et al., found that increasing levels of physical activity could be a very effective way of improving function and independence for people with disabilities.
Although my investigation did not explore secondary health conditions specifically, the participants did report some secondary health complications such as pain and decreased mobility as a result of their inactivity. Leading a physically inactive lifestyle was having a negative impact on the lives of these participants. The benefit of physical activity for improving quality of life of people with disabilities was well supported by the responses of the participants in this study. The participants reported decreased pain, better weight control, and less mobility difficulties as a result of their participation in physical activity.

All the respondents expressed a desire to be more physically active. Despite the belief and understanding of the importance of physical activity for improving functioning and quality of life, the participants in this study still reported doing little regular daily physical activity.

In this interview process, a definition of physical activity was not provided for the participants. This omission was to allow the participants to include all activities they qualified as physical activity. This less restrictive definition of physical activity allowed the participants to include some leisure-time activities in their answers. It is interesting to note that almost all of the participants qualified walking as a common form of physical activity in which they participated regularly through their lives. They all felt that walking was an important physical activity for people’s improved health and wellness. In the Provincial Data- Canada 2004 results, walking was the most common physical activity in which people of all ages without physical impairments. The participants that used power mobility part of the time really felt that this decreased walking in the community limited their regular physical activity.
Only one participant (F3, DMD) reported housework as a physical activity. None of the other participants mentioned any housework activities during their interviews as something they did for physical activity. This particular participant does not have the ability to walk and has weakness of her upper extremities because of her progressive disease.

Other than regular walking to get around within their homes and communities, this group of participants reported doing very little physical activity on a regular basis. Walking/wheeling, in the literature (Torrance, 1991), was also found to be the most commonly participated in activity for people of all ages with disabilities.

One participant reported swimming and doing “gym exercises” two to three times a week throughout the year. In the literature (Torrance, 1991), many people (men and women) with disabilities also commonly participate in swimming (47% of those between 10 and 44 years of age) as a type of activity.

These women did report, however, that they participate in intermittent physical activity at various times during the year. One participant described her seasonal physical activities which included summer gym cardio exercises two to three times per week and tandem bicycling twice per month, Another participant reported summer bicycling two to three times per week and swimming twice weekly when she had transportation. Another participant reported occasional monthly weight lifting and push-ups. One participant has a gym membership, but she reports not going in the last 6 months due to a wrist injury.

People with physical disabilities encounter many barriers, both physical and psychological, to their physical activity participation (Cardinal et al., 2004; DePauw, 1996; Hughes, 2006; Kinne et al., 1999; Rimmer, 2005; Rimmer et al., 2005; Torrance,
In the Campbell Survey (Torrance) exploring the activity patterns of people with activity limitations, illness/disability, lack of energy and lack of self-discipline were the top three barriers to increased participation in activity. In this same survey, people without disabilities reported time due to work/school, lack of self-discipline, and lack of time due to family obligations as the top three barriers to their more frequent participation in activities.

The participants in this investigation like those in the Campbell Survey also experienced barriers to their participation in physical activities. These constraining factors varied from their youth to their adulthood. They reported more barriers to physical activity in their adulthood than in their youth. They reported lack of time, lack of motivation, lack of knowledgeable instructors or lack of information regarding appropriate physical activities, lack of available programs, financial constraints, lack of appropriate facilities, fear of failure, and difficulty in acquiring transportation as encountered barriers in their lives.

Cost was a reported barrier for only one participant (F3, DMD), as was transportation and inaccessibility of facilities. This participant was dependent on her power wheelchair for all of her residential and community mobility. The other participants in this study were all able to walk at least short distances unaided. They could ambulate without difficulty to get around in their homes so would likely have less problem accessing facilities because they could walk if they weren’t able to use their power mobility. The remaining participants were either able to drive on their own, had the ability to take public transit, or they were transported by their family to participate in
physical activity. Only 2 other participants (F1, CP and F2, CP) mentioned that cost could be a barrier to physical activity participation for women with physical disabilities, but they themselves were not limited because of financial constraints. This could be because many of the participants reported receiving financial assistance from their families.

All of the participants' physical activity choices were influenced by their physical condition to some degree. Their physical limitations (heart condition, weakness, fatigue, and pain with certain sports) impacted the variety of physical activities in which they could participate. Despite this influence, only 2 of the participants reported that their physical condition was an actual barrier for their participation in physical activity. A congenital heart defect limited one respondent's (F4) ability to participate in many physical activities, and one other participant (F3, DMD) reported that her progressive weakness was an influence for her participation in a variety of different physical activities. The only participant that stated difficulty managing curb cutouts, poor snow removal, and set-up for exercise facilities as barriers to her participation was this participant (F3).

Physical exhaustion (fatigue) at the end of the day was cited by some of the participants within this study as a constraint to their physical activity participation. Time constraints and busy schedules due to school and work were also named for the majority of these participants as a barrier, especially the participants who were enrolled in postsecondary education programs. Lack of time because of family commitments was not reported by any of the participants as a barrier to activity, probably due to the young age of the participants in this investigation.
Many more physical barriers relating to community and recreation facilities were reported by people with disabilities in the literature (Cooper et al., 1999; Kinne et al., 1999; Rimmer, 2005; Rimmer et al., 2005). The difference between the reported barriers in this investigation and the literature could be accounted for due to the participants' young age, assistance they receive from their families (financially and for transportation) and the minimal to moderate mobility impairments of the participants.

The heterogeneous make-up of the study participants allowed for a better understanding of some of the differences in physical barriers that are encountered specifically by women with different levels of mobility impairments. It is important for us to recognize that groups of women with physical disabilities will have different barriers to physical activities as a result of a variety of factors such as their level of mobility impairments, physical health condition, financial situation, and life experiences. It is essential to be aware of these differences to help individualize health-promoting strategies for increasing physical activities for all groups of women with disabilities.

The participants all expressed a difficulty in accessing rehabilitation professionals or exercise specialists with knowledge about disabilities to assist with physical activity programming once they reached 18 years of age. In my experience, within the current health care practices in the province of Ontario, people with disabilities that are older than 18 years of age have limited access to regular follow up by rehabilitation professionals, or exercise specialists unless they have private insurance coverage. F1 (CP) expressed her experience of loss of service in this transition stage of life.

When you turn eighteen you lose everything; your physio, OT [occupational therapy], and speech.
Professionally speaking, I have also noticed this dramatic difference in the amount of publicly funded therapy and recreational opportunities for individuals with disabilities in adulthood. Who is left to counsel these women on appropriate exercises or physical activities once they reach this magical age? This is a huge gap I have noticed in our current health care system.

The participants in this study reported that when they were younger a lack of available professionals to assist with physical activity programming was not a major issue, and they believe that they would benefit more, not less, from rehabilitation/exercise direction during their adulthood. It is crucial as their physical status changes over time that they have appropriate guidance to maintain optimal health and physical functioning. Physical activity is one avenue that these participants can use to ensure their continued functional independence and health. These study participants made reference to lack of knowledgeable people in their youth only as it related to their physical education teachers. These participants felt that their teachers didn’t know how to adapt skills to involve them and make the classes more inclusive.

All of these constraints make it more challenging for these participants to engage in physical activities. Understanding the many constraints women with physical disabilities encounter with respect to physical activity will allow us to more effectively target areas for improvements in the system.

Due to the fact that the majority of the study participants reported minimal physical barriers to their participation in physical activity, participating in physical activities for these women should, in theory, be easier than for those people with severe limitations in mobility. This was evident in the number of barriers reported by F3
(DMD), who uses power mobility and has little strength remaining in her extremities as compared to the other study participants. In addition, these participants did not have cognitive impairments that could limit their ability to participate in, seek out, and make choices about physical activities.

These participants understand the importance of exercise and have minimal physical mobility barriers to their participation in physical activities. Despite having no cognitive impairments and minimal physical barriers to physical activity participation, all but one of the study participants still lead a rather sedentary lifestyle. If we, as physical therapy professionals, struggle to improve the physical activity participation with this population of women with disabilities, then we should also be cognizant of the increased number of constraints that could impact the physical activity patterns of women with more severe mobility impairments.

Although there have been few studies investigating the physical activity of girls with physical disabilities, there have been studies that have shown that as girls without disabilities increase in age, they have decreasing levels of physical activity (Davison, et al, 2007; Robbins, Pender & Kazanis, 2003; Trost et al, 2002). I have also noted in my practice that this is the case with my female clients who have disabilities. They begin to decrease their physical activity around 13 to 15 years of age. They begin to report to me that they have fewer opportunities for group physical activities because there are no group activities that aren’t dominated by boys or that they would like to participate in because their friends are not participating either. They also tell me that they are encouraged to drop physical education because they can not participate in the sports that make up a large portion of the class and they feel excluded.
The participants in this study also stated that their physical activity levels began to decrease once they reached about 14 years of age. In their youth, or under 14 years of age, they reported fewer barriers and many more opportunities available to them for their participation in physical activity compared to those they encountered in their adulthood.

In their youth, these study participants reported more opportunities to participate in regular physical activity as well as a larger repertoire of activities in which to participate. They all reported that they had physical education once or twice a week for 30 minutes each session. In addition, all but one of the respondents reported swimming once or twice per week for 60 minutes per session. Two of the participants, who now use power mobility in the community, reported walking daily to get around school and community as a daily form of physical activity. One participant also reported skiing in the winter and horseback riding as often as possible. Other activities included daily “physio exercises” for about 30 minutes per session (for 2 participants). Yet another participant reported playing ball at recess in school. Sailing and canoeing were mentioned by one participant as a seasonal activity she participated in at camp. Sledge hockey, another seasonal activity, was reported by another participant (1 to 2 hours per week).

Lack of time for physical activity wasn’t reported as a barrier in youth because these participants stated that they had many more opportunities to participate in physical activity during their regular day. They also reported being less busy with school work and had no job in their youth. During early high school, one participant (F3, DMD) reported that lack of motivation to be active was a barrier for her. If her friends were not interested in being physically active, then she did not participate either.
My friends were more concerned with going to the mall and stuff like that. So I do think that impacted it [physical activity participation] just in the sense that my friends weren't interested in going and doing physical activities besides just walking around the mall. When I was 14, 15, I wanted to stop going to the Children's Center because it was uncool.

Lack of motivation to participate or lack of interest in participating in physical activity was also reported in the literature as a barrier to physical activity participation for adolescent girls without physical disabilities as they age (Robbins et al., 2003).

In this investigation, the participants' access to knowledgeable people to help them participate in appropriate and helpful physical activities was not an issue during their youth (more access to therapy personnel until age 18) with the exception of their physical education teachers. F2 (CP) reiterated her physical education experience was one that was not very inclusive because of the teachers.

*I don’t think they [teachers] knew how to handle disabled people in terms of trying to manipulate an activity so I could do it better or do an activity that would be more appropriate for me to do.*

Exploring the physical education experiences of these participants was enlightening because of the reported difficulties they had with participation in their mandated classes. By most accounts, they disliked and reported negative experiences within these classes, and when they were no longer required to take physical education for course credit they all dropped out. The participants reported the lack of support they felt by their physical education teachers as a major contributor to their negative experiences. They did not have confidence that these teachers knew what to do to help
them feel like part of the class or how to adapt the program to optimize their participation. In a study that investigated the perceptions of inclusive physical education for a group of elementary students with physical disabilities (Goodwin & Watkinson, 2000), the respondents reported that they too were inhibited in physical education classes by the lack of support from their teachers.

None of the participants in the preceding study or in this study felt that the teachers did this purposefully to exclude them. In one case however (F1, CP) reported that one teacher made it impossible for her participant to join a specialized gym class because this teacher didn’t want to take responsibility if the participant was injured.

As a result of these exclusionary practices, these study participants spent a lot of their physical education classes struggling and not getting much enjoyment out of this physical activity. This is also a common complaint among my clients. Physical education classes become more about sport (such as basketball, volleyball, soccer, track and field, etc.) as these girls age thus leading to more exclusion for them.

In addition, cost for participation was not reported as a barrier for these participants during their youth, as their parents reportedly paid for and transported them to and from physical activities. The participants also stated that access to a variety of physical activity programs was not a barrier because their parents sought out programs for them in which to participate. They reported more available extracurricular activities such as swimming, skiing, horseback riding, canoeing, sailing, and sledge hockey. The participants had opportunities to participate more often in group physical activities in their youth, which was motivating for them.
In the literature investigating the physical activity barriers for adolescent girls without physical disabilities (Robbins et al., 2003), the investigators found that adolescent girls’ self-consciousness about their appearance when exercising around boys was a barrier to their physical activity participation in physical education. F5 (CP) reported her self-consciousness in coeducational physical education was also a barrier for her continued participation in physical education.

As soon as it [physical education class] was co-ed I was done. I wasn’t comfortable with it. As long as I was with my girlfriends and we could sit there and laugh it was ok, but at that age [grade 10] when the boys came in I wasn’t comfortable.

Studies (Arbour et al., 2007; Blinde & McCallister, 1999; Guthrie, 1999; Guthrie & Castelnuovo, 2001; Henderson & Bedini, 1995) have been done investigating the physical activity experiences of women with disabilities grounded in the theory that disability is socially constructed and that gender needs to be considered in the “understanding of power, privilege and dominance within society” (Sage cited in DePauw, 2000, p. 358). The medical model of disability has assumed that disability is an individual problem that is defined by deficits.

Participation in physical activity and sport can be used by people with disabilities to challenge society’s perceptions of disability associated with weakness and dependency (Arbour et al., 2007; Blinde & McCallister, 1999; DePauw, 2000; Goodwin, et al., 2004; Guthrie, 1999; Guthrie & Castlenuovo, 2001).

Women with physical disabilities choose to be physically active for a variety of reasons. Women participate in physical activity to “normalize” their body, optimize their
mind-body functioning, and to minimize the significance of the body’s deficits and to empower themselves (Guthrie, 1999; Guthrie & Castelnuovo, 2001). These uses for physical activity can change depending on the women’s age (Bedini & Anderson, 2005).

The participants in this investigation reported that they participated in physical activity primarily to maintain health and to “look good.” One participant (F5, CP) reported that she was physically active to be “normal” and keep up with her boyfriend. She was the only participant who specifically used the word “normal” in this study. This was another theme that emerged in the literature (Guthrie, 1999; Guthrie & Castelnuovo, 2001). Receiving a sense of pride in their physical accomplishment was reported for all of the study participants.

As in the study by Guthrie and Castelnuovo (2001) that explored the contribution of physical activity to disability management for women with physical impairments, the participants in this investigation also felt that they used physical activity to optimize their body functioning. They reported the improved physical function they experienced with exercise, although in this study, as opposed to the Guthrie and Castelnuovo (2001) study none, of the participants in this investigation reported psychological benefits to their participation relating to optimizing mind-body functioning. This could be due to the fact that the participants in this investigation all had congenital disabilities as compared to those in the original study, so they reported less sense of loss with their disabilities. In addition to the nature of their disabilities, most of the participants in this investigation were not regularly participating in physical activity. These factors combine to make this study’s participants’ experiences different from those participants in the Guthrie and Castelnuovo study.
The participants in this study expressed the different reasons they had for participating in physical activities through their lifespan. The participants reported that the main reasons for their participation in physical activities in adulthood were to maintain optimum health, to decrease pain, to look good, maintain weight, and to feel good about their accomplishment.

In a study to examine the perceptions of girls with physical disabilities regarding physical recreational activities, many similarities existed between the girls’ responses and those in adult females with disabilities (Bedini & Anderson, 2005). The girls in the study believed that physical activity is important. They also reported girls had very few opportunities to participate in formal physical activity programs because of lack of accommodations and availability. In addition, very few of the study participants reported active role models that were either women or had disabilities.

The girls in a study by Bedini & Anderson, differed in some of their responses regarding their reasons for physical activity participation, when compared with women in other studies (Guthrie & Castelnuovo, 2001; Henderson & Bedini, 1995). The girls enjoyed participating in physical activities and seemed to accept their bodies more than the women. Women use physical activity as a way to manage their disability (Guthrie & Castelnuovo, 2001; Henderson & Bedini, 1995). The girls also responded that physical activity could be used to make them more “normal” in the future, but they participated more for fun (Bedini & Anderson, 2005).

Bedini and Anderson found in their study investigating physical activity experiences in adolescent girls and women with disabilities that one of the benefits of physical activity for girls and women with physical disabilities was increased self-esteem.
Although this study’s participants didn’t report participating in physical activity in their adulthood was to maintain health, they did report that the main reasons for physical activity participation in their youth were for enjoyment and socialization.

The participants all felt that when they were younger that they never gave much thought to the importance of physical activity as it related to maintenance of health, except with therapeutic exercises they were given to maintain range of motion, strength, and function from their therapists. As in another study (Bedini & Anderson, 2005), the participants in this investigation also reported that they participated in physical activity in their youth mostly for fun and enjoyment.

The participants expressed positive influences (affordances) that related to their physical activity participation throughout their lifespan. They all reported people in their lives that played a positive role in facilitating their participation in physical activity. All the participants reported that their parents were very important influences for youth physical activity. However, in adulthood, parents were not reported to have direct influence. Some of the physical activities parents helped participants take part in while they were young are those activities that they continue to participate in to the present day. However, in adulthood, parents were not reported to have any further direct influence on their physical activity levels. Siblings were also reported by one participant as physical activity facilitators in their youth.

Therapists who encouraged the participants and provided these participants with appropriate physical activities and exercises were also reported to be positive influences to their physical activity levels, but this was mostly in their youth because of the decrease in these services after reaching the age of 18.
Friends were reported by these participants to be both facilitators and barriers to physical activity in their lives. Being with friends was important for enjoyment of physical activity. The socialization that occurred in group physical activity with friends was reported to be fun and was cited as a significant factor in their choice to be physically active. Being with friends was important for encouraging the participants to be physically active, but if friends were not interested in participating in physical activity, then the participants were not likely to engage in the physical activity either.

Volunteers and coaches (of swim and skiing teams) were reported by the participants to be instrumental in providing these respondents with the necessary skills to become proficient swimmers or skiers. The sense of empowerment that this proficiency provided the participants has continued to be a significant factor in their being physically active in these activities throughout their lifespan.

The participants in this investigation reported different reasons for participating in physical activities at different times in their lives as well. The main reasons for their participation in physical activities in adulthood were to maintain optimum health (minimize the significance of the body), to decrease pain (minimize the significance of the body), to feel good about their accomplishment (empowerment), to look good (normalize the body), and for socialization.

However, these participants did not report engaging in physical activity in their youth to maintain health; they instead reported that the main reasons for their youth participation were for enjoyment and for socialization.

The participants all felt that when they were younger they never gave much thought to the importance of physical activity as it related to the maintenance of health.
except with respect to the therapeutic exercises they were given to maintain range of
motion, strength, and function from their therapists. As in another study, these
participants reported that their main reason for physical activity participation in youth
was for fun and enjoyment (Bedini & Anderson, 2005). They enjoyed the physical
activities, and these activities were part of their leisure time as well.

The study participants all espoused the benefits of physical activity for
maintaining health and wellness as well as their belief that physical activity was
important for them. As in other studies, the informants in this study all believed that
physical activity was important for health and well-being and believed that they should
be doing more physical activity than they were currently doing (Blinde & Taub, 1999;
Goodwin & Compton, 2004; Guthrie, 2001; Guthrie & Castelnuovo, 2001; Henderson &
Bedini, 1995).

These participants also felt that their successes in physical activity gave them a
sense of pride in their accomplishment and made them feel good about themselves
throughout their lifespan. They felt empowered by their physical proficiency in certain
physical activities. This sense of pride in their participation was reported throughout
their lifespan. F2 (CP), who is a head lifeguard, was so empowered by her aquatics skills
that she decided to work in aquatics professionally. She reported such positive feelings
from compliments she received during her youth that she entered the profession. Other
participants reported this empowerment due to their proficiency in certain physical
activities and at completing physical tasks on their own. This pride in accomplishment
has influenced which physical activities these women participate in throughout their
lifespan.
While it wasn’t clearly stated by the participants in this study, gender, too, impacts the physical activity experiences of women with physical disabilities (Blinde & McCallister, 1999). Being a woman with a physical disability is often referred to in the literature as a “double whammy” because of the fact that we live in not only an ablest society, but a sexist one as well (Bedini & Anderson, 2005; Blinde & McCallister, 1999; Guthrie & Castelnuovo, 2001; Henderson & Bedini, 1995). Women with physical disabilities have bodies that are in direct conflict with these ideals (Guthrie, 1999). This must be considered when exploring the physical activity experiences of women and girls with physical disabilities. These study participants all experience physical activity within this contextual framework.

Despite the aforementioned literature, none of the study participants in this investigation reported any issues regarding their disabilities as a “double whammy.” They didn’t report any overt issues or experiences related to sexism and feeling like their disability makes them feel abnormal within society.

Despite no specific reports from the informants regarding gender being a factor in their physical activity experiences, upon analysis of the data, there were underlying embedded gender influences in the participants’ physical activity choices. They reported several instances of limited activity choices because of their gender despite that they had evidently never looked at their choices from this perspective. One participant (F4, multiple congenital impairments) was forced out of sledge hockey because of her size and the number of men that played the sport. There was no opportunity for her to join a women’s league, because none existed. Another participant (F5, CP) dropped out of physical education because she was not comfortable exercising around boys and had no
options for segregated physical education. Yet another participant (F3, DMD) stated that her school did not have any girls’ sports teams or activities. Finally, one participant (F1, CP) is hesitant to attend the gym because she feels insecure in her abilities around the large men lifting far more weight than she is able to lift. She made no mention of this insecurity around weight-lifting women.

These participants appear unaware of the limited choices they have in physical activity because of their gender and disabilities. One participant (F1, CP), rather than acknowledge the harsh reality of this lack of choice, denies that she has limited options for physical activity.

*I know there are probably [physical activity] programs out there, but I haven’t accessed them.*

There are very few group physical activity programs for women with physical disabilities in my professional experience.

Some of the gender-related aspects of physical activity participation for women with disabilities was reported in a study of sport and physical fitness activity experiences for these women (Blinde & McCallister, 1999). Women in that study “perceived the gap between sport and physical fitness activity and disability as less for men with physical disabilities than for women with physical disabilities” (Blinde & McCallister, p. 309). Due to the fact that sport and physical fitness activity have been associated with masculinity and physicality, the women in that study felt that men with disabilities better fit the ideals for participation than women with disabilities. In addition, they believed that men with physical disabilities were often provided with more support and encouragement to participate in physical activity and sport. Moreover, the women in the
preceding study also reported life situations and their disability were more limiting in their experiences than their gender. The participants in this study also reported that they believed their life situation was more limiting than their gender. The participants explained the stigma they feel in society is related more to their disability than their gender. F2 (CP) reported that a big challenge for her in life was meeting people, and her disability affected her in this regard.

Meeting people, both guys and girls [was difficult]. Over the years I've tried to hide it from people, to cover it up; sometimes I think I can get away with it because I'm not that badly disabled. But some people notice it right away. Others take time but then eventually notice, and you notice the look on their faces when they do. Disappointment, and I guess sympathy, that seems more like an insult than anything else.

F5 (CP) has felt the stigma of society from others and believes that the school system should educate students about disability to reduce this stigma, though in her response to this question, she herself shows a lack of understanding for others with disabilities.

People need to be aware that just because someone has a disability they can still do everything that other kids do, and just not to treat them differently and talk down to them. I find that a lot of people talk down to you when you have a disability. I believe that a lot of people try and focus on what people with disabilities don't do and can't do. There is nothing really that you can't do, especially now that there's wheelchair access most places, and as long as you have the attitude, it's all about your attitude. I don't know if others feel that way,
but I find I don’t get up in the morning and think I’m disabled, I just think I’m another person starting the day.

I believe these are profound examples of the impact that the sociocultural construct of disability has on the lives of individuals with disabilities. These participants feel that they are being judged prematurely by people in society because of their physical disabilities. Lack of education and awareness about disability by the population at large has obvious impact on the experiences of women with physical disabilities that transcends all aspects of their lives, not just their physical activity participation.

In conclusion, it is important to note that women and girls with physical disabilities each have unique physical activity experiences which are dependent on a number of factors. Despite their unique experiences we do see some commonalities in and differences in their experiences. The facilitators for physical activity participation in these respondents provide us with target areas for developing health promotion strategies for this diverse population of individuals. Increasing the physical activity participation of women and girls with physical disabilities is an important step to ensuring their health, wellness, and independence now and in the future.

Conclusions

The participants in this study were reporting little regular physical activity, resulting in their living a sedentary lifestyle. They all reported that they believed being physically active was important for health and wellness. So, to some degree these women are receiving the message about the benefits both physically and psychologically of being physically active for an overall improved quality of life.
The participants reported feeling good and experiencing less pain and an easier ability to function when they are physically active. However, they experience barriers to their participation such as fatigue, lack of time, inaccessibility of facilities, lack of knowledgeable professionals to help them, difficulty with transportation, financial constraints, physical condition, and fear of failure.

Few of the aforementioned barriers were reported to impact these study participants in their youth. They all reported being much more physically active in their youth until they reached adolescence (14-16 years of age). A large proportion of their increased activity was reported to be activities in which their parents enrolled them. The study participants reported their parents’ assistance in their participation in physical activities in their youth. Their parents sought out the programs, transported them to and from the activities, encouraged them while they participated in the programs, and paid for the activities.

They all reported walking as a regular physical activity in their youth. As they aged, 3 of the participants received power mobility to assist their mobility in their community. One participant (F3) with DMD, because of her progressing weakness, is now in her power wheelchair within her residence as well. These participants’ increased use of power mobility was reported to be a large contribution as to why they believe they are more sedentary in adulthood. They also reported many more opportunities to participate in regular physical activity in their youth (recess, physical education, many group activities) as compared to in adulthood.

The respondents’ purposes for participating in physical activities as they aged were reported to have changed. When the participants were younger, the main reasons
and purpose for participating in physical activity were for fun and socialization. However, the participants reported the main reasons and purposes they would be physically active in adulthood were to maintain or improve their health, physical functioning, weight, and wellness. One possible reason for this shift in focus could be because there were reportedly more opportunities for group physical activities for these participants during their youth. Swimming groups, skiing groups, gym classes, recess, and outside play with friends were all reported as physical activity opportunities for these participants. None of the participants reported any availability of group physical activities in their adulthood.

Overall, women and girls with physical disabilities is an understudied cohort. Their perceptions about the meaning of physical activity are important if we are to see how these perceptions may change over time. This information will have a definite impact on any health promotion strategies that target girls and women with disabilities to increase their physical activity levels.

As a pediatric Physiotherapist, it has become increasingly clear to me that young girls with physical disabilities are becoming increasingly inactive as they age. For the purposes of this study, it was necessary for me to explore the participants’ physical activity experiences through their lifespan to try to have a better understanding of some of the factors that have impacted their physical activity patterns in their youth and whether these experiences impact their physical activity as they age.

This study has provided information with regard to how physical activity experiences in youth can impact physical activity patterns in adulthood. In addition, it has explored how influences, both negative and positive, impact these women’s
perceptions of physical activity. These participants were able to articulate to this investigator information with respect to situations and people throughout their lives that have influenced them both negatively and positively relating to their past and present physical activity choices and activities. The participants also described in great detail how these influences impacted them at the various stages during their lives. Each participant's experience, despite being unique to her, was similar in numerous ways to those of the other participants within this study.

**Recommendations**

Further exploration into facilitators and barriers for both women and girls with physical disabilities toward participating in physical activities is important. A study with a larger cohort population would help improve our knowledge and generalizability of data in this area and would be useful in helping to develop health promotion strategies aimed specifically at increasing the physical activity in women and girls with physical disabilities.

Improving the physical education experiences for girls with physical disabilities by making the classes more inclusive rather than exclusive would certainly be an important area for future academic exploration, especially as these participants felt that their physical education experiences had a negative influence on their lifespan physical activity choices.

In addition, it is important in future investigations to acknowledge that girls and women have different experiences and barriers depending on their level of mobility. It would be of value to do research that explored the physical activity experiences of a larger number of women with similar functional mobility. This is especially important if
we are to attempt to promote health and physical activity in women and girls with physical disabilities.

All of the participants felt that they were significantly more active in their youth as compared to their adulthood (or when they reached over 14 years of age). Longitudinal research studies investigating physical activity patterns and experiences of girls with physical disabilities as they age into adulthood may help determine more specifically the age to target for health promotion strategies related to this discrepancy.

Using a more objective measure of physical activity could provide more accurate information about specific amounts of physical activity over a period of time. Self-reporting of physical activity has some limitations that could be lessened by the use of objective measures of physical activity. Pedometers or accelerometers would be useful in this data collection.

Doing a comparative study investigating the physical activity pattern experiences of men to those of women with physical disabilities would help to determine if this inverse relationship between age and physical activity is the same for men and women. In addition, a comparative study exploring the physical activity experiences of girls with and without disabilities as they age would provide further information related specifically to disability and physical activity experiences while the variable of gender is controlled.

Providing women and girls with more opportunities to be physically active in group situations could be useful in having more success with encouraging increased physical activity, because “peer socialization and support have been identified as effective ways of promoting positive behavioral changes in the context of disability” (Hughes, 2006, p. 46).
Finally, investigation into the transition years from youth to adulthood (18 years and older) would be beneficial, as this is the time when these women have significantly fewer opportunities to have exercise professionals readily available to them for guidance in regard to disability and physical activity.
References


Appendix A

Glossary of Terms

**Cerebral Palsy**: An "umbrella term" for a group of nonprogressive, but often changing, motor impairment syndromes secondary to lesions or anomalies of the brain arising in the early stages of its development. CP is a symptom complex rather than a specific disease. (Venes, 2001)

**Duchenne's Muscular Dystrophy**: Pseudo hypertrophic muscular dystrophy marked by weakness and pseudo hypertrophy of the affected muscles. It is caused by mutation of the gene responsible for producing the protein dystrophin. The disease begins in childhood, is progressive and affects the shoulder and pelvic girdle muscles. (Venes, 2001)

**Traumatic brain injury**: Any injury involving direct trauma to the head, accompanied by alterations in mental status or consciousness (Venes, 2001).

**Congenital**: Present at birth (Venes, 2001).

**Physical Disability**: A physical disability is a condition that substantially limits one or more basic physical activities, such as walking, climbing stairs, reaching, lifting or carrying. (Greater New Orleans Community Data Center).

**Physical Activity (PA)**: is a broad term used to define any bodily movement produced by skeletal muscles that results in energy expenditure. (Caspersen, CJ cited in Berlin, J., K. Storti & J. Brach. 2006, 1137)

**Sledge Hockey**: is a sport designed to allow people with physical disabilities to play ice hockey. The participants use sleds with blades and modified sticks. (Wikipedia).
Appendix B

Questionnaire

(* Only required to complete these fields if you are willing to participate in the interview portion of the study. You may choose to fill in only your first name if you like.)

1. What is your name? *

2. Contact information (address/telephone number/email)*

3. What is your age?

4. Describe your physical disability?

5. How many times a week do you participate in a physical activity?

6. List the activities and the amount of time you spend doing them per week.
7. Why do you choose these activities?


8. Would you like to be more active? Why?


9. Describe your reasons for participating in physical activities.


10. Describe the physical activities you participated in in your youth (12-15 years old).


11. How often did you participate in physical activities per week when you were young?


12. Describe how your physical activity level changed from your youth until now.


13. If your physical activity level has changed, why do you think this has happened?

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

14. Describe any barriers to your physical activity participation when you were young.
   Now.

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

15. Who or what do you believe was the biggest positive influence on you regarding your participation in regular physical activity? How?

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

16. Who or what do you believe was the biggest negative influence on you regarding your participation in regular physical activities? How?

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________
17. How do you think being a woman with a physical disability has impacted which physical activities you participate in and why? Does this differ from your adolescence to the present?


18. Describe any community recreational activities you have chosen to participate in throughout your life and why.


(Please feel free to write on the back of these sheets or attach more paper if you require more room for your answers)
Appendix C

Interview Guide Questions

1. What is your date of birth?
2. Tell me about yourself.
3. Describe the nature of your physical disability.
4. Tell me about your current physical activity patterns.
5. Describe why you choose to participate in these activities.
6. Tell me about your physical activity patterns of your youth (12-18 years old). Can you tell me about your physical education experiences?
7. Describe why you chose to participate in these activities.
8. Tell me about any positive influences you have experienced related to your physical activity participation presently? In your youth?
9. Tell me about any negative influences you have experienced related to your physical activity participation presently? In your youth?
10. Describe how these influences have affected your physical activity patterns through your lifespan.
11. Tell me about any barriers you have experienced when participating in physical activity now. In your youth.
12. Tell me how or if you believe that being a woman with a disability has impacted your physical activity choices.
13. Describe any challenges you may have experienced in your life unrelated to your physical disability.
14. Tell me anything else you believe that I should know.