The effects of sport on social participation, community integration, and perceived quality of life for individuals with mobility impairments

A Literature Review

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Addressing the Problem

Despite the proven individual and social benefits of sport and active recreation (ICF d9201) for individuals with mobility impairments, this population is less likely to engage in physical activity than those without disabilities (Healthy People, 2010; Rimmer, Riley, Wang, Rauworth, Jurkowski, 2004). Scelza, Kalpakijan, Zemper, and Tate found that the most limiting factors in relation to sport and active recreation participation were those other than disability related characteristics (2005). Therefore, individuals with mobility impairments may be more likely to participate in sport and active recreation if they experienced less limiting extraneous factors.

Proven benefits of sport and recreation include an increase in physical (ICF d410, d415, d440, d435, d445, d455) and psychological components, overall health, subjective well being, community reintegration (ICF d910), and social participation when compared with inactive individuals with mobility impairments. Physically, sport has been proven to increase strength, stamina, fitness, mobility, coordination, endurance, posture, weight control, immune function, cardiopulmonary function, and circulation (Guttmann, 1976; Jackson, 1987; Jackson & Davis, 1983; Shephard, 1991). Psychological benefits include a better acceptance of disability, more independent attitude, less suicidal attempts due to decreased depression and anxiety, enhanced mood, and a greater sense of life control (Guttmann, 1976; Jackson, 1987; Kerstin, Gabriele, Richard, 2006; Muraki, Tsunawake, Hiramatsu, Yamasaki, 2000; Valliant, Bezzubyk, Daley, Asu, 1985). Overall health benefits due to sport activity have been described as decrease in secondary conditions and the need to seek medical care, increased functional independence, energy, and physical capacity (Curtis, McClanahan, Hall, Dillon, Brown, 1986; Dallmeijer, Hopman, van As, van der Woude, 1996; Hanson, Nabavi, & Yeun, 2000; Muraki et al., 2000;
Rimmer et al., 1999). Subjectively, sport participants have been shown to have a greater self image and self satisfaction, increased confidence, self esteem, perceived health, body image, and self resilience (Jackson, 1987; Manns & Chad, 1999; Shephard, 1991; Tasiemski et al, 2005; Wetterhahn, Hanson, Levy, 2002). Furthermore, low levels of community integration have been shown to correlate with low quality of life; however, because sport increases quality of life, community integration may improve as well (Hanson et al., 2000). In 1975, Guttman (referring to individuals with mobility impairments) stated, “Indeed, it is the noblest aim to facilitate and accelerate his reintegration into the community, and his recognition as an equal and respected citizen.” Athletes may participate in community organized athletic, social, advocacy, or educational events which increases community integration (Stotts, 1985). Finally, sport and recreation increases social participation (ICF d750, d350). Individuals must participate socially in society in regards to obtaining equipment, talking to current athletes and coaches, and being involved on a team (Wu & Williams, 2001). Social roles can be fulfilled more easily considering physical and social benefits, increased social relationships, and increased support associated with sport and active recreation (Hanson et al., 2001; Tasiemski et al, 2005).

In addition to personal benefits, participation of individuals with mobility impairments in sport and active recreation has societal and economic benefits. In 2001, Wu & Williams showed that in comparison with non athletes, individuals who participated in sport were more likely to support a family, maintain a job and go to school (ICF d820, d825, d830, d845, d850). Psychosocial factors such as increased mood, decreased anxiety and depression, better self esteem and life satisfaction have been shown to be more important in determining employment than physical functioning. Sport programs should be seen as an attractive investment to society because of the potential they have in cutting medical costs and enhancing productivity (Noreau
& Shephard, 1992; Shephard, 1991; Tasiemski, 2005). Athletes with mobility impairments have less frequent and less expensive hospitalizations due to skin breakdowns and other secondary conditions (Stotts, 1986). Furthermore, athletes who participate in sport can help counter social stigmas of helplessness and dependency, and act as advocates in the community.

Healthy People 2010 states that over half of people with disabilities are not physically active compared with about a third of able bodied individuals (2000). Various reasons for the lack of physical activity include environmental barriers, lack of opportunity, lack of information, and other personal factors. A common source of environmental barriers include physical and architectural barriers such as absence or poor condition of curb cuts, inaccessible parking and entrances, poor travel surfaces, lack of elevators and handrails, and counters and desks that are too high (ICF e150, e155, e160). In addition, state, city and local policy and procedures can act as a barrier to participation (ICF e550, e555) as well as the social and familial context of an individual (ICF e310-e499). Facility members and owners as well as family members may believe that sport participation is not important, appropriate, or feasible for the individual (Rimmer et al., 2004). An equally important social barrier is the lack of recognition for athletes with disabilities (ICF e560). They are not always viewed as serious competitors, and games even at the international level are not televised (Jackson & Fredrickson, 1979; Monahan, 1986).

Although opportunities and information for individuals with disabilities interested in playing sports are growing, they still do not equal those of able bodied athletes. Factors such as lack of transportation (ICF e120, e540), inadequate resources to buy equipment (ICF e550, e555) and inaccessible equipment for rental or purchase can also be classified as a lack of opportunity for participation (ICF e140). Potential athletes are also faced with the problem of obtaining information about accessible facilities and equipment, local sport teams, clubs, or program
opportunities, and funding for equipment purchase and skills training (ICF e580). Individuals with mobility impairments do not receive substantial education, information, or resources in rehabilitation and are not exposed to opportunities for athletes with disabilities through the media (Kerstin et al., 2006; Rimmer et al., 2004; Wu & Williams, 2001). Although not initially obvious, these obstacles can greatly hinder sport participation for those who might be interested.

Various personal factors can be barriers to sport participation as well. Illness, disability characteristics, secondary conditions, wheelchair complications, or poor body image may deter participation because of the fear of failure or public exposure (Rimmer et al., 2004; Taylor & McGruder, 1996; Wetterhahn et al., 2002). Lack of motivation and energy, negative attitudes, and low self esteem or confidence can also be attributed to non participation (Furst, Ferr, Meggison, 1993; Scelza et al, 2005). Finally, individuals have to be psychologically ready to participate in sports after an injury, and in the appropriate stage of change in order for readiness to emerge. Using the transtheoretical model (TTM) an individual must be past the precontemplation stage before they even consider a behavior change. Supplementing with the health belief model, the individual must also recognize the health benefits of participating in sport before he or she displays readiness. Although there are many barriers facing sport and active recreation participation, many athletes find a way to participate in sports.

Individuals with mobility impairments who participate in sports practice adaptation strategies. Some of these strategies include finding a role model, goal setting, acquiring knowledge, accepting assistance, and finding environmental solutions. Individual motivation may increase by becoming a role model, experiencing better health and enjoyment from sport, becoming part of a social network, and gaining and maintaining independence (Kerstin, Gabriele, Richard, 2006). In addition, individuals who participate in sport and active recreation
are more likely to have been an athlete pre injury and are most commonly influenced to become involved in sports through encouragement from other friends or acquaintances with disabilities who play sports, followed by friends without disabilities, therapists, and coaches (Wu & Williams, 2001). The most common reasons for participating in sports are fun, rehabilitation, decreasing pain, getting out of the house, keeping active, socialization, competition, and fitness (Kerstin et al., 2006; Tasiemski, Bergstrom, Savie, Gardner, 2000; Tasiemski, Kennedy, Gardner, Taylor, 2005; Wu & Williams, 2001). Wu & Williams showed that athletes often express feelings of wishing to have become involved in sports sooner and manifesting emotions of gratitude and joy at having started participating in sport and active recreation (2001).

**Theoretical Models**

The independent living (IL) movement had origins in the 1920s and 1930s with spokesmen and advocates such as President Roosevelt and Helen Keller. As the IL movement progressed, independent living centers opened and students in wheelchairs started living on school campuses (Martinez & Duncan, 2003). The movement exploded in the 1970s piggybacking on the civil rights movement. With the passage of the 1973 Rehabilitation Act affirmative action policies for employment and architectural guidelines were set in place. In addition, section 504 banned discrimination on the basis of disability from any programs receiving federal financial assistance (DeJong, 1979). From that point the IL movement helped change ideas behind practice and policy in the area of disability rehabilitation by showcasing the values of a more social model of disability opposed to the medical model from which practice and policy had previously been guided.

The medical model is on based etiology progressing to pathology which progresses into manifestations of symptoms (Gray & Hendershot, 2000). The main underlying assumption of the
medical model is that disability results from the inadequate performance and impairment of the individual. Within the medical model, the person with a disability is expected to assume the sick role which assumes that the physician is the primary decision maker and ultimate authority, the main purpose of treatment is restorative care, and the individual is not expected to have any responsibility within society. However, individuals with disabilities progress from the sick role to the impaired role once they cannot be “cured” through acute treatment. In the impaired role, individuals spend their days as children and are not treated as productive members of society (DeJong, 1979).

The IL movement rejects the medical model, sick, and impaired roles with the assumption that individuals with disabilities are being denied their right to participate. The IL paradigm which is a more social approach to disability recognizes that the disability does not reside within the person but in the lived environment. This shift in attitude has led to the opinion that those with disabilities are the experts on their disability and current treatment. Currently, the main focus in rehabilitation changing is more client centered and has a compensatory focus in addition to restoration components. Finally, this new model is starting to cast individuals with disabilities in a different light which is dissolving the sick role, erasing social stigma, and emphasizing their right to participate in society (DeJong, 1979).

Dr. Thomas Glass criticized the medical model on the grounds that the model reflects an emphasis on functional ability as a hypothetical construct (can do), rather than actual daily performance in an enacted construct (do do). The medical model does not measure functional ability in the world but instead is based on assessing the “can do” measured by self report on what an individual perceives he or she is able to do without real world restraints, or the “could do” measured by observation of performance in a controlled setting such as a clinic. The IL
movement has helped change the mind set that individuals with disabilities cannot live and function independently in the real world, yet most assessments of functional ability are still assessed as a hypothetical or experimental construct. Glass proposed that more measures in the enacted construct need to be developed to fully capture functional ability in the real world. However, he concluded all three tenses need to be measured to get the best all around picture of functional ability, but currently measures of the enacted tense are not being assessed as much as the hypothetical and experimental tense (Glass, 1998).

The ICIDH and ICIDH-2 were developed to classify the consequences of a disease or disability instead of the mere diagnosed condition (Gray & Hendershot, 2000). From these the ICF was created which added environment as a factor which will affect disease or disability outcomes. The goal of the ICF is to provide a standard language and framework for the description of health and health related states and to provide a systematic coding scheme. The environmental aspect was added to the ICF because of the shift in thinking that the disability results from a problem within the person to thinking that disability results from the lived environment (WHO, 2001). The World Health Organization defines impairments as problems in the body function or structure as a significant deviation or loss, disability as the consequence of the impairment in terms of functional performance, participation as involvement in a life situation, and handicap as the disadvantage and inability to fulfill a social role as a result of an impairment or disability (Gray & Hendershot, 2000; WHO, 2001). Figure 1 shows the ICF model and the interaction between body function and structure, activity and participation, and environmental and personal factors. Figure 2 is an example of how playing tennis in a manual wheelchair fits within the context of the ICF.
Motivation or readiness to participate in sports is most commonly explained by stages of change through the TTM. In the precontemplation stage the individual has no intention of
becoming active, in the contemplation stage the individual is thinking about starting to become physically active in the next six months, the preparation stage is when the individual makes small changes in behavior but does not consistently participate, action is becoming physically active in the last 6 months, maintenance is being physically active for more than six months, and finally termination is when an individual stops maintaining physical activity for any reason. Although this model has traditionally been presented linearly, progression is more likely to follow a cyclical pattern through the stages (Marshall & Biddle, 2001). Figure 2 show the cyclical pattern of the TTM through all of the stages of change.

Figure 3: Transtheoretical Model of stages of change for physical activity

Recently, van der Ploeg, van der Beek, van der Woude, and van Mechelen have developed a conceptual model called Physical Activity for People with Disabilities (PAD). It is based in part off the ICF and consists of three levels of activity functioning which are body functions and structures, activities, and participation. Physical activity is a part of all three level of functioning and benefits span throughout these three levels. In addition, environmental barriers and personal factors such as attitude and self efficacy can have a great influence on the opportunity and ability of a person to participate in physical activity (2004).
The opportunity for an individual with a disability to participate in sport and recreation has increased as a result of the IL movement and shift to the social model. Sports increase the “can do” based on measuring hypothetical constructs, but also increases the “do do” based on self-report of occupational performance and productivity in society. However, athletes must be careful not to participate so much in sport and recreation that their participation in other areas of occupation decreases as a result of time constraint or other factors. Therefore, future theoretical models will most likely consider the importance of measuring the enacted tense (do do) when assessing functional ability, and considering environmental factors when assessing how disability affects participation.

Background

Sport and active recreation are different terms used in the literature, meaning very similar things. They are defined differently across countries but have been said to include recreational, playful, joyful and pleasurable aspects for the individual (Guttmann, 1975; Shephard, 1991). Sport and active recreation have need to fit with the leisure interests, needs, and tastes of an individual (Jackson, 1987; Stotts, 1986). For the purpose of this literature review, I am going to narrow down the meaning of these concepts. Sport and active recreation activities need to be a personal an enjoyable choice for an individual with any type of mobility impairments. They can be indoor, outdoor, competitive, non-competitive, individual, or team activities that have an active physical component. Finally, these activities should not be exercise or strength training that is a required or prescribe part of rehabilitation. Unfortunately, most of the sport activities that exist are centered around manual wheelchair users with paraplegia with very little evidence about opportunities for individuals who use power wheelchairs, scooters, canes, crutches, or walkers (Shephard, 1991). Sport for people with mobility impairments may include but are not
limited to the following: swimming, archery, basketball, table tennis, weight training, snow skiing, track and field, tennis, racing, rugby, kayaking, canoeing, bowling, fishing, hang gliding, parachuting, sailing, rock climbing, mountain biking fencing, and shooting (Beringer, 2004; Hamel, 1992; Jackson, 1987; Jackson and Fredrickson, 1979; Shephard, 1991; Tasimeski et al., 2005).

In February 1944, Sir Ludwig Guttmann founded the Stoke Mandeville Hospital in England for injured soldiers. Guttmann valued the physical, psychological, and social reintegration benefits of sport in the able bodied person, thus implementing sport and recreation as an essential part of therapy for those with mobility impairments. On July 28, 1948 the first day of the Olympics in London, the Stoke Mandeville games started as a national sports event with 16 athletes with paraplegia. The games grew to the international level and were held every year for experts and beginners alike. Guttmann was knighted in 1966 for his significant contribution to treatment of people with paraplegia. Sport for those with disability continued to grow as the first Paralympics were held in 1960 after the regular Olympics in Rome. In 1976 the Toronto Olympiad was the first sporting event which included those other than manual wheelchair users. In 1980 the formation of the International Coordinating Council for athletes with disabilities was formed, and in 1984, inclusion demonstrations by athletes with disabilities took place at both the winter and summer Olympic Games. Currently equipment innovations and attitudinal changes have created more opportunities to participate and compete in sport (Guttmann, 1975; Guttmann 1976; Hamel, 1992; Jackson, 1987).

It is estimated that 13-20% of the Western population has one or more disabilities, and 56% of this population does not participate in physical activity compared with 36% of the able bodied population (Healthy People, 2010; van der Ploeg et al., 2004). However, sport and
active recreation have been shown to decreases disability by increasing overall physical and psychological health, creating a social support network increasing independence, promoting community re-integration, and increasing quality of life and perceived life satisfaction. Specifically sport increases independence, functional mobility, social participation, and community reintegration which has been shown to increase life satisfaction in life as a whole, specifically ability to manage self care, vocational situation, financial situation, sexual life, family life, contact with friends, and leisure situation (Beringer, 2004; Manns & Chad, 1999; Tasiemski et al., 2000; Tasiemski et al., 2005; Wu & Williams 2001).

**Hypothesis**

The literature has suggested many benefits to sport and active recreation for individuals with mobility impairments, but more research needs to be conducted. Hypotheses for future research might include:

1. Participation in active recreation serves a role model and motivator to other people with disabilities and provides opportunity to advocate to the general population.
2. Information and exposure to sports in a rehabilitation setting will increase likelihood of participating post rehabilitation, and speed the course to readiness through the Transtheoretical model and Health Belief model frameworks.

**Implications for Occupational Therapy**

Sport and active recreation has a tremendous implication for occupational therapy. First and foremost, OTs have a role in the rehabilitation setting to provide information and exposure to sport and active recreation, guide the process of obtaining equipment, promote physical activity for clients, and give contact information of coaches and athletes to anyone interested in participating in sports. OTs need to assess readiness of clients both physically and
psychologically, and educate families and clients of the benefits that sport has been proven to have for individuals. Because more opportunity for sport involvement is needed, OTs can design sport and active recreation programs or advocate for the need for more opportunities in the community. Finally, OTs can conduct research about how sport and active recreation enables occupation and increases social participation (DeJong, 1979; Hanson et al., 2000; Pasek & Schkade, 1995; Taylor & McGruder, 1996; van der Ploeg, 2004; Wetterhahn et al., 2002; Wu & Williams 2001). OTs can be involved in the creation of physical activity motivational programs for potential athletes who are unmotivated for various reasons (Kosma, Cardinal, McCubbin, 2005). Finally, OTs can help clients maintain balance between occupational domains and possibly become role models for potential athletes with mobility impairments (Kerstin et al., 2006; Taylor & McGruder, 1996).

“A basic theoretical assumption in occupational therapy is that engagement in activities is related to life satisfaction. Thus, one function of the occupational therapist is to enable patients’ participation in activities for which they report high levels of interest yet have low values of satisfaction”(Yerxa & Baum as stated in Seigel & McGruder, 1995). OTs need to fill the gap for the clients who want to participate in sports but do not know how to get involved, and educate those who might not realize the opportunities for sport participation for individuals with disabilities. As Dr. Kenneth J. Richter states, “We haven’t scratched the surface of the potential pool of athletes” (Hamel, 1992).
References


