Possibilities Offered by Interventional Sports Programmes to Childrens and Adolescents with Physical Disabilities
– An explorative and evaluative study

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2003:23 • ISSN : 1402 - 1544 • ISRN : LTU - DT - - 03/23 - - SE
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To Camilla, Oskar and Fredrik
CONTENTS

ABSTRACT I

PREFACE II

ORIGINAL PAPERS III
Papers I-IV

INTRODUCTION 1
Sports for all 6
Sports for people with disabilities in Sweden - a historical background 7
Influences of sport on children and adolescents with physical disabilities 10
Habilitation and rehabilitation 11
Health 12
Socialisation 13
Learning 14
Adapted physical activity 15
Perspectives on adapted physical activity 20

THE AIM OF THE THESIS 22

METHODS AND PROCEDURES 23
Methodological considerations 23
The first sports programme 28
The second sports programme 29
Participants 32
Instruments 33
Data collection 34
Qualitative analyses 35
Statistical analyses 36
Ethics 36
SUMMARY OF THE STUDIES 37
Study I 37
Study II 38
Study III 39
Study IV 39
Practical-empirical experiences and reflections on the first sports programme 41
Practical-empirical experiences and reflections on the second sports programme 42
GENERAL DISCUSSION 43
CONCLUSIONS 53
Practical and research implications 54
POPULAR SCIENCE SUMMARY (populärvetenskaplig sammanfattning) 57
ACKNOWLEDGEMENTS 59
REFERENCES 62
PAPERS I-IV
Dissertations from the Centre for Teaching and Learning, Luleå University of Technology
Kristén, L. (2003). Possibilities offered by interventional sports programmes to children and adolescents with physical disabilities; an explorative and evaluative study. Department of Teacher Education, Centre for Research in Teaching and Learning, Luleå University of Technology, Luleå, Sweden. ISSN:…………..•ISRN…………

Today, sport is a topic that interests and engages many people. However, pursuing sporting activities and being a member of a sports club is not a matter of course for children and adolescents with physical disabilities. The overall aim of this thesis is to study the possibilities offered by interventional sports programmes to children and adolescents with physical disabilities and to describe in what way they can be offered meaningful physical activities as well as active participation in sport clubs, with a view to improving their health and socialisation through sport. The thesis includes three descriptive and one evaluative study. The results of the thesis rest on a combination of methods: practical-empirical experiences based on theoretical reasoning, interviews in line with a method inspired by phenomenography, and data from questionnaires analysed by descriptive and analytical statistics. The results are also based on a variety of data sources i.e. children, young people and parents as well as theory triangulation i.e. socialisation and health. According to the findings, sports programmes offered possibilities to children and adolescents with physical disabilities for improving their health and socialisation. An important component of the sports programmes were sports clubs that offered meaningful physical activities as well as active participation. Guidelines for co-operation in and the organisation of sports programme for children and adolescents with physical disabilities were of great importance and should involve the families as well as sports organisations and local authorities. The children and adolescents regarded sport as a form of social arena to enhance their participation in society and as a means for achieving better health. They also stressed the importance of knowledge and experiencing nature as factors that promote an active and healthy lifestyle. The parents regarded sport as a form of health education and as a means for their children to achieve increased participation in society. The parents also stressed the fact that the learning process was important for empowering the children to influence their life situation. The findings also illustrate the importance of building co-operation between the habilitation centre, sports clubs and families of children with physical disabilities by means of a working team, as well as the importance of the sports movement opening up its activities to children and adolescents with functional disabilities and each sports club appointing a contact person with special responsibility for this target group. Continued external support was regarded as necessary in order to assist the sports clubs in implementing permanent and well-functioning activities in partnership with a personal sport and health counsellor, who advises and supports the children and adolescents to participate in physical activity.

Key words: children, health, physical disability, socialisation, sports programme
PREFACE

During my time as a physical education teacher at the county council’s rehabilitation centre, I experienced a great deal of enjoyment and spontaneity in the sports-specific training and treatment of children and adolescents with various physical disabilities. At the same time, it was a challenge to combine the pedagogical and medical aspects of the work with the children in co-operation with, in most cases, trained medical staff. My studies at the German Sport University of Cologne helped me to meet this challenge. The children and adolescents who participated in sport could use their energy, feel the joy of movement and savour the feeling that they were part of a social group. The goal-oriented physical activity functioned well in the county council’s rehabilitation centre but, after its completion, there was no obvious continuation. The discussions with and among the children and adolescents often finished with the question of how they could continue to participate in sporting activities after the conclusion of the treatment and training. Many of them also had to follow a rehabilitation plan and wanted to complement the traditional kind of rehabilitation training and treatment. Most children and adolescents would like to participate in the popular sports of the day or the sporting activities pursued by their friends.

However, the reality of taking part in sporting activities proved difficult, as various complications and barriers surrounded their participation in many ways. The willingness among the sports clubs to care for, support and educate children and adolescents with physical disabilities was not very great, with the exception of specific sports clubs for the disabled, which have many years of experience. The children and adolescents with physical disabilities also wished to be able to take part in any sport of interest to them without being seen as disabled. The willingness and ambition of many of the children to develop their motor skills while at the same time enhancing their well being were strong. It was therefore natural to work towards motivating sports clubs to encourage this interest in sport among children and adolescents with physical disabilities, to promote an enlarged view of sport within healthcare and to stimulate co-operation between different sections of society. With this practical empirical point of view, it was a challenge to enter the scientific sphere in an attempt to conduct research in the field of sports and adapted physical activity among children and adolescents with physical disabilities. This thesis proposes different strategies. Although several questions remain unresolved and new questions have arisen demanding further research, I can but hope that the situation pertaining to sport for children and adolescents with
physical disabilities is now better defined and understood than was previously the case. In addition, a number of suggestions for improvement have been made. Hopefully, the understanding of and accessibility for children and adolescents with physical disabilities will be improved in the sporting context and their opportunities for participation in different sporting activities facilitated.
This thesis is based on the following Papers, which will be referred to in the text by their Roman numerals, I-IV.


INTRODUCTION
This thesis is concerned with the possibilities offered by participation in interventional sports programmes to children and adolescents with physical disabilities. The health and socialisation aspects of sport are particularly focused upon. The starting point of the study is the living conditions of many children and adolescents with physical disabilities, who do not have the same possibilities as their healthy peers to move, play and develop, and who therefore do not have the same opportunities to take part in sport and other health-promoting activities. At the same time, the full potential of sport is not utilised within rehabilitation. Taken together, this means that many children and adolescents with physical disabilities lack experiences of sports. Sports clubs could be considered as a great potential in society in terms of the implementation of sporting activities for children and adolescents with physical disabilities. There are many indications that being physically active and participating in sport is of great value to the situation of an individual with disabilities, much more so than for other persons without disabilities. At the same time, there is a lack of research in the field of disability in general and in sports for the disabled in particular. Access to sport must be improved for children and adolescents with physical disabilities. In 1993, the General Assembly of the United Nations (UN) adopted Resolution 48 (DPCSD, 1994). The purpose of the Resolution was to "ensure that girls, boys, women and men with disabilities, as members of their societies, may exercise the same rights and obligations as others". The Resolution recognises the overall importance of accessibility in the process of equalisation of opportunities in every sphere of society. One of the target areas for equal participation is access to the physical environment. Rule 11 prescribes that persons with disabilities should have the same possibilities for recreation and sports participation as others.

Over many years, discussions were ongoing within the UN about the situation of children and their lack of legal protection. In 1989, these discussions resulted in the convention on children's rights, sometimes known as the Child convention. Sweden acceded to the convention in 1990. Only one clause of the document (clause 23) deals specifically with children who have functional impairments: "A mentally or physically disabled child should enjoy a full and decent life, in conditions which ensure dignity, promote self-reliance and facilitate the child's active participation in the community". The other articles are of course just as valid for these children as for all other children (Paulsson, 2000; Hägglund, 2001).
The Swedish Government Commission’s Official Report (SOU, 2000: 91) states that physical activity is increasingly becoming an issue of social affiliation. Physical activity follows social patterns that are linked to life-style and living conditions. Children and adolescents with different physical disabilities should therefore be offered the possibility to take part in physical activities and games that are adapted to their needs. Within schools, specially trained physical education teachers should provide such adapted physical education (SOU, 1999: 137). The report also recognises the fact that some people with physical disabilities lack the means to participate in the activity necessary for the maintenance of their physical ability. In many cases, these individuals lack the necessary support from society to be able to perform essential body movements. It is vital that society take greater responsibility for providing better opportunities for exercise and training adapted to the individual’s personal requirements (SOU, 2000: 91).

It is obvious that the reality for children and adolescents with physical disabilities in the area of sport is not very promising. For example, in the report on how Sweden has honoured the UN convention on children’s rights, the child ombudsman (BO), (2002) states that:

50% of children with physical disabilities cannot meet their friends without the help of an adult. Fifty per cent of children with physical disabilities would like to have more leisure activities to choose from. People with disabilities are not normally entitled to receive aids that facilitate sport and leisure activities. Sixty-one per cent of children with physical disabilities have no access to a location in their vicinity where they can meet friends.

In Sweden, the total number of children and adolescents with disabilities in the 0-19 age group in need of societal support has been estimated at 34 000 (Hagqvist, 1994). The following figures show the extent and distribution of disabilities in the 16-84 age group:

physically disabled: 5.8%; severely physically disabled: 3.0%; reduced vision: 1.6%; reduced hearing: 12.5%; and intellectual disabilities: 0.5% (Statistics Sweden, 2002). The approximate number of persons with disabilities who participate in competitive sport, such as local championships or more advanced levels, is estimated at 2500. The number taking part in recreational activities and physical exercise is estimated at 25 000 (Swedish Sport Federation for the Disabled, 2003). Children and adolescents are often not visible in Swedish official statistics. In the Swedish survey on living condition (ULF-investigations) the situation of children with disabilities and their families is not apparent. Even within disability research, the focus is in most
cases on adults or elderly people with disabilities, and children and adolescents are not even mentioned (Paulsson, 2000).

In Sweden, a Government commission set up in 1969 to investigate the future direction of state support for sport made a proposal in which sport was defined in the following terms: ”All the competitive and other physical activities performed by people for the purpose of achieving a certain result or for the purpose of exercise and physically active recreation” (SOU 1969:29, p.21).

Considerable space was devoted to sport for the disabled, and it was stated that sport is especially important for people with disabilities. Despite the paucity of research at that point in time, there was the conviction that, when carried out in an appropriate manner, sport prevents disease and promotes health, effects that can be utilised within habilitation and rehabilitation of sick and injured people, as well as stimulating individuals with reduced physical ability. Furthermore, it was emphasised that sport is a part of physical and mental rehabilitation, as it can be adapted to the individual’s level of ability. Thanks to the definition of sport and the approach to sport for the disabled set out in the report, different types of adapted sports gained greater acceptance, and in addition, recognition was granted to sporting activities for elderly people and people with physical disabilities. Nowadays “the official” definition of sport is: ”a physical activity which we perform to be able to accomplish more, have fun and feel well.” (The Swedish Sports Confederation, 2000, p. 5).

The sports movement is the largest and most vigorous popular movement in Sweden. It defends each individual’s right of participation and is devoted to diversity among its members. Furthermore it states that sport consists of training and games, competition and display. Sport for the disabled is also focused upon in these guidelines by, among other things stressing that the value of sport lies in its multiplicity. The tenor here is more general than in the report of the Government Commission, from 1969, although it is emphasised that groups such as immigrants and women are also important in this respect.

Sport for the disabled has played an important role in pointing out the various possibilities and dimensions of sport. Some forms of physical disabilities are played down by showing how people with physical disabilities derive benefit from different sporting activities. Society has various means at its disposal for supporting participation in different physical activities.
Important tools for making participation possible are the Swedish Planning and Building Act, the taxi service for the disabled as well as physical aids and personal assistants (Peterson, 1996). Other factors, such as the attitudes and behaviour of others, are also decisive for when and if these children and adolescents choose to start an activity. Sport leaders, especially coaches, seem most likely to produce "positive" socialisation outcomes for athletes with whom they develop personal and close relationships (Patriksson, 1995). In other countries, for example Germany, it has been reported that the starting points for scientific and professional practical work within the framework of movement, play and sport are pedagogical, socialisation- and rehabilitation processes (Kosel & Froböse, 1999). Sport is used as a complement to more traditional methods of habilitation and rehabilitation in the work with children and adolescents with disabilities (Ohlert & Beckmann, 2002).

In the final report of the Swedish Handicap investigation, it was laid down that sport, leisure, recreation and holidays are more important for some individuals with disabilities than for others without disabilities in terms of health and well-being (SOU, 1992:52). The report also emphasised the need for research efforts in this area. People with disabilities, who are active in sport, have a better social situation than their peers who are not active, in terms of functional ability, acceptance of disability and social integration (Schüle, 1996b). However, only a few investigations (Fenning et al., 2000; Nino et al., 2000) have been carried out in the field of intervention sports programmes, and there is a lack of results about the positive and negative influences. Intervention approaches are limited by the structure of modern society and schools, both of which are characterised by competition and the pursuit of success. This in turn can involve a negative power structure, thus limiting the development of identity and socialisation (Varsamis, 2002). It is possible that the lower level of activity among young people with disabilities is related to the physical barriers that are obvious in many physical activities (Grue, 1998) as well as the pressure induced by the competitive ethos and the strive for achievements.

There are few investigations available dealing with the effects of didactical sport approaches among children and adolescents with physical disabilities (Varsamis, 2002). Children and adolescents with physical disabilities could be helped to participate in a sporting activity by means of interventional sports programmes that include the components required to motivate their participation. In this regard, the interaction of several sections of society is probably crucial in order to facilitate integration while at the same time stressing the significance
of the intervention. Such sports programmes can also be used as a basis for continued co-
operation, research and development as well as contributing to improved services of different
kinds for people with disabilities. In order to facilitate the design of programmes for adapted
physical activities, it is important to acquire knowledge of the physiological possibilities and
limitations relevant to the participation of children and adolescents with physical disabilities in
different types of sports (Shephard, 1994). Several studies have shown the physical, mental and
social value of sports programmes, where children with physical disabilities have reported,
among other things, that sport provides an important meeting place as well as offering the
possibility of making new friends and having a positive influence on their self-esteem (Herbert &
Bressan, 1995). Most of the evaluated sports programmes have been conducted within physical
education (Heikinaro-Johansson, 1995; Rintala et al., 1998) and therapeutic recreation
(Mactavish & Schleien, 1998) i.e. as a part of sport and leisure activities in schools and
communities (Wilhite et al., 1997). Little research has been carried out on those programmes that
have been conducted on a voluntary basis, e.g. sports club activities. It is possible, however, that
evaluations of schools and communities as well as how they are structured and organised would
reveal that such a context favours interventional sports programmes.
Fenning et al. (2000) pointed out that, in spite of the fact that several studies have emphasised the
importance of sports participation for people with physical disabilities, few investigations have
been carried out with regard to particular types of integrated sport or the positive and negative
effects of integration in sport. They concluded that there were few differences in the perceptions
of sport and learning between adolescents with and without physical disabilities taking part in an
integrated basketball tournament. Fenning et al. (2000) also concluded that research is needed on
specific events that can be used to promote positive and meaningful social contact between
individuals with and without disabilities. Nino et al. (2000) reported that few longitudinal studies
of integrated sports programmes are available. In a study (op.cit.) of integrated sports
programmes within basketball and swimming, significant improvements in the skills of the
participants were reported, both with regard to integrated and non-integrated programmes. No
significant differences were generally found in the self-rating, irrespective of the type of
programme. With regard to the above-mentioned approaches, it would appear important to make
all types of sport available to people with physical disabilities and to introduce sports
programmes that support participation and accessibility (Kristén, 1996; Kristén, et al., 1999).
Studies have emphasised the need for research on the benefits and influence of sport on people with physical disabilities but in most cases, existing investigations into physical activity and health have been carried out primarily on adults without physical disabilities. The overall aim of this thesis was to study the possibilities offered by interventional sports programmes to children and adolescents with physical disabilities and to describe in what way they can be offered meaningful physical activities as well as active participation in sports clubs, with a view to improving their health and socialisation through sport (see specific aims p. 22).

Sports for all

One of the ideas behind the Swedish Sports Confederation’s (SPC) motto “sports for all” is that everyone, regardless of race, religion, age, sex, nationality and physical and mental state should have the opportunity to take part in the sporting activities arranged by clubs. Therefore, it is important for children and adolescents with physical disabilities to be allowed to satisfy their need for movement and to experience the pleasure of movement, recreation and being part of a social group. In other words, the inherent desire for activities and sport, which many children possess, including children and adolescents with disabilities, must be safeguarded. This means that a sports programme and/or habilitation/rehabilitation programme including sporting activities can contribute to an increased availability of sport, along with possible physical, psychological and social benefits, for children and adolescents with disabilities. A sport and health-oriented activity can become an alternative to institutional training and possibly lead, in the long term, to participation in clubs and societies, thus instilling a spirit of belongingness and enjoyment. The whole family can be involved in the sport, and thus individual therapy can be complemented by the further aim of enhancing the family spirit. In the long term, society can benefit from this commitment in the form of decreased durations of treatment as well as healthier and more socially adapted children and adolescents. It is important to increase the contact interfaces between society, sports movements, children and parents. Sport as a hobby plays an important role in the health and well-being of many people with disabilities (Sherrill et al., 1990; Sherrill 1998). Sport as an aspect of outdoor activities is also particularly important for many people with disabilities who have limited opportunities for, and interest in, indoor sports. Since sport is the largest popular movement in Sweden, it could play an important role in demonstrating the possibilities of taking part in different sporting activities (Karp, 2001). Sport
for the disabled has become important in its role of drawing attention to new possibilities. International research results have led to the development of rehabilitation programmes with the aim of placing greater emphasis on sport (Coppenolle et al., 1994, 1996). However, there are several, though not many, rehabilitation centres in the world, where the rehabilitation process is based on the idea that sport and adapted physical activity is a rehabilitation tool (Schüle & Jochheim, 2000; Vermeer, 1991). In the USA and Canada, so-called special guidance in the form of leisure counselling and education is used in order to prevent further deterioration in health and well-being and to increase social participation and accessibility (Doll-Tepper, 1991; Green & DeCoux, 1994; SOU, 1990:19). Although this approach is lacking in Sweden today, it should not be too difficult to introduce it, for example within habilitation or rehabilitation, by the inclusion of sports as part of the team work. There is evidence that the social organisation and forms of social interaction are more important for children than the type of sporting activity (Patriksson, 1995). Examples of factors that contribute to a positive socialisation experience among children could be: awareness of training goals, a long-term perspective and task (as opposed to outcome) orientation. In other words, the great significance of the social environment should be taken into account when planning sports programmes for children and adolescents with physical disabilities.

Sports for people with disabilities in Sweden- a historical background

In order to understand the position of sport within habilitation and rehabilitation and the opportunities it offers children and adolescents with physical disabilities, it is necessary to consider the historical development of sport for disabled people in Sweden. It is also important to look at the way sport is organised. Sport for the disabled originated in social clubs, which initially did not include much sport. In other countries, which were involved in wars and thus had many wounded citizens, medical aspects played a greater role, leading to sport receiving greater recognition in the area of health care. In Sweden, sport for disabled people has retained its dominant social character. An example of this is the efforts devoted to people who have been injured in traffic accidents (Kristén, et al., 2000a).

The first association for people with disabilities to be established in Sweden was for deaf people in the 1860s. During the mid and late 19th century, comrades’ associations existed at handicap institutions, schools for the blind and deaf and at sanatoriums. These were the predecessors of the first national associations for the disabled. The mission of the comrades’ associations was to
provide their members with individual support in various situations, promote the exchange of experiences, and encourage interaction and mutual support (Brattgård & Lindström, 1985; Wiger, 2000).

Sport for deaf people has existed in an organised form since the late 19th century, and the Swedish Deaf Sports Federation (SDI) was formed in 1913. Since 1995, SDI is an independent sport federation (SF) within the SPC with a programme that includes almost 20 different types of sport. Sport for people with disabilities began in 1957 at Bosön Folk High School in Stockholm. The first course for instructors in Sweden was organised in co-operation with the then West-German Sport Federation for the Disabled. The idea of a corresponding Swedish federation, with overriding responsibility for sport for the disabled, was inspired by the decision of a federation, later known as the Swedish Federation for the Disabled (DHR). However, sport and leisure activities for people with disabilities were quite inconspicuous within the federation. At a conference of The Federation for Children with Intellectual Disabilities (FUB) held in 1967, the idea of establishing an independent federation was put forward. The matter was speedily investigated, which led to an application in 1969 for inclusion in the SPC (Wiger, 2000; Östnäs, 1997). In the same year, the Swedish Sports Organisation for the Disabled (SHIF) was formed and adopted as the 50th sport federation within the Swedish Sports Confederation. Today, the SHIF comprises 412 associations with a total of approximately 50,000 members. The federation’s programme covers 18 sports and can be regarded as the SPC in miniature. There are sports for people with all types of disabilities, usually categorised under the headings of physical disability, impaired vision, intellectual disability and hearing impairment. The Swedish Sports Organisation for the Disabled is organised on a countywide basis. Its overall goal is for all individuals with a physical disability to have the same opportunities to pursue sport as other people as well as the integration of sport for the disabled with sport generally. According to Östnäs (1995), the development of sport for the disabled in Sweden has taken place in four phases:
The preparatory phase (1954-1969), which has been described above and which ended with the establishment of SHIF.
The consolidation phase (1969-1979) which saw the development of the activities at all levels as well as within different groups of disabled people.
The expansion phase (1979-1989), which characterised the whole of the 1980s. Sport for the disabled became increasingly accepted as a natural and established part of the sports movement in Sweden.

The integration phase (1989-) which began with the action programme of the general assembly for the period up to the year 2000. The aim of the programme was, among other things, that sports clubs should be opened up to people with disabilities, that classification and a variety of sports for the disabled be gradually introduced into official competitive programmes, that cooperation be initiated between the SHIF and the individual sport federations and that, in the long term, the majority of sports for the disabled be incorporated as an integral part of the different individual federations (Östnäs, 1997).

Thus the preconditions for legitimatising sport as a means within habilitation and rehabilitation were, and are still, not clearly defined and can be said to mirror the prevailing view of sport for people with disabilities (Kristén et al., 2000a, 2000b). SHIF, with centralised control from Stockholm, influences decision-making at regional level. Greater attention to common issues at central level and increased independence for the county associations might be one way of achieving the further development of sport for people with disabilities. The Swedish Sports Organisation for the Disabled works proactively towards greater integration with sport in general.

However, in spite of this, the coaches/leaders have little opportunity other than weekend courses (step-wise courses) and study circles to enhance or even maintain their educational level. This fact probably mirrors the status of sport for the disabled and the low importance attributed to this kind of sport by society. Adapted physical activity or sport for people with disabilities has only recently gained acceptance within Swedish university education (Kristén et al., 2000a). Few resources are allocated to research within the disability area and, consequently, not many research efforts are currently being made (Wedman, 2000). However, there are positive indications of an awakening of interest within the educational area, where a number of universities and institutes of higher education are discussing future directions. In addition, the Swedish government, through its State Inheritance Fund, allocates funds to sports clubs with the specific aim of encouraging them to stimulate club activities for the purpose of integrating children and adolescents with physical disabilities (Department of Social Affairs, 2002). However, sport is still to a lesser extent regarded as a possible means or complementary measure within habilitation and rehabilitation.
Influences of sport on children and adolescents with physical disabilities

In sport, everyone fails at one time or another. Some people, however, fail more often than others and these failures affect all aspects of their lives. To inspire young people to start and continue a sporting activity by means of an interventional sports programme includes different components necessary for motivating participation and positive outcomes such as an active, healthy lifestyle for all. In this regard, I would like to stress some areas of importance both in the planning and in the work throughout this thesis (Figure 1) as well as summarising the key concepts. The different studies in this thesis evaluate the influence of sports programmes on health and socialisation within sport. Important aspects are how the programmes are organised and which authorities, organisations etc are responsible for them, as this may have a bearing on the participation of children and adolescents with physical disabilities.

Sport can be used in habilitation and rehabilitation as a means of treatment and training (Schüle, 1996a). By placing greater emphasis on sport based on teamwork, i.e. in the co-operation between the different staff members, children’s and adolescents’ chances to participate in sport are enhanced. There is consensus in the literature regarding the importance of physical activity for health (Herbert & Bressan, 1995; U.S. Department of Health and Human Services, 1996). Sports participation can have both a positive and a negative influence on the different dimensions of health, seen in terms of physical, mental, social and spiritual/existential well-being. This has an influence on the socialisation of children and adolescents with physical disabilities within sport and society, which in turn may also have a bearing on participation and accessibility (Patriksson, 1995). In this context, learning means learning a sporting activity and understanding its importance for continuous, life-long physical activity. Learning is also linked to socialisation; so-called social learning, where the interaction with the other participants is important. This includes both verbal and non-verbal interaction, and the latter, being more experience-based, may be assumed to be more in focus (Svoboda, 1995). Adapted Physical Activity (APA) (Sherrill, 1998) is a means to gain insight about physical activity and how to structure the planning, organisation, implementation and evaluation of a sports programme. These are at the same time important and interrelated components of such programmes for children and adolescents with physical disabilities.
Habilitation and rehabilitation

Habilitation is a type of support intervention for children showing early signs of functional disability (impaired movement; impaired motor skills), e.g. spina bifida and cerebral palsy; children with delayed development of movement, e.g. MBD/DAMP (Minimal brain dysfunction, deficiency in attention, motor control and perception); children who show signs of physical disabilities while growing up, e.g. muscle disease, rheumatic disease, or permanent physical disability as a result of an accident; children with asthma or cystic fibrosis; and children with a combination handicap (e.g. intellectual disabilities). In Sweden, the frequency of cerebral palsy is more than 2/1000 newborn babies; MBD/DAMP approximately 6% of all children in the 6-7 year age group; spina bifida 3-5/10 000 newborn babies; and child rheumatism 60-80/100 000 newborn babies (Bille & Olow, 1999). The concepts of rehabilitation and habilitation are often used synonymously. However, the distinction between them is as follows: when an adult or an older child has been injured, efforts are made by means of different kinds of training, to restore them as far as possible to their previous condition and activities. This is called rehabilitation.
However, the training aimed at adapting a child, who was born with a disability or who has been injured at an early age, to as normal life as possible is called *habilitation*. The concept of *habilitation* includes the medical, pedagogical, psychological and social support provided to the physically disabled child (op.cit.). The goals of *habilitation* and *rehabilitation* are identical: to achieve the best possible permanent improvement within all areas using all available means. The goal of *habilitation* varies according to the child’s age. *Habilitation* is characterised by: imparting a holistic view to the disabled child and his or her family; the importance of cross-professional teamwork; and the will to prevent the appearance of various diseases and external influences leading to disability. This means that early diagnosis and involvement by the habilitation organisation are important for planning and treatment (op.cit.). In Norway, the concept of rehabilitation is a medical-diagnostic one that also includes social support, whereas the concept of habilitation is rather pedagogical in character with the aim of enhancing quality of life, the will to live, and well-being with the potential of including all those involved in a work-related, learning-related and/or social group (Tetzchner & Schiørbeck, 1992). Habilitation and rehabilitation should be organised and structured in such a way as to lead to co-operation between different authorities, organisations for the disabled, sports organisations, children and parents, among others, in order to facilitate participation in a sporting activity.

**Health**

Today, the concept of health is defined as more than merely the absence of disease, and there is an ongoing development towards a total health concept, a holistic concept. The perspective has gradually been shifted from a medical and psychological one to the inclusion of human behaviours (Willman, 1996). The World Health Organization (WHO, 1993) defines health as resources, needs and wishes. The final committee report of the Priority investigation describes the different dimensions of the concept by linking physical, mental and social well-being to the individual’s or group’s identification and awareness of their efforts, satisfaction of needs, and changes in or mastery of the environment (SOU, 1995: 5). Well-being is described as an important aspect of the individual’s self-rated health, and the difficulties of reaching a consensus on concepts such as well-being are discussed. Physical, mental and social well-being are among the core constituents of the concept of health (FRN, 1996). WHO’s political goals for Europe in terms of health included improved physical, social and economic opportunities for people with
disabilities to be realised by the year 2000. However, these goals must be seen in light of the fact that it takes time to build an understanding and a preparedness to reach these goals. The role of sport in the lives of many people has successively expanded leading to increased well-being and improved physical functioning. There are links to Swedish legislation in the form of The Health and Medical Services Act (HSL) (Wilow, 1997) and The Social Services Act (SoL) (Norström & Thunved, 1995). The influence of physical activity on health has been well established in previous research. Games, sports and movement, both during school hours and leisure time, could be used within the habilitation and rehabilitation of young people to achieve stimulation and to facilitate the training of physical, mental and social abilities.

**Socialisation**

Socialisation is an important sociological concept in any consideration of sports for the disabled. Disability sport socialisation is, among other things, concerned with how individuals with physical disabilities acquire their sporting identities as well as with individual internalisation, an unconscious propensity to incorporate somebody else’s conceptions, values and attitudes with one’s own value system and to perceive them as such (Williams, 1994). Patriksson (1995) argues that there is a rather long tradition in sport socialisation research, which differentiates between socialisation into sport and socialisation through or via sport. Another aspect called socialisation in sport has its focus on what is actually learned in sport per se without focusing on its usefulness for life in general. On the other hand, socialisation through sport usually concentrates on the effects of sports participation primarily on other areas of life. Socialisation into society by means of a sports programme is in line with the German rehabilitation chain (Schüle & Jochheim, 1996) and the new disability classification, where disability is replaced by activity and handicap by participation (Björck-Åkesson et al., 2002). Activity is the core of sport, and participation is one of the cornerstones. Sports can be regarded as a socialisation factor in terms of introducing young people into society and thereby also a means to achieve increased activity and participation. In society today, the comparatively few stable forms of socialisation (school, family, friends, associations, etc) are less influential than was formally the case. This makes it all the more important to support, for example, club life in order to develop, implement and permanently establish sports programmes for all.
Learning

Learning is a concept that is increasingly the subject of discussion both within the scientific disciplines and in the public arena. The concept is mainly discussed in connection with schools and education although organisations (learning organisations) and human learning (life-long learning) are commonly occurring expressions, thus, learning can be regarded as multi-dimensional (Alerby, 2000). Johansson (1992) puts forward the question as to why human beings see things in different ways and perceive seemingly similar experiences very differently. In his opinion, the explanation lies in the fact that our earlier experiences, conceptions and expectations of reality determine our perceptions of it (Jernström, 2000). Marton and Booth (1997) argue that the most fundamental aspect of learning is our way of experiencing a certain phenomenon and its specific meaning to us. In other words, learning means learning to perceive. Selberg (1999) discusses learning in terms of development, a form of inner creation. The human being develops when learning something new, and learning is also a way of changing one’s understanding of the external world and developing one’s ability to act in it and to remember. Numan (1999) established that learning, when linked to a subject content, can be considered as multidisciplinary or interdisciplinary in character. The content can be perceived in many different ways, and learning can have different contents and take place at different points in time with different actors, with different objectives, in different ways and with different external barriers and possibilities.

Movement, play and sport are considered as a special pedagogical preventive, therapeutic and rehabilitative intervention that builds on active participation at the same time as the sporting activities themselves become an end for an individual with a physical disability (Bundesminister für Arbeit und Sozialordnung, 1990). This approach could also be adopted in Sweden, as an innovative process of learning about the possibilities offered by sport as a complement and support to traditional healthcare. Svoboda (1995) reports that social learning may lead to many changes, thus influencing the socialisation of participants in sports and physical activity. The patterns of activities and behaviours are focused upon. Learning can also be linked to socialisation, as it is not only a question of learning a sport but using sport as a means of achieving greater integration in society by participating in club life. This approach has been adopted in different sports programmes in Germany (Schug, 1997; Schüle & Huber, 2000),
Norway (Sørensen et al., 1999) and Sweden (Kristén, et al., 2002). Social learning by means of sport may lead to changes both at individual and at societal level by introducing young people into society, thereby achieving increased activity and participation.

**Adapted Physical Activity (APA)**

In general, it can be said that APA is an area currently undergoing both international and cross-disciplinary development. This development is leading to an increased need for international networks and access to resources. These networks and resources contribute to education within the APA area as well as its integration with international sport and sports science. It is therefore important to initiate and establish contact with APA-experts and others working with sport as well as with organisations working within the wider sports area, sports science and sports administration (Doll-Tepper & Scoretz, 1996). APA is well in line with WHO’s new International Classification of Functioning, Disability and Health (ICF), where disability is replaced by activity and handicap by participation. The revised version supersedes the previous International Classification of Impairment, Disability and Handicap (ICIDH), whereby the sporting activity becomes a means of achieving both health and participation. The background is the decision by the WHO World assembly in May 2001 to approve the new ICF. It is expected that this new classification will be accepted by all countries in the world as an instrument for promoting participation and health. The instrument’s applicability to children and adolescents has been under discussion since the start of the revision, and it has been concluded that a special version for young people needs to be developed (Björck-Åkesson et al., 2002).

Sherrill is responsible for the following definition of APA: ”a cross-disciplinary body of knowledge directed toward identification and solution of psychomotor problems throughout the lifespan” (Sherrill, 1993 p.5). In her attempt at a definition, Sherrill suggests that the problems can be found either at individual or societal level, and that the solution must include benevolent attitudes and a purposeful dissemination system. Today, the accepted definition of APA is that of an inter-disciplinary field of knowledge with an interest in psychomotor problems, their identification and resolution over time, as well as the promotion of equal access to an active lifestyle and recreation with emphasis on health, a high quality of sport and health training, a long commitment to sport, dancing and water sports, and finally, a local school service that supports integration and participation.
This definition means that APA not only concerns groups traditionally described as disabled or in need of special training. Today, the focus is more on individual differences and environmental interaction that can cause physical, mental, social, and emotional problems, as these have a bearing on the commitment to a healthy, active lifestyle with its prerequisites of recreation, integration, participation and empowerment. APA can also be seen as a broad theoretical framework for research as well as strategies for the development of physical activity programmes. Proponents of APA in Canada and Europe have agreed to change the emphasis from school training programmes to life-long activity, by using the term adapted physical activity (Seaman & DePaw, 1989; Sherrill, 1998).

Adapted physical activity has become a universal term used all over the world, embracing areas such as exercise and health, dancing, sport, fitness and rehabilitation for disabled people throughout the entire lifespan (DePauw & Sherrill, 1994; Poretta et al., 1993). The terminology was first used in connection with the foundation of the International Federation of Adapted Physical Activity (IFAPA) in 1973. The European Association for Research into Adapted Physical Activity (EARAPA) is an organisation concerned with the promotion and dissemination of results and findings in the fields of APA and sports science, including their practical application, for the benefit of individuals over their entire life-times. The organisation has a coordinating function with national, European and regional organisations, both governmental and non-governmental, which are concerned with the scientific aspects of adaptation, rehabilitation, physical education, recreation, sport, dancing, and leisure, on the one hand, and disabilities, impairments and handicaps, on the other. EARAPA supports opportunities for physical activity for all individuals with unique needs, with particular focus on individuals with impairments or with conditions, disabilities or handicaps that may limit the individual’s ability to pursue the physical activities of interest to them. EARAPA encourages European cooperation in the field of physical activity science as well as promoting, stimulating and coordinating scientific research in the APA field on a global basis (De Potter, 2002).

The development of adapted physical activity is currently moving from a medical to a pedagogical basis and further towards an interdisciplinary, ecological, life-long model. This way of thinking has been adopted within the sports programmes in this thesis, by the application of, among other things, a pedagogical approach to adapting sports to children and adolescents with physical disabilities. The sports programmes are interdisciplinary due to the involvement of
different professional categories. Furthermore, the life-long perspective is applied to the sports programmes, on account of the attempts to achieve a permanent organisation and structure that is nevertheless amenable to change. At the same time, the empowerment and autonomy of disabled people are emphasised, in order to enable them to independently achieve a healthier lifestyle and make use of recreational and sport resources outside of the school framework (DePaw & Sherrill, 1994). It is clear that adapted physical education in schools can lead to life-long participation in a range of different activities. From being the domain of teachers, adapted physical activity has now become an interdisciplinary field, which demands specialist training and expert advice. Even though the philosophy and practical procedures of adapted physical activity have now spread around the world, the terminology has not yet been broadened sufficiently to link different disciplines and nations.

In Figure 2, Vermeer (1987, 1991) presents a model of how sport and rehabilitation and, by extension, an adapted physical activity, may appear.

<table>
<thead>
<tr>
<th>Diagnostic model</th>
<th>Planned change model</th>
<th>Intervention model</th>
</tr>
</thead>
<tbody>
<tr>
<td>disease/disorder</td>
<td>to cure</td>
<td>physical therapy</td>
</tr>
<tr>
<td>impairment</td>
<td>to care</td>
<td>exercise therapy</td>
</tr>
<tr>
<td>disability</td>
<td>to teach</td>
<td>physical education</td>
</tr>
<tr>
<td>handicap</td>
<td>to educate/support</td>
<td>activity training e.g.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>by means of play and sport</td>
</tr>
</tbody>
</table>

Figure 2. Vermeer's model for children and adolescents with physical disabilities encompassing the diagnostic model (ICIDH, WHO, 1993), planned change model (Vermeer, 1987, 1991) and intervention model (Bangma, 1985).

Vermeer suggests that the four general objectives attributable to rehabilitation are: to cure, to care, to teach and to educate (in the case of child rehabilitation) and to support (in the case of rehabilitation in general). Here, the main aim of rehabilitation concerns the learning of new behaviour, and sporting activities are seen as a central part of the rehabilitation process.
Participation in sport is seen as a form of behaviour, namely social behaviour. Sporting activities are positioned at the end of this hierarchy and serve as a proof of the sum, or a validation of the therapeutic and education-oriented rehabilitation activities carried out previously. Vermeer’s model has inspired the actual sports programmes primarily in the final intervention comprising activity training, for example by means of play and sport. The final intervention of the planned change model also complements the basic idea behind the sports programmes by its reasoning about education and support. In the area of children and adolescents with physical disabilities, education is focused on learning about health and sport in a life-long perspective. Support can be regarded as that provided by the environment both in the form of pedagogical and medical interventions, in addition to social support from parents, the family, coaches and others. Vermeer (1991) argues in favour of using sport as a rehabilitation tool by referring to the concept of motor development and its implications for physical therapy. A second argument is based on the characteristics of any given sporting activity: stressing the physical activity as such, in combination with sports participation, leads to social contacts. A third argument is that many evaluations of intervention research in the area of rehabilitation are of low scientific value and quite a few studies report fundamentally unpredictable results.

"In particular, the research failed to demonstrate the usefulness of the effects obtained from the rehabilitation activity for daily social life.” (Vermeer, 1991, p 658).

Efforts are being made by society to remove barriers for people with physical disabilities. Sweden has ”Nationella handlingsplanen för handikappolitiken - från patient till medborgare” (From patient to citizen – A national action plan for disability policy – government bill), (Prop. 1999/2000:79). The goals for year 2010 are to achieve full participation and self-determination for all citizens including disabled people as well as ensuring that all citizens are treated with dignity. To succeed in these efforts, barriers will need to be identified and removed, discrimination prevented and combated, and the necessary conditions for independence created. This implies that the success of the action plan is a shared responsibility, not least within the area of sport.

Seen in an international perspective, the Swedish support system is relatively well developed (Jansson, 1993). Families of disabled children have access to a range of services, in terms of professional help as well as allowances and relief assistance. The municipality carries the responsibility for the well-being of the individual in terms of providing basic resources such as
social services and child care (Act concerning Support and Services for Persons with Certain Functional Impairments; SFS 1993:387). The county council is responsible for health and medical care with special resources for child and adolescent habilitation. In addition, there are special schools and resource centres as well as specific government bodies, The Swedish Institute for Special Needs Education (SIT) and The Swedish Handicap Institute (HI) (Jansson, 1995).
The Swedish healthcare system has traditionally not made use of methods and modes of working outside the medical field, such as for example sporting activities. Both habilitation and rehabilitation may appear to be characterised by conceptions of how to provide good care. “Systematic analysis of the disabled person’s needs, an innovative approach in order to reach the goals of rehabilitation and the ability to enter into the situation of the disabled person form the basis on which rehabilitation is built” (SOS 1993:10, p 19). Within healthcare, a holistic view of the human being means, among other things, an awareness of the relevant biological, psychological and social perspectives, as well as situation-based actions where the specialist perspective plays a subordinate role (Bergendahl, 1990). There are only a few pedagogical examples of this type of reasoning, which may be due to the intermediate position of the social sciences in relation to natural science and the human sciences. Treatment and working methods are interesting from several perspectives (pedagogical, psychological and social) in view of the fact that they are aimed at influencing and developing the individual’s inherent resources.
In some countries in Europe, for example Germany, the term functional rehabilitation is used to denote the complicated process leading to successful rehabilitation. In Germany, the concept of rehabilitation also includes the concept of habilitation (Schüle, 1996a; Schüle & Jochheim, 1996). The point of departure is the WHO’s international classification of disabilities with its analysis of the consequences of diseases and injuries for body parts and organs, the overall functioning of the individual and the social function of rehabilitation within the family, school, work and leisure. The analysis also highlights the importance of the use of adaptation aids throughout the rehabilitation process. For all those involved in the rehabilitation process, the keywords are information and co-ordination. Functional rehabilitation is centred on the special needs of the individual. In Germany, the “rehabilitation chain concept” is used to refer to the chain of interventions that usually follows in the wake of a physical injury. Movement therapy and Rehabilitation sports are emphasised as an important part of the rehabilitation chain and combine the medical and pedagogical perspectives (Schüle & Jochheim 1996; WHO, 1993). Regardless of
the individual’s position in the rehabilitation chain, the goal of movement therapy is to increase the individual’s motivation to participate in sport and sporting activities. Rehabilitation is carried out in the following steps: acute hospital – rehabilitation centre – out-patient services – vocational rehabilitation – nursery school – school/special school – local sports clubs. Rehabilitation starts with a clear emphasis on physiotherapy, continues with an organised and selected group activity in the form of sports therapy and concludes with a permanently integrated, adapted sports group in the participant’s local community. In this way, sport as an adapted physical activity has a strong position within the rehabilitation chain and also in the physical education of children and adolescents with physical disabilities.

In Sweden, a 'user centred' model (Janson, 1995) is employed in interventions for people with physical disabilities, the so-called ISP-model (individual service programme). The model is based on the needs of the disabled person, and resources and activities have to be adapted to the individual and his or her situation. The starting-point is the individual’s unique characteristics, situation and needs. The ISP-team is composed of healthcare professionals with different specialities relevant to the training and support needs of each individual child with disabilities. However, the team frequently lacks a person with responsibility for sports issues and follow-up of the sporting activities. The habilitation efforts are carried out by the team in close co-operation with the family and the disabled person and include: mapping out, planning, implementation, evaluation and feedback. The model is also linked to the ICIDH and the new ICF classification. Experiences from previous studies have demonstrated the importance of sports-oriented habilitation and rehabilitation (Kristén, 1996; Kristén et al., 2002).

**Perspectives on adapted physical activity**

In a democratic society, active and visionary citizens are a great asset. A vital contribution to a positive societal development is achieved by the joint voluntary efforts of many people with a common set of values. APA is aimed at developing ways of facilitating sports participation for each individual, thereby reducing instances of failure, as well as increasing the awareness and knowledge of coaches and others working within sport about their own attitudes. The overall aim of Sherrill’s (1993, 1998) holistic model, the "Adapted physical activity model" is to encourage an active, healthy life-style for all. It seeks to remedy psychomotor problems and reinforce psychomotor strengths, thereby facilitating self-actualisation. To achieve this Sherrill (1993,
1998) defines nine goal areas according to three domains: Affective domain goals comprising positive self-concept, social competency, and fun/tension release; Psychomotor domain goals comprising motor skills and patterns, physical fitness, and leisure-time skills; and Cognitive domain goals comprising play and game behaviours, perceptual-motor function and sensory integration, and creative expression. The outcomes or benefits could be an active, healthy lifestyle at all ages as well as self-actualisation. If the focus is on the cognitive, emotional and/or psychomotor areas, many professional categories may be involved. The model should inspire both the pedagogical and the medical professionals to initiate cross-professional co-operation with the long-term goal of self-actualisation. Cross-professional co-operation can be regarded as a prerequisite for the success of the sports programme. This implies active co-operation between physical education teachers and physiotherapists at habilitation- and rehabilitation centres, as well as club leaders’ provision of information and support to children and adolescents with physical disabilities. Furthermore, it is important to have clear concepts that are known and accepted in the different professional groups. However, continuous contact between different professional groups is not a matter of course and should be supported by a person with the relevant pedagogical and medical education, constituting the link between health care and physical welfare. The use of more general terms to describe people with physical disabilities as well as sport for this group of people can be both positive and negative. Positive, in that it can give the impression that people with physical disabilities are encompassed by the sports movement in a natural way. Negative, insofar as it may give rise to the interpretation that sport for this group of people is not very important and does not need to be highlighted.
THE AIM OF THE THESIS
The main aim of this thesis is to study the possibilities offered by interventional sports programmes to children and adolescents with physical disabilities and to describe in what way they can be offered meaningful physical activities as well as active participation in sports clubs, with a view to improving their health and socialisation through sport. The specific aims were:

• To develop guidelines for co-operation and organisation of an interventional sports programme for children and adolescents with physical disabilities. (Paper I)

• To describe the conceptions of children and adolescents with physical disabilities regarding their participation in a sports programme. (Paper II)

• To describe parents’ conceptions regarding influences of participation in a sports programme on their children and adolescents with physical disabilities. (Paper III)

• To evaluate the influences of an interventional sports programme on children and adolescents with and without physical disabilities, in terms of health and socialisation through sport. (Paper IV)
METHODS AND PROCEDURES

Methodological considerations

The overall design of this thesis can be described as both explorative and quasi-experimental (Table 1). The aim of explorative investigations is to search for and gather as much information as possible on a specific problem area about which little is known or for which the available knowledge is deficient. A further aim is to shed light on the problem area from many different perspectives. As these investigations often aim to acquire knowledge that can form the basis for further investigations, richness of ideas and creativity are important features. Study designs and techniques that provide information in verbal form are common (Patel & Tebelius, 1987).

Table 1. The design and methods of data collection and data analysis in Studies I – IV.

<table>
<thead>
<tr>
<th>Study</th>
<th>Design</th>
<th>Setting</th>
<th>Participants</th>
<th>Data collection</th>
<th>Data analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Explorative, descriptive</td>
<td>South-west of Sweden, 1993-1996</td>
<td>50 CWPD in 7 sports clubs</td>
<td>Practical experiences</td>
<td>Theoretical Reasoning</td>
</tr>
<tr>
<td>II</td>
<td>Explorative, descriptive</td>
<td>South-west of Sweden, 1993-1996</td>
<td>20 CWPD</td>
<td>Interviews</td>
<td>Phenomenography</td>
</tr>
<tr>
<td>III</td>
<td>Explorative, descriptive</td>
<td>South-west of Sweden, 1993-1996</td>
<td>20 PCWPD</td>
<td>Interviews</td>
<td>Phenomenography</td>
</tr>
<tr>
<td>IV</td>
<td>Quasi-experimental, evaluative</td>
<td>South-west of Sweden, 2000-2002</td>
<td>23 CWOPD, 20 CCWPD, 26 CWPD in 12 sports clubs</td>
<td>Questionnaire battery, Wilcoxon Sign-rank test, Kruskal-Wallis test</td>
<td></td>
</tr>
</tbody>
</table>

CWPD=children with physical disabilities; CWOPD=children without physical disabilities; CCWPD=camp for children with physical disabilities; PCWPD=parents of children with physical disabilities
The design was chosen in order to enable the problem area to be comprehensively investigated. The thesis includes three descriptive and one evaluative study. The purpose was to achieve results based on a combination of different methods, in line with Denzin and Lincoln's (1994) triangulation and Cohen and Manion's (1995) multiple method research. Denzin and Lincoln (1994) have defined five basic types of triangulation: data triangulation, which uses a variety of data sources in a study; investigator triangulation, which involves several different researchers or evaluators; theory triangulation, which uses multiple perspectives to interpret a single set of data; interdisciplinary triangulation, which uses other disciplines to broaden the understanding of method and substance, and finally, methodological triangulation, which in this context seems to be the most appropriate. Methodological triangulation normally means the use of the same method on different study occasions or different methods to study the same object. The results of the present thesis rest on a combination of methods: practical-empirical experiences based on theoretical reasoning, interviews in line with a method inspired by phenomenography, and data from questionnaires analysed by descriptive and analytical statistics. The results were also based on a variety of data sources i.e. children, young people and parents as well as theory triangulation i.e. socialisation and health.

Many researchers have advocated methodological triangulation to attain a higher level of validity and reliability and thereby a more holistic and contextual overview of the problem area under study (Stråhlman, 1997). Another advantage of triangulation may be that the researcher does not exclusively follow his or her ‘favourite’ method but has to shift the boundaries of the methods (Cohen & Manion, 1995). Method triangulation can be criticised due to the fact that methods are different and therefore cannot produce identical or similar results or shed light on an area in an identical fashion. Another weakness concerns validity due to the fact that there is no absolute guarantee that triangulation provides safer results when, for example, only interpretative qualitative sources are used (Stråhlman, 1997). Cohen and Manion (1995) argue that the combination of quantitatively and qualitatively oriented methods provides high usability, and they emphasise the advantages obtained by the use of different complementary methods.

The method of interview analysis used was inspired by phenomenography, which has been developed over a period of 30 years by Marton and colleagues at Göteborg University in Sweden (Marton & Booth, 1997). Phenomenography aims to determine the variation of conceptions found
among a specific group of people, for example school children and students. It builds on an interest in describing how people conceive phenomena in or aspects of their surroundings, using two different levels of description: the first-order and the second-order perspective. The second-order or inside perspective focuses on people’s experiences of something and how a person conceives the phenomenon. It is the second-order perspective that is unique to phenomenography (Alexandersson, 1994). The concept of conception is central to phenomenography and conceptions can be used to analyse how people conceive different situations. The empirical foundation for examining conceptions is the interview. The conceptions are identified based on each informant’s statements about the phenomenon. This includes a contextual consciousness in which context appears as the field in which conceptions are generated (Marton, 1992). Conceptions stand for that which is implied, which has never been subject to reflection and which constitutes the framework for the collected experience, on which different lines of reasoning are based. A small and heterogeneous number of participants, i.e. children and adolescents, (Study II) as well as a small number of parents (Study III) were interviewed by means of questions based on a holistic view of the human being. In the phenomenographic approach, applicability is considered to be satisfactory when the aim has been attained and categories arrived at that describe different conceptions (Marton & Booth, 1997). A limitation of qualitative studies is that the populations used for the data collection are small. Thus, it is not possible to generalise the findings in this study, as the answers only represent a small group of children, adolescents and parents. Nevertheless, their conceptions are important as well as specific to that very group of children and adolescents with physical disabilities. A certain number of interviews are required in order for different conceptions to emerge. Considering the choice of method, a small number of interviews can be regarded as a normal number in the qualitative method tradition. If more children, adolescents and parents had been interviewed, it is possible that the span of the categories would have appeared more clearly. However, with a larger amount of data material, the analysis may become superficial, whereby trust in the aim of the study may be compromised (Larsson, 1986). In qualitative studies, the interest is in discovering patterns of conceptions - whether or not the informants are representative in a statistical sense is of less interest (Trost, 1997).

The trustworthiness of the analytical work is built on the security of the data collection and the interpretation of the data by co-assessors. At the same time, a strength may be that one and the
same person conducted all the interviews and that they were all carried out under similar conditions. The researcher transcribed the interviews immediately after the meeting in order to minimise the risk of misinterpretation of facts in the interview material. An interview guide with half-structured questions was used, which were formulated so as not to be leading. Kvale (1997) claims that regarding the qualitative interview as static and placing too much emphasis on reliability and validity tests may have a limiting effect. It is important to counteract arbitrary subjectivity; however, overemphasising reliability and validity may obstruct creativity and variability. Conscientiousness is ensured through the design of the investigation and through the use of co-assessors in the analysis of the interview texts.

The use of quasi-experimental designs in areas of physical education, exercise science and sport science has increased in recent years. Quasi-experimental designs (Thomas & Nelson, 1996) are used to apply the design to real world settings while controlling as many of the threats to internal validity as possible. Eight such threats are as follows. History, which defines events occurring during the experiment that are not a part of the treatment. Maturation, which is defined as a process within the subjects linked to the passage of time. Testing, which shows the effects of one test on subsequent administrations of the same test. Instrumentation, which applies to changes in instrument calibration. Statistical regression, which refers to the fact that groups selected on the basis of extreme scores are not as extreme on a subsequent testing. The selection of biases deals with the identification of comparison groups in a non-random manner. Experimental mortality refers to the loss of subjects from comparison groups for non-random reasons. Selection-maturation interaction is specific to non-equivalent group designs where the passage of time may affect one group but not the other.

In study IV, three different interventional sports programmes were implemented and evaluated. The evaluation has been made both between and within the programmes. The threats to internal validity are obvious in, among other things, maturation and experimental mortality although the dropout rate was 1 to 3 % in the three groups, which was deemed acceptable and understandable. The selection bias could be discussed concerning the sample, which consisted of a heterogeneous group of children and adolescents with physical disabilities. This is often a reality when dealing with sports programmes for special groups, which shows the diverse situation that coaches and others have to deal with. The instrumentation could be discussed in terms of the validity of the questionnaire, which was ensured by its being scrutinised by experts in the field of sports and
health (See instrument section pp. 33-34). Furthermore, exploratory factor analyses (Norusis, 1998) were performed in order to define the construct validity, which was found to correspond well with both the theoretical basis, explaining over 60% of the total variance, and the factor loadings >.32 (Tabachnick & Fidell, 2001). The construct validity was deemed satisfactory. Regarding reliability, the Cronbach’s coefficient alpha was considered acceptable for the health oriented items (.60) and the socialisation oriented items (.82). At an early stage of instrument development, a coefficient alpha of .60 was deemed satisfactory with regard to reliability (Burns & Grove, 1993). It must also be mentioned that acceptable reliability is dependent on the sample size used in the research (Streiner & Norman, 1995), and in the present study the figures were small and the group heterogeneous. Reliability was acceptable in view of the identical questionnaires used for all the programmes and the minimal difference in questions between the pre- and the post-test. Accuracy was ensured by the use of the same procedure each time the questionnaire was handed out.

The effectiveness of different methods may vary depending on the information sought and the research context. The question of which methods to combine is not always easy to answer. Cohen and Manion (1995) consider that the choice of methods depends on the research direction and generalisability. In their opinion, the research and the research area dictate what is essential within the field. Most of the studies concerning sports and adapted physical activity for children with physical disabilities are quantitative in character and few have used qualitative approaches. The available investigations into physical activity and health have, in most cases, been carried out primarily on adults without physical disabilities (Cooper & Quatrano, 1999). It was therefore deemed important to use both qualitative and quantitative research methods. The idea of combining methods with different directions and allowing them to complement each other is realised by using a theoretical line of reasoning, based on practical empirical experiences (Study I) as a point of departure for an analysis of a pilot sports programme, thereafter conducting interview studies with the participants (Studies II and III) and, finally, analysing a new sports programme by means of questionnaire studies (Study IV). Naturally, other methods could have been used, possibly leading to a different outcome, but in this study with small heterogeneous groups, the methods chosen were deemed to be practicable.
The first sports programme (Papers I-III)

The design of the programme was influenced by previous research and experience and the fact that sport as a leisure activity plays an important role in the health and well-being of many people with disabilities (Sherrill et al., 1990; Sherrill, 1998). It is also recognised that people with disabilities have difficulties in their relations with other people and that socialisation through sport could benefit their personalities as well as integration into society (Svoboda, 1995). Sport as an aspect of outdoor activities is also particularly important for many people with disabilities (Norling, 1991; Norling et al., 1993). Rehabilitation programmes with the aim of placing greater emphasis on sport and adapted physical activity as a rehabilitation tool are less well developed (Vermeer, 1991). Special guidance in form of sport counselling and education could be used in order to prevent further deterioration in health and to increase social participation and accessibility through sport (SOU, 1990: 19; Doll-Tepper, 1991).

Therefore the aim of the programme was to use sports, such as orienteering, golf and archery, as a means of stimulating and facilitating the participation of children and adolescents in sports club activities in their community. The sports programme covered three years and was run in two municipalities in south-western Sweden. The programme was instigated by Halmstad University in co-operation with the County Council's child rehabilitation centre, local sports clubs and sports clubs for people with disabilities. During the course of the sports programme, co-operation between the Sports Federation for the Disabled, The Federation for physically disabled children and adolescents and the municipality's handicap centre was developed. In all, seven sports clubs took part in the programme, including sports clubs for people with disabilities (n=2) and sports clubs for able-bodied people (n=5). Co-operation between the two types of sports clubs was supported by monthly programme meetings and promotional sport days twice a year, in order to strengthen participation, integration and the feeling of well being.

The children and adolescents with physical disabilities could choose to take part in orienteering, golf and archery over a period of three years. Each sporting activity lasted one year, with training during both the spring term and the autumn term. The children and adolescents took part in one sporting activity at a time. The study group consisted of new participants each year. The sporting activities were chosen due to the possibilities as well as the facilities offered by the actual sports clubs and the fact that the entire family could take part. The training usually took place in the evenings with one training session per week lasting 1-2 hours, i.e. more than 16 training sessions...
over a 6-month period. Several of the clubs involved appointed a coach to be responsible for the training. These coaches had no special training in sports for persons with disabilities but a genuine interest in disability issues as well as a pedagogical knowledge about children and adolescents without disabilities. In all, some 20 coaches participated during the three-year period. The clubs themselves decided on the design of the training, and most of them chose to divide the training into a theoretical and a practical part. Within the programme, a model was designed to complement traditional habilitation interventions for children and adolescents with physical disabilities and to find forms for co-operation between the child rehabilitation centre and sports clubs for people with and without disabilities.

The strengths of the programme were: that the sports were pursued for a whole year, comprising both outdoor and indoor activities; that the practical sports counsellor served as a link between the medical and the pedagogical personnel i.e. both concerning questions about the disability and pedagogical tasks; and that the co-operation between parents and children, the habilitation centre and club life was unproblematic thanks to many dedicated individuals. The weaknesses of the programme were: that the number of children with physical disabilities was insufficient to allow for participation in all sports groups; that sometimes the children and adolescents failed to take part in the training due to transport problems; and that leaders and coaches experienced that they lacked education and knowledge about physical disabilities. However, no general plans for didactical and/or learning approaches were developed by the programme group. The coaches themselves structured the programme, which was discussed and analysed during the monthly programme meetings.

**The second sports programme (paper IV)**

Three different interventional sports programmes were implemented and evaluated by means of a questionnaire on the influence of the sports intervention on health and socialisation. The aim of the study was to evaluate the influences of interventional sports programmes on children and adolescents with and without physical disabilities, in terms of health and socialisation through sport. Experiences from the first sports programme were utilised in the planning and implementation of the second programme. For example, in the organisation of the programme, efforts were made to achieve as broad a composition of co-operation partners as possible. The organisational and practical part of the programme was located at The County Sports Federation,
which allocated time for a sports counsellor while the scientific and evaluative part was located at Halmstad University. In all, twelve sports clubs took part in the programme, including sports clubs for people with disabilities (n=2) and sports clubs for able-bodied people (n=10). The idea behind the location at The County Sports Federation was to facilitate contact with the sports clubs. Together with the findings from interviews with the children and their parents (Studies II and III), Sherrill’s (1993, 1998) nine goal areas formed an experiential foundation for the second sports programme. Cross-professional co-operation was partly achieved by active co-operation between the sports coaches and the physiotherapist at the habilitation centre on the one hand and the club leaders on the other in instructing and supporting children and adolescents with physical disabilities. Vermeer’s model (1991) inspired the sports programmes in both Studies I and IV. Above all, the final interventional component consisting of activity training by means of play and sport, suited the intentions of the programmes very well. The final component of the planned change model comprising education and support was also a suitable complement to the underlying intention of the sports programmes due to its approach to education and support. In the second programme, the club leaders were the main recipients of education and support, in order to be able to continue the activities after the project had ended. This was due to expectations that the sports clubs would assume greater responsibility for contacts with the children as well as organising the activities according to the participants’ wishes.

The strengths of the programme were: that a greater number of sports were included; that the link with to club life was enhanced thanks to the County Sports Federation’s sports counsellor; and that the co-operation between children and their parents, the habilitation centre and the club was increased with a view to establishing local co-operation groups in each municipality of the province in question. The weaknesses of the programme were: that children with physical disabilities did not receive sufficient support during some parts of the sports programme; that communication difficulties (e.g. information about training times, coaches) between sports clubs and children/adolescents sometimes resulted in their failure to turn up for training; and that the position of sports programmes within health care and club life is unclear.

*The sports programme for children with physical disabilities*

The sports programme was run in five municipalities in a county of western Sweden. The programme was organised by Halmstad University and The County Sports Federation, in co-
operation with the local authorities and the municipalities. In all, twelve sports clubs took part in the programme, including 2 sports clubs for people with disabilities and 10 sports clubs for able-bodied people. Co-operation between the two types of sports clubs was supported in order to strengthen participation, integration and the feelings of well-being. The children with physical disabilities could choose to take part in badminton, handball, basketball, sports for the disabled (boccia, halliwick-swimming), table-tennis, floor-ball, boules, judo, bowling, orienteering, riding, archery, swimming, curling, shooting, dancing, tennis, football, volleyball, athletics, golf or gymnastics over a three-year period. They were asked to state three preferences, and the sporting activity was decided upon on the basis of the greatest proximity of a relevant sports club to the young person’s place of residence.

The sporting activity for the child or adolescent with physical disabilities was included, as far as was practically possible, in the sports club’s ordinary activities but in an adapted form. Participation was on a voluntary basis. The training usually took place in the evenings with one training session per week lasting 1-2 hours, i.e. more than 16 training sessions over a 6-month period. Several of the clubs involved, who had no experience of children or adolescents with physical disabilities, appointed a coach with responsibility for disability issues to supervise the training. With the exception of advice from sports clubs for people with disabilities, these coaches had no special training in sports for people with physical disabilities. However, they did possess a genuine interest in disability issues and took part in a sports related educational programme in the field of disability during the first six months, which continued throughout the three years of the project. The clubs themselves decided on the design of the training. Within the intervention, a model was designed to complement traditional rehabilitation interventions for children with physical disabilities and to find forms for co-operation between rehabilitation, sport for healthy people and people with physical disabilities (Kristén et al., 1999). These activities were then, if possible, continued as an integrated part of the sports clubs’ activities.

The sports programme for children without physical disabilities

The sports programme took place in a county in western Sweden and was open to those who were already engaged in sports club activities that formed part of the programme. Participation during the 6-month study period was therefore limited to members of specific groups. The sports clubs,
in co-operation with the county sport federation and the university were responsible for the programme. The programme consisted of bowling, riding and golf under the leadership of the respective coaches. The training usually took place in the evenings with one training session per week lasting 1-2 hours, i.e. more than 16 training sessions over a 6-month period.

The sports camp programme for children with physical disabilities
The sports camp programme took place at two separate training camps in two different locations in western Sweden. The County Council's Rehabilitation Centre and the Active Rehabilitation Group were responsible for the programme. Each training camp was of a one week duration. These camps were characterised by intensive training with several training sessions each day. There was no integration between children and adolescents without physical disabilities and those with physical disabilities at the training camps. The coaches had experience of children and adolescents with physical disabilities as well as specialist knowledge within the different sporting activities. The children with disabilities took part in wheelchair basketball, sports for the disabled (boccia, halliwick-swimming), table tennis, floor-ball, archery, swimming, dancing, athletics and gymnastics. The training took place three times a day with each training session lasting 2-3 hours, i.e. more than 18 training sessions over a one-week period.

Participants
In the first sports programme, a total of 50 children and adolescents with physical disabilities participated (Paper I). The children and adolescents were strategically selected with regard to age, sex, sport and physical disability (Fridlund & Hildingh, 2000). The informants were 20 children and adolescents with physical disabilities, aged 9 to 15 years, 7 girls and 13 boys. The impairments included cerebral palsy (CP) (n=6), spina bifida (n=1), muscular disease (n=1), deficiency in attention, motor control and perception (DAMP) (n=6), rheumatoid arthritis (RA) (n=2), heart disease (n=1) and delayed development (n=3), (Paper II).
In the first sports programme, the parents were chosen based on a strategic selection (Fridlund & Hildingh, 2000) made with regard to age, sex, sport and physical disability of the children and adolescents who participated in a sports programme. Twenty parents of children and adolescents with physical disabilities in the 9 – 15 age group participated, of whom 12 were women and 8 were men. The parents ranged in age between 30 and 51 years. The informants (children and
parents) were connected to the county council Child Rehabilitation Centre in western Sweden (Paper III).

In the second sports programme, the participating children and adolescents, aged between 9 and 18 years, with and without physical disabilities, were divided into the following groups:

- **Children with physical disabilities (CWPD)** (n=26). The sample included boys and girls with cerebral palsy (CP), muscular disease, deficiency in attention, motor control and perception (DAMP), rheumatism, developmental disorder, and autism. The children and adolescents with physical disabilities were associated with a county council Child Rehabilitation Centre in western Sweden.

- **Children without physical disabilities (CWOPD)** (n=23). These children and adolescents were already engaged in the relevant sporting activities in sports clubs in a county of western Sweden.

- **The sports camp for children with physical disabilities (CCWPD)** (n=20). This group included boys and girls with cerebral palsy (CP), muscular disease, deficiency in attention, motor control and perception (DAMP) and spina bifida. The children and adolescents with physical disabilities were associated with a county council Child Rehabilitation Centre in western Sweden (Paper IV).

**Instruments**

In selecting the instruments for studying the influence of sporting activities on children and adolescents with physical disabilities, the major aim was to identify and measure various strategies for health and socialisation and to assess personal conceptions about sports participation. The choice fell on interviews, and a questionnaire was constructed to evaluate the influence of the sports intervention on health and socialisation. For a more detailed discussion of these instruments, see Papers II, III and IV. Practical experiences served as a basis for the development of guidelines for co-operation and the organisation of an interventional sports programme (Paper I), aimed at increasing the knowledge about sports participation, the influence of sport and affective-, psychomotor- and cognitive domains. A semi-structured interview guide was developed (Papers II and III) aimed at gaining insight into the conceptions of children and adolescents with physical disabilities and their parents about participation in a sports programme. Special attention was given to the participant’s evaluation of the sports programme and his/her situation as a person with a disability. The answers provided by the participants gave rise to
categories related to the goals of adapted physical activity in accordance with Sherrill’s (1998) holistic taxonomy.

A sport questionnaire was developed to survey important factors related to health and socialisation, a sport questionnaire was developed (Paper IV). The questionnaire was based on recent literature in the field (Thomas & Nelson, 1996; Trost, 1994), and on the results from Study II by the inclusion of 6 questions by means of pair-wise ratings derived from 6 descriptive categories. The questions in the questionnaire had five response alternatives as well as questions by means of pair-wise ratings (Osgoods semantic differential; Trost, 1994). The pair-wise ratings were influenced by visual analogue scales (Aitken, 1969). The answers of each child and adolescent were coded. The sport benefit questionnaire included 12 socio-demographic items, 12 health-oriented items and 37 socialisation-oriented items. The questionnaire dealt primarily with the following topics:

- The health dimension: influences of sport (5 items), sports club support (3 items), perceived health (2 items), and peer support (2 items)
- The socialisation dimension: experiencing nature (7 items), self-esteem (7 items) friendship (6 items), enjoyment (4 items), learning (3 items), relaxation (3 items), and physical activity (4 items)

Construct validity was examined by two explorative factor analyses (rotated varimax), explaining 63.5 % of the total variance in the health oriented dimension with an eigenvalue above 1.0 and explaining 71.3 % of the total variance in the socialisation oriented dimension with an eigenvalue above 1.0. Reliability in terms of homogeneity was examined by Cronbach’s alpha coefficient, which was 0.60 for the health oriented and 0.82 for the socialisation oriented dimension.

**Data collection**

A summary of the data collection used in different studies is presented in Table 1 (see p. 23). In study I, 50 children and adolescents with physical disabilities participated in the practical-empirical experiences. In study II the same group of children and adolescents with physical disabilities (n=20) as in study I, were interviewed in connection with the completion of the sporting activities. In study III the parents (n=20) of children and adolescents with physical disabilities were interviewed in connection with the completion of the sporting activities. In study IV three different groups were evaluated using a sport questionnaire, distributed to all participants at the beginning and end of the prescribed sports programme period: Children with physical
disabilities (n=26), Children without physical disabilities (n=23) and Participants in the camp for children with physical disabilities (n=20).

Qualitative analyses
A descriptive, qualitative design with an approach inspired by phenomenography was chosen to promote a comprehensive perspective in studies II and III. Phenomenographic research was developed by Marton at Göteborg University (Marton, 1981). Phenomenography is a way of identifying, formulating and investigating specific research questions, a specialisation which, at the same time, is highly useful when it comes to issues related to the understanding of learning in different educational environments (Marton & Booth, 1997). The first-order perspective is concerned with facts, what can be observed from the outside, and the interest is directed towards the phenomenon as such. Marton (1981) argues that phenomenography describes experiences from the second-order perspective. The second-order or inside perspective focuses on people’s experiences of something and how a person conceives the phenomenon. It is the second-order perspective that is unique to phenomenography. The research is methodologically inductive and focuses on how people experience something and their conceptions of a phenomenon. The concept of conception is central to phenomenography and can be used to analyse people’s conceptions of different situations. The empirical foundation for examining conceptions is the interview.
Each audio-taped interview was first transcribed verbatim immediately after the meeting and then read through several times in order to obtain a sense of the whole. After this, the interview material was analysed for the purpose of finding relevant statements that contained conceptions of sports participation. The analysis was focused on comparing the statements to find similarities and differences. These similarities and differences were then grouped into patterns in order to obtain an overview of how they were interconnected. After this, the patterns in the answers were critically examined to detect dimensions that required new formulations and categories to describe conceptions. At the same time, the statements were not completely one-dimensional but contained a certain degree of overlapping information. The predominant conception in the statement provided the basis for categorisation. Through the data analysis procedure that compares the whole and the parts of the interviews, a pattern finally emerged that resulted in descriptive categories, where each category was made up of the relevant conceptions. The co-
assessor in the categorisation process had knowledge of both the method used and the relevant facts. The co-assessor had access to the category descriptions and conceptions as well as the interviews but not to information about which category the different interviews belonged to. The task of the co-assessor was to verify to what extent the recognised category system was consistent with the resulting interpretation of the interviews. Thus, the co-assessor checked whether or not the categories were in agreement with the conceptions contained in the interviews.

**Statistical analyses**

Quantitative responses indicative of health and socialisation were analysed (Study IV). In addition, descriptive statistics were computed in terms of frequency tables and cross tabulations. SPSS 8.0 (Statistical Program for the Social Sciences) (Norusis, 1998) was employed for quantitative data analysis. For analysis of the sports related questionnaire non-parametric tests, such as the Wilcoxon matched-pairs sign-rank test, was used to evaluate the differences within the groups, and the Kruskal-Wallis test was used to evaluate the differences between the groups, since the variables were measured on an ordinal scale (Norusis, 1998). A p-value <0.05 was deemed to be statistically significant.

**Ethics**

The studies were approved by those with medical responsibility at the county council Child Rehabilitation Centre in Halmstad. Informed consent was obtained from parents and children prior to all investigations. In all studies (Studies I-IV), the participants were given both oral and written information before being asked to participate in the studies. In order to give the participants the opportunity to ask questions regarding the interviews in Studies II and III, the questionnaire battery in Study IV, or the research in general, the researcher’s name, address, telephone number and e-mail address were included with all written information. It was made clear in all studies (I-IV) that participation was voluntary and that the participants were free to withdraw at any time. Confidentiality was guaranteed in all studies (I-IV). This was achieved by storing the audio-taped interviews in studies II and III in a safe place. The transcriptions are still stored in a safe place at the university. Moreover, the studies are written in such a way as to ensure that the participants remain anonymous. The questionnaire battery in Study IV was coded and kept in a different place to the register, and both are now stored in a safe place at the
university. The questionnaires and registers will be decoded and destroyed after publication of the study.

SUMMARY OF THE STUDIES

Study I

In an attempt to give children and young people with physical disabilities the opportunity to satisfy their need for movement and exercise and allow them to experience the pleasure and sense of fellowship that can bring, the Habilitation Unit in southern Halland began different forms of sport-oriented group training and treatment in the 1980s. Among the various programmes on offer were wheelchair sports, music and movement, motor and psycho-motor training, aqua therapy, different swimming groups, winter and summer camps, and programmes for asthmatics, all of which proved successful. The aim of this study was to develop guidelines for co-operation and the organisation of an interventional sports programme for children and adolescents with physical disabilities i.e. to find ways of establishing permanent collaboration between for example habilitation, sports clubs for the disabled, and ordinary sports clubs. In addition, to create and test a practical model of how orienteering, golf and archery could complement traditional habilitation methods for children and young people with physical disabilities. The study was descriptive and employed practical experiences and theoretical reasoning as its method. The results of this study showed 1) the importance of developing co-operational and organisational guidelines for interventional sports programmes for children and adolescents with physical disabilities and that 2) sports such as orienteering, golf and archery can complement traditional methods in the work with disabled children. The study also illustrated 3) the importance of building co-operation between the habilitation centre, sports club activities and families of disabled children by means of a working team, as well as the importance of the sports movement opening up its activities to children and adolescents with functional disabilities in
addition to each sports club appointing a contact person with special responsibility for this target group.

**Study II**


Sport and leisure can be of significant importance for the well being and social support of children and adolescents with physical disabilities. However, it has been established that organised sport sometimes has a social construction, that favours those without disabilities. The aim of this study was, therefore, to describe conceptions of children and adolescents with physical disabilities about their participation in a sports programme. Twenty children and adolescents were interviewed by means of questions based on a holistic view of the human being. The method of analysis used was inspired by phenomenography. Six categories emerged: Getting new friends, Learning, Strengthening one's physique, Becoming someone, Experiencing nature, and Having a good time. The findings showed the great diversity of sports participation. The findings constitute an important knowledge base, which can be used in the design of sporting activities for children and adolescents with physical and mental disabilities. At the same time, the study demonstrated the importance of a sports programme where there was co-operation between actors from different sections of society, such as the healthcare services, sports clubs, handicap organisations and universities. The findings also showed the many different aspects of sports participation. Furthermore, the conceptions mirrored the difficulty of dividing people into groups and delimiting important areas. Even if the findings cannot be generalised, they nevertheless demonstrate that physical activity involves many positive factors both at individual and at societal level.
Study III

Parents of children and adolescents with physical disabilities have an important role in strengthening and supporting their children in everyday life. Children and adolescents with physical disabilities do not usually have natural access to club activities, nor do they receive the same encouragement to participate in physical activities as their peers without disabilities. The aim of this study was to describe parents’ conceptions of the influences of participation in a sports programme on their children and adolescents with physical disabilities. The data were collected from 20 parents of children and adolescents with disabilities in the 9 - 15 year age group through interviews based on a holistic view. The method of analysis used was inspired by phenomenography. Three descriptive categories emerged: Achieving good health, Being part of a social group, and Learning a sporting activity. The findings showed that the parents regarded sport as a form of health education and as a means for their children to achieve increased participation in society. The study demonstrated that a physical activity could lead to a number of positive benefits at individual level as well as facilitating greater social integration. In addition, the findings highlighted the fact that the learning process was important for empowering the children to influence their life situation. Even if the results of this study cannot be generalised, they suggest that a physical activity involves various positive aspects for the child or adolescent with a physical disability as well as facilitating their participation in society.

Study IV

Today, sport is a topic that interests and engages many people. However, pursuing sporting activities and being a member of a sports club is not a matter of course for children and adolescents with physical disabilities. The aim of the study was, therefore, to evaluate the
influences of interventional sports programmes on children and adolescents with and without physical disabilities, in terms of health and socialisation. The participants were children and adolescents aged 9 to 18 years, divided in three groups based on three sports programmes, with (n=26 and n=23) and without (n=20) physical disabilities (Table 2).

Table 2 Socio-demographic data of children and adolescents (n=69) with and without physical disabilities who took part in an interventional sports programme

<table>
<thead>
<tr>
<th>Groups</th>
<th>Participants: (n)</th>
<th>Mean age: (years)</th>
<th>Gender: boys (n)</th>
<th>Place of residence: city</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWPD</td>
<td>26</td>
<td>12</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>CWOPD</td>
<td>23</td>
<td>12</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>CCWPD</td>
<td>20</td>
<td>10</td>
<td>14</td>
<td>15</td>
</tr>
</tbody>
</table>

 CWPD=children with physical disabilities; CWOPD=children without physical disabilities; CCWPD=camp for children with physical disabilities

Three different interventional sports programmes were implemented and evaluated by means of a questionnaire dealing with the influence of the sports intervention on health and socialisation. The results revealed that the sports programme is of less benefit to children with physical disabilities (CWPD) than the sports camp programme for children with physical disabilities (CCWPD) and the sports programme for children without physical disabilities (CWOPD). This is evident in the health oriented and socialisation oriented dimensions, where the participants in the camp programme (CCWPD) experienced an improvement in health and socialisation compared with the other two programmes. The findings in the socialisation related investigation (experiencing nature, self-esteem, friendship, enjoyment, learning, relaxation and physical activity) revealed one statistically significant difference within the sports programmes; the CCWPD reported positive differences in the sub-dimension of experiencing nature (p=0.039). On the other hand, the findings revealed more statistically significant differences in the sports programmes when evaluated between the programmes: friendship (p=.007), relaxation (p=.042) and a tendency towards a difference in self-esteem (p=.058), six months after the sports programme. The CCWPD indicated decreased average scores in all sub-dimensions with the exception of enjoyment and learning, the CWPD demonstrated increased mean values in all sub-
dimensions while CWOPD showed decreased mean values in friendship, enjoyment and physical activity six months after the sports programmes. Decreased average scores indicates that the participants experienced an improvement in the dimension of socialisation. On the other hand, the findings in the health oriented investigation (influences of sport, sports club support, perceived health and peer support) revealed that the sports programmes had little influence on the actual health dimension, as measured within the groups. The CWPD reported decreased differences in the sub-dimensions of influences of sport (p=.025) and peer support (p=.003). Decreased values indicates a deterioration in the dimension of health. Although the competence of the coaches, and the intensity and structure of sports programmes have not been directly investigated, there is no doubt that they are of great significance, as it takes time to build an understanding and a preparedness to help children and adolescents with physical disabilities to take part in organised sporting activities. Continued external support is regarded as necessary in order to assist the sports clubs in implementing permanent and well-functioning activities in partnership with a personal sport and health counsellor, who advises and supports the children and adolescents to participate in physical activity.

**Practical-empirical experiences and reflections on the first sports programme**

In the implementation of the programmes, a large body of knowledge was acquired thanks to the close contact with the participants. It is possible to talk about tacit knowledge communicated by means of informal participatory observation. The following paragraphs are intended to provide an overview of some aspects of this knowledge.

Children and adolescents with physical disabilities described their positive experiences of participation in an ‘ordinary’ sports club and of meeting new friends and team leaders. They emphasised the importance of trying out and experiencing new and popular sporting activities. The parents of the children and adolescents considered that establishing new social contacts was important, both for themselves and their children. The team leaders described, in the form of diary notes, their initial feelings of uncertainty prior to meeting the children as well as in planning the activities, as they had to think and plan in an unaccustomed way. The team leaders were of the opinion that there was a great need for further education and information regarding physical disabilities. At the same time, the sports movement has no tradition of accommodating disabled people, instead leaving the matter in the hands of the sports movement for the disabled. Many of the children belonging to sports clubs considered that it was only natural that children with
physical disabilities should take part in the training but reported feeling uncertain as to how much
the new children could accomplish and how much benefit they could derive from the training.
The integration of the children in the intervention groups did not prove to be very difficult,
nor for those without. Some of the adult members of the sports clubs were initially doubtful about the chances of their children actually exercising the sport. However, this doubt proved groundless after the initial training sessions. The factors contributing to this were careful planning by the sports clubs, the special coach or the team leaders, all of whom worked with the group of children.
Other important factors were the initial division into separate training teams followed by integration into the main teams towards the end of the project period. However, problems of a more practical nature occurred, for example in connection with travel to and from the training sessions. The transport was in most cases the parents’ responsibility, and problems arose when the parents were unable to bring their child, such as when the training coincided with other activities or periods of sickness. Transport arrangements are an additional burden for single parents, and these families needed more support than two-parent families. An important aspect of the sports programme was the effort to create, as far as possible, similar conditions at the sports club for children and adolescents with and without physical disabilities, thus alleviating the need for financial support, for example, in the form of subsidised travel or fees. In other words, the sports programme was intended to facilitate the integration of children and adolescents with physical disabilities, thus making them a natural part of the sports clubs’ activities.

**Practical-empirical experiences and reflections on the second sports programme**
The sports programme (CWPD) has resulted in a number of sports clubs initiating activities for children and adolescents with physical disabilities in five municipalities of a county in southwestern Sweden. The support provided by the project group proved effective and was important in the work of broadening the sports clubs’ activities. The project group was often a necessary link between the disabled children/adolescents and the sports clubs. At least two persons were needed to co-ordinate the activities. The project group also initiated the establishment of local networks in all municipalities in the county. This is probably necessary for the continuation of sports related programmes for children and young people with physical disabilities. The step from a test activity to an ordinary club activity proved greater than expected, as it takes time to build
an understanding and a preparedness to be able to provide sports for children and adolescent with physical disabilities. Continued external support was therefore considered necessary in order to assist the sports clubs in creating permanent, well-functioning activities for these young people. The results from the participant evaluation showed, that sports such as table tennis, bowling, athletics, golf, sport for the disabled, horse riding and swimming could complement traditional methods in the work with disabled children and adolescents. Furthermore, the importance of a working team was highlighted in relation to building co-operation between the sports movement, organisations for the disabled, the habilitation service and the children and their families. This means that sport offers a wide variety of applications within habilitation and rehabilitation. Sports-oriented habilitation and rehabilitation could provide essential social support and lead to health effects in the form of physical, mental and social well-being. The results underline the need for co-operation between different social institutions as well as support for sport in order to enable children and adolescents with physical disabilities to participate in ordinary sporting activities. It may be necessary to appoint sport and health counsellor to advise and support the children and adolescents who wish to participate in physical activities.

GENERAL DISCUSSION

Initially, the question was posed as to whether sport could facilitate the health and socialisation of children and adolescents with physical disabilities, as well its inclusion as a part of a habilitation and rehabilitation programme. When reviewing the literature, it was found that while sport attracts children and adolescents with physical disabilities in many different ways, few of them actually participate in sporting activities (Blinde & Taub, 1999; Sherrill & Williams, 1996). The overall aim of this thesis is to study the possibilities offered by interventional sports programmes to children and adolescents with physical disabilities and describe in what way they can be offered meaningful physical activities as well as active participation in sports clubs, with a view to improving their health and socialisation through sport. The social and sport context will initially be discussed along with the developed model of the reasoning applied in the accomplishment phase (see Figures 1 and 2, p. 11 and 47). The different studies in this thesis investigated the influence of sports programmes on health and socialisation within sport. The actual sports programmes are built on the concept of encouraging children and adolescents with physical disabilities to adopt a healthier life style while at the same time facilitating their
socialisation into society. Sherrill’s (1993; 1998) holistic model the ”Adapted physical activity model” aims to foster an active, healthy life-style for all and defines nine goal areas in three domains. These nine goal areas are discussed and employed in a sports programme (Studies II and III), thus forming an experiential foundation for the subsequent sports programme (Study IV). Williams (1994) states that the social reality for individuals with disabilities often gives rise to feelings of inferiority and fears about being unable to look after themselves. Moreover, stereotyping frequently occurs, in which the characteristics of one type of disability are generalised and become associated with all other forms of disability. The same situation probably prevails in sport in terms of participation and accessibility as reported by Köhler (1993) and Grue (1998) with focus on the Nordic countries. Many individuals with a disability do not experience their difference as negative even if others perceive it as tragic and unfortunate (Pensgaard & Sørensen, 2002). Sørensen and Pensgaard (1999) found that athletes with different types of disabilities even argued that having a physical disability had enriched their lives. In other words, these individuals are seen as disabled only in certain contexts and not to the same extent when engaging in adapted physical activity or sports for the disabled (Pensgaard & Sørensen, 2002).

The children and adolescents with physical disabilities who took part in the sports programmes (Studies I and IV) wished to be able to pursue a sport of interest to them without being seen as disabled. As demonstrated, the conceptions of children and parents (Studies II and III) could equally well apply to children without disabilities. Disability is a relative concept (Stokkom & Kebbon, 1996), i.e. the person with a disability is defined by the nature of his/her environment and how it functions, the so-called environment relative concept of disability. This means that if the environment, in this case the sporting environment, is adapted to the abilities and needs of children and adolescents, no one need be labelled as disabled. The more society fails to meet the needs of weaker groups, the more people will fail to meet the demands of society, and thus more people will be deemed disabled (Tideman, 1997). Within a sporting context, it seems that athletes are more similar than dissimilar, regardless of their intellectual, sensory or physical abilities. An insight into different groups shows that the variance within groups is almost always larger than the variance between groups (Hanrahan, 2003). The second sports programme (Study IV) showed that the variance between groups was larger than the variance within groups. It is possible that the length and intensity of the programmes had a major impact on the results. Individuals who suffer from a
permanent disability have difficulties in their contacts with other people. A sensitive socialisation through sports can be a good basis for the development of their personalities (Svoboda, 1995). Initially, a model of the key concepts employed in the planning and work contained in this thesis was presented (see p. 11). It shows a part of the complex situation involved when attempting to inspire young people with physical disabilities to start and continue a sporting activity by means of an interventional sports programme. It also includes different components necessary for motivating participation and possible outcomes such as an active, healthy lifestyle for all (Sherrill, 1998). Important aspects are how the programmes are organised and which authorities or organisations, such as sports clubs etc, are responsible for them, as this may have a bearing on the participation of children and adolescents with physical disabilities. Sport can be used in habilitation and rehabilitation as a means of treatment and training. It is possible that, by placing greater emphasis on sport in the co-operation between the different staff members, children’s and adolescents’ chances of participating in sport will be enhanced. Sports participation can have both a positive and a negative influence on the different dimensions of health, seen in terms of physical, mental, social and spiritual/existential well-being. On the whole, the accessibility of sports clubs needs to be improved through the introduction of sport and sports programmes, for example by national programmes suitable for all, which could facilitate the socialisation of people with disabilities into society. In this context, learning means learning a sporting activity and understanding its importance for continuous, life-long physical activity. Learning is also linked to socialisation, so-called social learning.

Adapted Physical Activity is a means to gain an insight into physical activity and how to structure the planning, organisation, implementation and evaluation of a sports programme. In short, APA can be seen as an attitude towards how to teach and organise sports for children and young people with physical disabilities in a sports club environment. APA can also provide a service in identifying and solving psychomotor problems, thus allowing the realisation of a sports club activity. It is possible to link APA to habilitation and rehabilitation if it can complement more traditional habilitation and rehabilitation methods (Green & DeCoux, 1994; Kristén et al., 2002; Ohlert & Beckmann, 2002). Moreover, APA can promote the outcomes /benefits of sports club activities, such as an active, healthy lifestyle. It is possible to link APA to health if it enhances the physical, mental and social values of sports programmes (Herbert & Bressan, 1995; Kristén et al., 2003). APA can also be linked to socialisation if it can support participation in sports clubs
(Kristén et al., 1999; Patriksson, 1995; Schüle, 1996). APA is equally concerned with knowledge about disabilities and relevant methods of adapting physical activities in sports clubs. In addition, it is possible to link APA to learning to support the interaction with the other participants (Kristén et al., 2002; Svoboda, 1995).

One of the specific aims was to develop guidelines on co-operation and the organisation of an interventional sports programme for children and adolescents with physical disabilities (Paper I). The first study concluded that while it is possible to incorporate sport in habilitation and rehabilitation, the co-operation between the authorities, the children themselves and their parents must be strengthened. It is also a question of values and how sport is used as a link in rehabilitation. However, obstacles still exist to participation in different forms of physical activities (Burton & Davis, 1992; Longmuir & Bar-Or, 1994). One such obstacle is the ethos that dominates and influences attitudes within sports clubs. As the sports clubs lack a certain degree of knowledge about children and adolescents with physical disabilities, it is possible that they...
believe that these young people are best taken care of by sport for the disabled. Furthermore, sports clubs place the responsibility for the organisation of sports for special groups on coaches and other sports club personnel. When they lack the knowledge and skills, especially the pedagogical skills, needed to organise appropriate activities, it is easier to say that it is not their responsibility. The situation is better in schools because the law gives equal status to all pupils. This may be one of the factors, apart from physical barriers that are inherent in many physical activities (Grue, 1998), explaining why children with disabilities in Scandinavia and all over the world, have less leisure activities, fewer friends and lower self-esteem compared to their non-disabled peers (Levinson & Reid, 1991; Sherrill & Williams, 1996). Primary prevention interventions for children and adolescents are therefore extremely important. The foundations of future health are laid during childhood years, hence this is an optimal time to encourage positive habits and at the same time prevent ill health.

Regarding the aim of describing the conceptions of children and adolescents with physical disabilities, focusing on their participation in a sports programme (Paper II), as well as parents’ conceptions, focusing on the influences of participation in a sports programme on their children and adolescents with physical disabilities (Paper III), the studies revealed aspects that could be useful for the planning of sports programmes. The children and adolescents in these age groups are often not very communicative and have difficulties giving extensive and varied expressions to what they have experienced. There is a great deal of similarity between the findings of both children and parents, which in itself provides proof of the possibilities offered by sport. The differences were found in emphasis; while the parents emphasised the beneficial effects of sport (Bjorklund et al., 1988; Colon, 1998) the children focused more on the pleasurable and social aspects (Schüle, 1996a). Another important finding was that the children's and parents' conceptions did not differ to any significant degree from those of able-bodied children and their parents. Naturally, the personality of the interviewer can have an influence on the interview, a fact that should be taken into account when analysing the answers. At the same time, it can be considered an advantage that the same person conducted all the interviews and has extensive knowledge and experience of both the area and the children.

However, the actual findings (Papers II and III) reflect the reality of the group studied as well as their genuine sporting experiences. The results also strengthen the dimension of health and socialisation through sport by, for example, stressing the physical and social aspects (Coppenolle
et al., 1994; 1996). The findings from the children: Getting new friends, Learning, Strengthening one's physique, Becoming someone, Experiencing nature, and Having a good time represent an important knowledge bank, which can be utilised to design sporting activities for children and adolescents with intellectual and functional disabilities, as sporting activities can be seen as one of many arenas for social integration (Schüle, 1996a). At the same time, the results highlight the importance of an intervention programme, where actors from different sections of society, such as health care, clubs and associations, organisations for the disabled and universities, co-operate from a holistic point of view (Blum, 1998; Colon, 1998; SOU, 2000:91). A form of learning based on children’s and adolescents’ perspectives should be supported with deepened insights into the importance of a certain activity for the target group, for example, in terms of socialisation through sport and health. Furthermore, the learning should also be based on the perspectives of institutions, clubs, associations etc. that organise activities for the target group, with insights into the importance of education and social integration. Within habilitation and rehabilitation, as well as within leisure and sporting activities, such co-operation in the area of education and physical activities could become a support as well as aiding the development of children and adolescents with physical disabilities (Colomer, 1998; Janson, 1995).

Even if the results of the investigation cannot be generalised, they provide the information that physical activity involves many positive factors for children and adolescents with physical disabilities both at an individual and societal level. The findings from the parents in study III: Achieving good health, Being part of a social group and Learning a sporting activity also constitute an important knowledge bank, which can be used to design sporting activities for children and adolescents with physical disabilities. The sporting activities can be regarded as one aspect among many leading to social integration (Engström, 1999; Sherrill & Williams, 1996). The parents’ conceptions can also be used for educational purposes (e.g. in pedagogical aspects of the content and structure of sports programmes) as well as forming the basis for the preparation of documents setting out the goals for activities for the disabled organised by county councils, municipalities and sports clubs. The results should encourage co-operation between different social authorities and various sport support groups to facilitate participation by children and adolescents with physical disabilities in ordinary sporting activities. The parents’ conceptions could equally well apply to children without disabilities (Smith, 1993). At the same time, there is a desire for the sports programmes to have structure and continuity, partly in order for the
programme to function satisfactorily and partly to provide a secure social environment for the children. The parents considered that sport develops their children’s body, which not only enhances their sense of well-being, but also provides them with knowledge that may be of use to them throughout life (Blum, 1998; Colon, 1998; Kohn, 1990).

The wishes expressed by the parents could be met by an intervention programme where actors from different sections of the community (health care, various voluntary associations, organisations for people with disabilities and universities) co-operate, based on a holistic perspective. Support should be given to learning about the importance of physical activity as a way of achieving well-being and creating more opportunities for these children to take part in everyday activities. Learning is important from the perspectives of both parents and children as well as the institutions, clubs, associations etc that provide activities for these children and adolescents with physical disabilities (Downing, 1999; Janson, 1995). Learning is also linked to socialisation by so-called social learning, where the interaction with others in the course of a sporting activity is significant (Svoboda, 1995). Learning takes place both during conversations and discussions related to the sporting activities and in the total experience of games and physical activity. In studies II and III the learning perspective was emphasised by both children and parents. It is a question of using knowledge to empower people to exert an influence on their own situation as well as to gain a perspective on health factors, such as physical activity, good self-esteem and fellowship. Within rehabilitation, sport and sports club activities, co-operation, education and activities can serve to support and generate well-being in children and adolescents with disabilities (Coppenolle et al., 1994, 1996).

In study IV the aim was to evaluate the influences of an interventional sports programme on children and adolescents with and without physical disabilities, in terms of health and socialisation through sport. The study highlights the relevance of the structure of sports programmes, and the findings appear to favour short and intensive programmes. This need not necessarily imply that shorter programmes are preferable, rather that the implementation of sports programmes for children and adolescents with physical disabilities is complex and comprises both personal and economic resources. It is also a fundamental question about attitudes on the part of society towards the target group of children and adolescents with physical disabilities, which may constitute a hindrance towards the realisation of such a sports programme (Longmuir & Oded, 2000).
It is possible that expectations played a role in the comparisons between the different sports programmes, as the children in the longer sports programme had higher expectations than the children taking part in the sports camp. The strength and effect of the experiences are enhanced due to the short, intensive nature of a sports camp. Many of the sports clubs had not previously accepted children with physical disabilities, whereas the coaches and exercise leaders in the camp programme had great experience of the disability area. Moreover, the feeling of being the only disabled child in the group may be important in terms of the experience of fellowship and joy. This was frequently the case in the longer programme, while the camp children constituted a more homogeneous group during a shorter period of time. However, the effectiveness of different types of sport can differ when it comes to achieving the goals of socialisation and health. Due to the relatively small size of the samples, analyses at the level of individual sports were not possible. The combination of small and heterogeneous groups prevented the use of inferential statistics, which might have provided a clearer picture of the current findings.

It is possible that the instrument was too blunt to detect any major differences between the programmes and that repeated measurements might have led to a more comprehensive analysis. The instrument detected only few statistically significant findings: 2 out of 14 on the dimension of socialisation evaluated between the groups, and 1 out of 21 evaluated on the dimension of socialisation within the groups; 5 out of 8 on the dimension of health evaluated between the groups, and 2 out of 12 evaluated on the dimension of health within the groups. Furthermore, the few differences among the variables in some of the questions indicate that more pilot testing and longitudinal studies are needed to determine questions and to create a data collection protocol that will yield responses in different fields. The results also indirectly showed the need to introduce counselling for children and adolescents with physical disabilities, in order to stimulate their integration into existing sports programmes. Sports club affiliation among children and adolescents with physical disabilities seems to be weak, which indicates that barriers still exist to sports club accessibility. The effects of sports participation in interventional sports programmes on children and adolescents with physical disabilities, an area in which very little research has been done, need to be further investigated (Fenning et al., 2000; Nino et al., 2000). It could be assumed that sporting activity in itself, with its focus on body movements, could produce both unique and more general effects and experiences. Some of the findings that emerged from the studies were of a very specific nature, while others were more general in character and could be
found in other non-sporting activities. This also demonstrates that sport can be seen as one of many possible areas for social integration (Patriksson, 1995; Schüle, 1996a, 1996b; Sherrill & Williams, 1996). However, the sports programmes presented here need to be broadened and further developed in order to better serve the needs of the target group, namely children and adolescents with physical disabilities e.g. by evaluating the coaching process and the actual cooperation during sport sessions. In the second sports programme, the number of sports included were extended, and the club leaders were the main recipients of education and support, as experience from the first programme had revealed a need for support and knowledge about disabilities in order to be able to continue the activities after the project had ended.

Other differences between the two sports programmes (Study I and Study IV) were that the practical sports counsellor functioned more as an administrative sports counsellor in the second programme. This was a result of expectations that the sports clubs would assume greater responsibility for contacts with the children as well as organising the activities according to the participants’ wishes. In retrospect, the lack of a practical sports counsellor could be regarded as a disadvantage when working with children and adolescents with physical disabilities. At the same time, it demonstrates the lack of awareness on the part of society and an organisation that should automatically intervene to support these children and adolescents when they take up a sporting activity.

One possibility would be to create educational programmes within APA and sport for the disabled at the same time as introducing new professional categories that highlight the importance of sport for children and adolescents with physical disabilities. Another possibility is to employ a key person in each municipality and county council, who is knowledgeable in this area and who is solely responsible for such tasks. Furthermore, there are almost no pedagogical books and pedagogical material available in Swedish about adapted physical activity and sports for children and adolescents with physical disabilities. This area needs to be further developed. On the other hand, there are some books dealing with the general area of physical disabilities that can be used. Many similar projects seem on the whole to be practically-empirically oriented with only limited scientific evaluation.

In both Sweden (Department of Social Affairs, 2002) and Germany (Ohlert & Beckmann, 2002), sports programmes for this group are run on a more project oriented basis, and these need to be thoroughly and systematically evaluated.
Taken together, the studies (especially Studies II and III) demonstrate how children and adolescents with physical disabilities can develop, among other things, their social and health awareness by means of socialisation through sport as well as a healthy and active lifestyle. The implication for these young people is that training within habilitation and rehabilitation can be complemented by sports club programmes. Furthermore, club life usually encompasses the whole family, which means that not only the children and adolescents but also their parents and siblings can benefit from the health effects. Spending time together with other children and their families is perceived as important and can contribute to a positive development as well as counteracting social isolation. The social contacts made in sports clubs can have an important rehabilitative effect (Studies II and III). Continued external support is necessary in order to assist the sports clubs in implementing permanent and well-functioning activities in partnership with a specially appointed sport and health counsellor, who advises and supports the children and adolescents to become engaged in and continue physical activity.

A likely development is that the welfare and security that are a part of club life and human interaction will be more important in the future. Solidarity, the ability to empathise with other people, a feeling of shared responsibility and participation are essential ingredients for the society of the future. A measure of the quality and structure of a society is how it treats and views its minority groups.
CONCLUSIONS

• An overall conclusion of this thesis is that nowadays the idea behind “sports for all” nowadays is a common concept in many countries, focusing on the right of everyone, regardless of race, religion, age, sex, nationality and physical and mental state, to have the opportunity to take part in sporting activities e.g. arranged by sports clubs (Studies I-IV).

• Existing sports organisations need a strengthened support system that provides resources in form of training, consultants and materials. At the same time, a system is needed where those sports clubs or organisations that support the philosophy of “sport for all” can receive extra funding (Studies I-IV).

• Sports programmes offer possibilities to children and adolescents with physical disabilities that can improve their health and socialisation. An important part of the sports programmes are sports clubs that offer meaningful physical activities as well as active participation (Studies II-III).

• Guidelines for co-operation in and organisation of sports programme for children and adolescents with physical disabilities are of great importance and should involve the families as well as sports organisations and local authorities (Study I).

• Sports such as orienteering, golf and archery are suitable for children and adolescents with physical disabilities as a voluntary and independent physical activity (Study I).

• The children and adolescents regarded sport as a social arena for enhancing their participation in society and as a means of achieving better health through the benefits of sport. The children and adolescents also stressed the importance of knowledge and experiencing nature for stimulating an active and healthy lifestyle (Study II).

• Physical activity can involve different health aspects for the child or adolescent with a physical disability e.g. strengthening one's physique and having a good time as well as facilitating their participation in society e.g. getting new friends and becoming someone (Study II).
• The parents regarded sport as a form of health education and as a means for their children to achieve increased participation in society. The parents also stressed that the learning process was important for empowering the children to influence their life situation (Study III).

• Sports-oriented habilitation and rehabilitation could provide valuable social benefits e.g. getting new friends and being part of a social group and have positive effects on health e.g. strengthening one's physique and achieving good health (Study III).

• The second sports programme is of less benefit to children with physical disabilities (CWPD) than the sports camp programme for children with physical disabilities (CCWPD) and the sports programme for children without physical disabilities (CWOPD). It is likely that a combination of a long-term programme and a sports camp programme would be beneficial (Study IV).

• The evaluation of the influences of sports programmes shows more influences in the dimension of socialisation than in the dimension of health. Therefore, the understanding of and accessibility for children and adolescents with physical disabilities need to be improved in the sporting context and their opportunities for participation in different sporting activities be facilitated (Study IV).

**Practical and research implications**

The practical implications of this thesis are:

• Municipalities, Counties and the State should consider allocating financial resources to sports clubs that focus on sports for all, including the integration of children and adolescents with physical disabilities.

• Sport should become a part of a normal habilitation and rehabilitation programme, e.g. as a part of the individual service programme.

• Sports organisations should broaden their range of activities in order to promote adapted physical activities by a support system that includes funding for those sports clubs that organise activities for special groups.
• Exercise leaders and coaches in sports clubs should develop and implement new models of sport by including aspects such as getting new friends, learning, strengthening one's physique, becoming someone, experiencing nature and having a good time.

• Healthcare professionals, exercise leaders as well as trainers should, in co-operation with sports clubs, do everything possible to encourage children and adolescents with physical disabilities to start and continue participation in sport e.g. by developing well-designed sports programmes that built on pedagogical knowledge.

• Sports organisations should gain an insight into the experiences of sport and exercise by children and adolescents with physical disabilities as well as making use of these experiences to promote participation in sport. This means that they should involve children and parents in different positions in sports organisations e.g. as board members and coaches.

• It would be valuable if, during their education and training, healthcare professionals, exercise leaders, trainers and coaches could acquire knowledge of various issues pertaining to adapted physical activity in order to make them aware of how these children and adolescents are considered and treated in sport.

The research implications of this thesis are:
• Further research should include questions about the key factors in successful sports programmes, how to organise co-operation between all those involved in sports clubs activities and what role the school system has in sports clubs activities.

• In order to engage more children and adolescents with physical disabilities in sport, studies of sport interventions are needed that are designed from the perspective of young people with physical disabilities.

• Further and comprehensive qualitative studies of children and adolescents with physical disabilities would also be valuable in order to examine their views on how they have been
influenced by the intervention and to describe both the negative and the positive impact of the intervention.

• Further research should also adopt an intensive research approach including close observations of participation and in-depth interviews.

• The combination of qualitative and quantitative methodology holds promise for future work in the study of interventional sports programmes.

• Future work should examine potential gender differences by employing qualitative methodology that could serve as a means of triangulating the quantitative data.

• Although the level of interest, competence and the coaching methods of the individual coaches have not been directly investigated, it would be of value to undertake more in-depth studies on the influence of this type of sport intervention on the attitudes of individual coaches and as to whether the intensity, structure and competence of their coaching methods have been improved.
POPULÄRVETENSKAPLIG SAMMANFATTNING

Possibilities offered by interventional sport programmes to children and adolescents with physical disabilities; an explorative and evaluative study

Avhandlingens övergripande syfte är att belysa erfarenheter som barn och ungdomar med rörelsehinder har av att idrotta och vilken behållning de har av den fysiska aktiviteten. Dessutom studeras hur idrottsföreningar kan erbjuda en meningsfull rörelseträning och aktiv gemenskap med utgångspunkt i barns och ungdomars hälsa och socialisation in i samhället. Avhandlingen visar bland annat på handikappbegreppets komplexitet inom idrotten och på nya hälsostrategier som bygger på lekmannastöd samt vilket värde dessa har för såväl individen som samhället. Avhandlingen påvisar vikten av ett idrottsprogram där aktörer från olika delar av samhället som hälso- och sjukvården, föreningslivet, handikapporganisationerna och universitetet samarbetar.

Studien består av fyra delstudier med följande syften:
• 1. Att utveckla riktlinjer för samarbete och organisation av ett idrottsprogram för barn och ungdomar med rörelsehinder inom idrottsföreningar.
• 2. Beskriva uppfattningar hos barn och ungdomar med rörelsehinder av att delta i idrottsaktiviteter.
• 3. Beskriva föräldrars uppfattningar om deras rörelsehindrade barn och ungdomars deltagande i ett idrottsprogram.
• 4. Att utvärdera idrottsprogram inom idrottsföreningar för barn och ungdomar med och utan rörelsehinder, utifrån påverkan på hälsa och inflytande på socialisation genom idrott.

Delstudierna resulterade i följande resultat:
1. Studien visade bland annat på betydelsen av att bygga upp en samverkan mellan Habilitering, föreningsliv och familjer med barn med rörelsehinder genom en arbetsgrupp. Studien visade även att idrotter som orientering, golf och bågskytte kompletterar traditionella metoder i arbetet med barn och ungdomar med rörelsehinder.
2. I studien blev sex intervjukategori förtydlig: Att få kamrater, att lära sig, att stärka sin fysik, att bli någon, att uppleva naturen, att ha roligt. Detta utgör eniktig kunskapsbank för att lägga upp idrottsaktiviteter för barn och ungdomar med fysiska funktionshinder.
3. I studien blev tre beskrivningskategorier tydliga: Att uppnå en god hälsa, att ingå i en social gemenskap och att lära sig en idrottsaktivitet. Undersökningen visar att en fysisk aktivitet kan medföra olika positiva faktorer på individnivå samt att delaktigheten i samhället kan underlättas.


Avhandlingen belyser också betydelsen av en arbetsgrupp och att genom denna bygga upp en samverkan mellan idrottströrelsen, handikapporganisationer, habilitering, barn och familj. Även om intensitet, struktur och coachernas kompetens inte direkt undersöks är det tveklöst av betydelse - med hänsyn till att det tar tid att bygga upp en förståelse och beredskap för att underlätta för barn och ungdomar med rörelsehinder - att ta del av föreningslivets idrottsaktiviteter. Kontinuerlig hjälp och stöd är nödvändig för att underlätta för idrottsföreningarna att utveckla en bestående och välfungerande idrottsaktivitet i samarbete med en personlig idrotts- och hälsorådgivare. Detta kan i sin tur hjälpa och stödja barnen och ungdomarna i att börja och fortsätta med en idrottsaktivitet.
ACKNOWLEDGEMENTS

I would like to express my deep gratitude to everyone who assisted me in the work on this thesis. I am deeply indebted to all of you. Many people have contributed to the research over the years, especially:

All the children, adolescents and their parents, who during our meetings showed patience, motivation and willingness in providing me with the necessary information for compiling this thesis.

Professor Henning Johansson, from the Centre for Research in Teaching and Learning (CRTL), Luleå University of Technology, who has applied his innovative ideas concerning ways of organising doctoral studies, using a unique combination of new technology.

Professor Bengt Fridlund, from the School of Social & Health Sciences, Halmstad University, Department of Primary Health Care, Göteborg University and Departement of Nursing, Lund University, my principal supervisor, for his excellent guidance, never-ending support and constructive criticism from the very start to the conclusion of this work.

Professor Göran Patriksson, from the Department of Education & Educational Research, Göteborg University, my supervisor, for admirably and generously sharing his wide knowledge of the sporting world, and for offering support and advice from the very beginning to the end of this work.

Translator Gullvi Nilsson, for her excellent linguistic revision and for usefull comments about children’s and adolescent’s possibilities.

All my colleagues and friends at Halmstad University, for their friendship and constructive discussions during the work on the thesis. Lecturer Hansi Hinic for his much appreciated assistance with different statistical analysis and his encouragement at significant moments of the work. Fil. Lic. Eva Wirdheim for her support and encouragement to begin doctoral studies.
Phd Owe Stråhlman for valuable discussions after the seminars. Phd Magnus Tideman and Lecturer Ove Svensson from the former Wigforss institute, for your genuine interest and stimulating discussions. Lecturer Martin Göransson, for valuable support in constructing the figures. Phd Ole Olsson, Head of Department, who, over the years has made it possible for me to concentrate on my thesis.

All my fellow doctoral students and friends at The Centre for Research in Teaching and Learning (CRTL), Luleå University of Technology for their friendship and constructive discussions during the work on this thesis and in particular the team at the Max Hotel for broadening discussions. Thanks to Leif, Monica, Marika, Jarle, Björnar, Mary, Jan Birger and Thorbjörn. Phd Leif Nilsson for his thoughtful and valuable comments on the manuscript.

Professor Klaus Schüle and Phd Hubertus Deimel at the German Sport University of Cologne, Germany for sharing your great knowledge of rehabilitation and sports for the disabled and for your support in the research process.

Associate professor Marit Sørensen, Norwegian University of Sport and Physical Education, Oslo, Norway for her valuable criticism and input during the final seminar.

Professor Pilvikki Heikinaro-Johansson, Department of Physical Education, University of Jyväskylä, Finland for her sensitive and valuable comments on the manuscript.

My friends at the Department of Health Sciences, Boden, Luleå University of Technology, for their encouragement and interest in my studies during my two years as part-time doctoral candidate.

My former colleagues and friends at the county council’s rehabilitation centre in Halland for their support and encouragement during my 12 years of instructive work. My former director Eva Sundstén, physiotherapists Eva Parck and Birgitta Wenzel for sharing your great experience and knowledge of children and adolescents with physical disabilities.
Sport consultant Peter Gårdestedt at the County of Halland Sports Federation for your professional assistance and much appreciated co-operation in Paper IV.

All my relatives and friends for their interest in my work and their patience during various phases of the research process. Special thanks to the ”food team”, badminton team and tennis team, not forgetting the fruitful discussions during sport activities with Knut and the inspiring team work with Ulf.

My mother and father Ingrid and Gösta, for giving me courage, for always believing in me and for their interest and understanding.

And last but not least, my wife Camilla, for her love, belief in me and never-ending support when I needed it most, our children Oskar and Fredrik for keeping me in touch with reality and helping me to appreciate the important values in life. I am deeply grateful for your patience with a constantly working father.

This study was supported by the Swedish National Centre for Research in Sports, the Swedish King and Queen’s Marriage Fund, the Swedish National Association for Disabled Children and Young People (RBU), the Swedish Inheritance Fund, the County Council of Halland, the County of Halland Sports Federation, the Boden University College of Health Sciences and Halmstad University. Without this support, the thesis could not have been completed within a realistic period of time.
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Paper IV
Influence of participation in sport on the health and the socialisation of children and adolescents with physical disabilities

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Running title: Sport programmes for children with physical disabilities

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Abstract

Today, sport is a topic that interests and engages many people. However, pursuing sporting activities and being a member of a sports club is not a matter of course for children and adolescents with physical disabilities. The aim of the study was, therefore, to evaluate the influences of interventional sports programmes on children and adolescents with and without physical disabilities, in terms of health and socialisation. The participants were children and adolescents divided in three groups, aged 9 to 18 years, with (n=26 and n=23) and without (n=20) physical disabilities. Three different interventional sports programmes were used and evaluated by means of a questionnaire dealing with the influence of the sports intervention on health and socialisation. The results reveal less benefits in the sports programme for children with physical disabilities compared to the sports camp programme for children with physical disabilities and the sports programme for children without physical disabilities. The results highlight the importance of intensity, structure and the competence of the individual coaches due to the fact that it takes time to build an understanding and a preparedness to help children and adolescents with physical disabilities to take part in organised sporting activities. Continued external support is regarded as necessary in order to assist the sports clubs in implementing permanent and well-functioning activities in partnership with a personal sport and health counsellor, who advises and supports the children and adolescents to engage in physical activity.
INTRODUCTION

Today, sport is a topic that interests and engages many people. However, pursuing sporting activities and being a member of a sports club is not a matter of course for children and adolescents with physical disabilities (Blinde & Taub, 1999). At the same time, sport is of greater importance for many people with physical disabilities than for others (SOU, 1992:52, Schüle, 1996). It has been demonstrated that it is important to make all kinds of sporting activities available to children and adolescents with physical disabilities (Kristén, Johansson & Fridlund, 2000). Studies have emphasised the need for research on the benefits and influence of sport on people with physical disabilities. It should also be mentioned that available investigations into physical activity and health have, in most cases, been carried out primarily on adults without physical disabilities (Cooper & Quatrano, 1999). In the USA, it is estimated that approximately 49 million people have some kind of physical disability (Brandt & Pope, 1997). In the UK, the total number of people with one or more physical disabilities has been estimated at 6 million (Southham, 1994). In Germany, approximately 8 million people are estimated to have one or more physical disabilities (Schug, 1997). In Sweden, the corresponding figure is approximately 500 000 in the 16-64 year age group (Sunnerhagen, 1999). Of these, approximately 34 000 are children and adolescents in the 0-19 year age group, who, due to their disability, are in need of societal support interventions (Hagqvist, 1994). In a county of western Sweden, approximately 800 children and adolescents with physical disabilities are associated with the Rehabilitation Care Centre (Svensson, 2001), which is the county focused upon in this study. It is, however, difficult to draw any conclusions from these estimations in terms of the exact number or type of physical disabilities that occur. The view on personal integrity and the definition of what constitutes a physical disability vary between different countries and federal states.
The healthcare service offers habilitation, rehabilitation and technical aids, which enable people with physical disabilities to live a normal life. Efforts in this area have primarily focused on the home, housing, school and work. Games, sports and movement, both during school hours and leisure time, could be used within habilitation and rehabilitation of young people to achieve stimulation and facilitate the training of physical, mental and social abilities. Sport can also lead to a more outward-looking attitude to life, thereby contributing to the young person’s social integration (Longmuir & Oded, 2000). For children in general, the social organization and forms of social interaction are regarded as more important than the type of sport activity (Patriksson, 1995). In terms of sport socialisation it has been pointed out that most sport and physical activity can contribute to the well-being of children without as well as with disabilities (a.a.). Sport for people with physical disabilities has had a major impact insofar as it has demonstrated a range of possibilities and dimensions. Due to the benefit derived by people with physical disabilities from different types of interventional sports programmes, certain physical disabilities have become less obvious (National Institute of Public Health, 1997). People’s attitudes and behaviour also play a decisive role in the choice of activity and its commencement. Intervention in the form of a sports programme could help children and adolescents with physical disabilities to embark on a sporting activity that is suitable for them. Cross community co-operation is essential in order to facilitate their inclusion while at the same time underlining the importance of the intervention. Intervention can also form the basis for continued co-operation, research and development as well as contributing to an improvement in the various services for people with disabilities (Kristén, Fridlund & Patriksson, 1999). However, only a few investigations (Fenning et al., 2000; Nino et al., 2000) have been carried out in the field of interventional sport programmes, thus there is a lack of knowledge about the positive and negative influences. The aim of the study was therefore to evaluate the influences of interventional
sports programmes on children and adolescents with and without physical disabilities, in terms of health and socialisation.

**Literature review**

In order to facilitate the design of programmes for adapted physical activities, it is important to acquire knowledge of the physiological possibilities and limitations relevant to the participation of children and adolescents with physical disabilities in different types of sports programmes (Shephard, 1994). Several studies have shown the physical, mental and social value of sports programmes, where children with physical disabilities have reported, among other things, that sport provides an important meeting place as well as offering the possibility of making new friends and having a positive influence on their self-esteem (Herbert & Bressan, 1995). Fenning et al. (2000) point out that, in spite of the fact that several studies have emphasised the importance of sport participation for people with physical disabilities, few investigations have been carried out with regard to particular types of integrated sport or the positive and negative effects of integration in sport. The authors also demonstrated that there were few differences in the perceptions of sport and learning between adolescents with and without physical disabilities in an integrated basket-ball tournament. Nino et al. (2000) reported that few longitudinal studies of integrated sports programmes are available. In a study (a.a.) of integrated sports programmes within basket-ball and swimming, significant improvements in the skills of the participants were found, both with regard to integrated and non-integrated programmes. No significant differences were generally found in the self-rating, irrespective of the type of programme.

In the Nordic countries, only a few investigations have been carried out on the subject of sport and integration. Köhler (1993) found that children with physical disabilities have less time for sport and leisure activities, that their level of acceptance among their peers as well
as their self-esteem is lower, and that they have more psychosomatic symptoms compared to children without physical disabilities. Köhler also showed that the Nordic countries are associated with a specific welfare model. This model is based on a common foundation of values, where all citizens enjoy uniform social protection and a democratic right to a reasonable standard of living (a.a.). These basic values have had an influence on the public health policy of the Nordic countries, where improved health and well-being can be the result of interaction between different societal institutions, individuals and families. The Nordic model is further characterised by a high degree of public financing, control and supervision at state and local level. At the same time, the general welfare policy has been used as an explanation for the high level of public health in these countries (Calltorp, 1996).

In Norway, an evaluation is ongoing of a national integration project aimed at integrating people with physical disabilities into ordinary sporting organisations. Preliminary results indicated the importance of organisation, competence and information. Integration is seen both as a long-term goal and as a process, the primary aim of which is to find an optimal level of integration which is suited to its purpose and which is based not only on the features of the sport but also on the type of physical disability and motivation of the individual (Sørensen et al., 1999).

Sports clubs and their coaches play an important role in making integration possible (Kozub and Poretta, 1997, 1998). Coaches more often than not have a positive attitude to the inclusion of children and adolescents with physical disabilities. However, they perceive limitations in their own training, leading to difficulties in discerning the individual needs of children and adolescents with physical disabilities. Furthermore, the role of the coaches also has a great impact on the socialisation process of the individual child or adolescent, due to the fact that the coach and those taking part in the sport often develop a close and personal relation (Patriksson, 1995). The process by which children and adolescents acquire a
sporting identity varies, depending on the duration, type and severity of the disability. Also the knowledge, commitment and persuasiveness of socialisation agents are of importance for the socialisation (Sherrill & Williams, 1996). Children’s socialisation in sport starts early in life and organised sport is first and foremost male oriented (Engström, 1999). Sports programmes for children and adolescents with disabilities connected to sports clubs in their neighbourhood can be of importance for the health and socialisation among this group. So far, only a few investigations (Fenning et al., 2000; Nino et al., 2000) have been carried out in this field and there is a lack of results about positive and negative influences of interventional sport programmes.

**METHOD**

**Design and setting**

An evaluative design was chosen for this study, which is a part of a larger research project, in which qualitative studies were also included. The study was conducted with a pre- and a post-test and was carried out over a 6-month period in the year 2000, during which children and adolescents with and without physical disabilities participated in three different types of sporting programmes in a county of western Sweden. Those with medical responsibility at a county hospital in western Sweden gave their permission for the implementation of the study.

*The sports programme for children with physical disabilities*

The sports programme was run in five municipalities in a county of western Sweden. The programme was organised by Halmstad University and The County Sports Federation, in co-operation with the local authorities and the municipalities. In all, twelve sports clubs for disabled people (n=2) and sports clubs for healthy people (n=10) took part in the programme. Co-operation between the two types of sports clubs was supported in order to
strengthen participation, integration and the feelings of well-being. The children with physical disabilities could choose to take part in badminton, handball, basketball, sports for the disabled (boccia, halliwick-swimming), table-tennis, floor-ball, boules, judo, bowling, orienteering, horse-riding, archery, swimming, curling, shooting, dancing, tennis, football, volleyball, athletics, golf or gymnastics over a three-year period. They were asked to state three choices, and the sports activity decided upon was that with the greatest proximity of a relevant sports club to the young person’s place of residence. The sporting activity for the child or adolescent with physical disabilities was included, as far as was practically possible, in the sports club’s ordinary activities but in an adapted form. Participation was on a voluntary basis. The training usually took place in the evenings with one training session per week lasting 1-2 hours, i.e. more than 16 training sessions over a 6-month period. Several of the clubs involved appointed a coach with responsibility for disability issues to supervise the training. With the exception of advice from sports clubs for people with disabilities, these coaches had no special training in sports for people with physical disabilities, but they did possess a genuine interest in disability issues. The coaches began a sports related educational programme in the field of disability during the first six months, which continued throughout the three years of the project. The clubs decided independently on the design of the training and each coach structured the programme individually. Within the intervention, a model was designed to complement traditional rehabilitation interventions for children with physical disabilities and to find forms for co-operation between rehabilitation, sport for healthy people and people with physical disabilities (Kristén et al., 1999). These activities were then, if possible, continued as an integrated part of the sports clubs’ activities.

The sports programme for children without physical disabilities
The sports programme took place in a county in western Sweden and consisted of those who were already engaged in sport club activities forming part of the programme. Participation during the 6-month study period was therefore limited to members of specific groups. The sport clubs, in co-operation with the county sport federation and the university were responsible for the programme. The programme consisted of bowling, horse-riding and golf under the leadership of their respective coaches. The training usually took place in the evenings with one training session per week lasting 1-2 hours, i.e. more than 16 training sessions over a 6-month period.

*The sports camp programme for children with physical disabilities*

The sports camp programme took place at two separate training camps in two different locations in western Sweden. The County Council's Rehabilitation Care Centre and the Active Rehabilitation Group were responsible for the programme. Each training camp was of a one week duration. These camps were characterised by intensive training with several training sessions each day. There was no integration between children and adolescents without physical disabilities and those with physical disabilities at the training camps. The coaches had experiences of children and adolescents with physical disabilities as well as specialist knowledge within the different sporting activities. The children with disabilities took part in wheelchair basketball, sports for the disabled (boccia, halliwick-swimming), table tennis, floor-ball, archery, swimming, dancing, athletics and gymnastics. The training took place three times a day with each training session lasting 2-3 hours, i.e. more than 18 training sessions over a one-week period.
Participants

The participants were children and adolescents, aged between 9 and 18 years, with and without physical disabilities. The socio-demographic division was based on age, sex, and place of residence (Socio-economic classification, 1984) (Table 1). The participants were divided into the following programmes:

*Children with physical disabilities (CWPD).* Twenty-six children and adolescents took part. The sample included boys and girls with a cerebral palsy (CP) injury, muscular disease, deficiency in attention, motor control and perception (DAMP), rheumatism, developmental disorder and autism. The children and adolescents with physical disabilities were associated with a county council Rehabilitation Care Centre in western Sweden.

*Children without physical disabilities (CWOPD).* Twenty-three children and adolescents took part. The children and adolescents were already engaged in the sporting activities forming part of the sports programme in sports club programmes in a county in western Sweden.

*The camp for children with physical disabilities (CCWPD).* Twenty children and adolescents took part. The group included boys and girls with a CP injury, muscular disease, deficiency in attention, motor control and perception (DAMP) and spina bifida. The children and adolescents with physical disabilities were associated with a county council Rehabilitation Care Centre in western Sweden.

A total of 69 participants took part in the initial stage of the sports intervention programmes and 61 completed the intervention. Of the drop-outs, two belonged to CWPD and CWOPD respectively and four to CCWPD. The reasons for the drop-outs were that the children had not completed the sports programme or failed to fill in the questionnaire correctly.
**Instrument**

A questionnaire was constructed by the authors to evaluate the influence of the sports intervention on health and socialisation, based on recent literature in the field. The questionnaire was constructed for pre- and a post-test use. The questionnaire included 12 socio-demographic items, 12 health-oriented items and 37 socialisation-oriented items. The introductory questions on the subject of socio-demographic data were at a nominal level. The questions dealing with health, which had five response alternatives were at an ordinal level and constructed so that lower scores indicated an increased health dimension. The questions dealing with socialisation by means of pair-wise ratings were at an ordinal level and constructed so that lower scores indicated a more positive socialisation dimension. The means of pair-wise ratings (Osgoods semantic differential; Trost, 1994), were influenced by visual analogue scales (Aitken, 1969). The instrument was tested for reliability and validity in pilot studies carried out on children and adolescents with physical disabilities at a training camp and on children and adolescents without physical disabilities in a primary school and in the sports movement. Content validity and face validity of the instrument were checked by means of a literature review and by examination by experts in the field of sports and health. Construct validity was examined by two explorative factor analyses (rotated varimax) using the SPSS programme (Norusis, 1998). The first exploratory factor analysis resulted in four factors, explaining 63.5 % of the total variance in the health oriented dimension with an eigenvalue above 1.0 representing influences of sport (5 items), sports club support (3 items), perceived health (2 items), and peer support (2 items) (Table 2). The second explorative factor analysis showed seven factors in the socialisation oriented dimension, explaining 71.3 % of the total variance with an eigenvalue above 1.0 representing experiencing nature (7 items), self-esteem (7 items) friendship (6 items), enjoyment (4 items), learning (3 items), relaxation (3 items), and physical activity (4 items).
Reliability in terms of homogeneity was examined by Cronbach’s alpha coefficient, which was 0.60 for the health oriented and 0.82 for the socialisation oriented dimension (Tables 2 and 3).

Data collection

Participation was voluntary and all collected data were treated confidentially. The questionnaire was distributed by post to each of the CWPD-participants, one of which they completed and returned before the start of the sporting activities, while the second was completed and returned at the end of the programme. Some 100 letters were distributed to the members of the target group, 26 of whom responded that they wished to take part. In addition, an identical pair of questionnaires was distributed by post to the CWOPD-participants, which they completed and returned before the start of the sporting activity as well as after its completion. The questionnaires were accompanied by a letter informing the children and adolescents about the programme and asking them if they were interested in participating. Some 50 letters were distributed to the members of the target group, 23 of whom responded that they wished to take part. The participants in the CCWPD-programme completed the questionnaire at the beginning and at the end of the training camp. A letter was distributed to the children and adolescents before the start of the training camp, informing them about the programme and asking them if they were interested in participating. Some 30 letters were distributed to the members of the target group, 20 of whom responded that they wished to take part.

Statistical analysis

Quantitative responses indicative of health and socialisation were analysed. SPSS (Statistical Program for the Social Sciences) (Norusis, 1998) was utilised for quantitative data analysis.
In addition, descriptive statistics were computed in terms of frequency tables and cross tabulations. For analysis of the sports related questionnaire, non-parametric tests, such as the Wilcoxon matched-pairs sign-rank test, was used to evaluate the differences within the groups, and the Kruskal-Wallis test was used to evaluate the differences between the groups, since the variables were measured on an ordinal scale (Norusis, 1998). A p-value <0.05 was deemed to be statistically significant.

RESULTS

The mean age of the participants were 10-12 years and boys were more represented than girls. The majority of the children and adolescents lived in a city or densely populated area (Table 1). Two dimensions comprised regarding influences of participation in sport: the health oriented (Tables 4 and 5) and the socialisation oriented (Tables 6 and 7).

The dimension of health evaluated between the groups (Table 4).

In the sub-dimensions of influences of sport, perceived health and peer support, no statistically significant differences were found before the programmes started. In the sub-dimension of sports club support (p=.035), statistically significant difference was found. The CWOPD showed lower mean values compared with CCWPD and CWPD which implied a more positive level of sports club support for CWOPD. In this group low mean values also indicated a more positive level of health. The dimension of health evaluated between the three groups of children and adolescents reported statistically significant differences concerning influences of sport (p=.003), sports club support (p=.001), perceived health (p=.009) and peer support (p=.001) six months after the sports programmes. In the evaluation between the three groups, the CCWPD showed decreased mean values in all sub-dimensions, while the CWPD showed increased mean values in all sub-dimensions and
CWOPD showed a tendency towards equal mean values. This indicates that the participants in the camp for children with physical disabilities had gained a positive experience of health, that the participants in the sports programme for children with physical disabilities had gained a negative experience of health, while the children without physical disabilities showed a tendency towards no changes in their perceptions of health. In general, decreased mean values indicate an improved dimension of health.

*The dimension of health evaluated within the groups (Table 5).*

The children and adolescents in CWPD, CWOPD and CCWPD reported no statistically significant differences concerning influences of sport and perceived health six months after the sports programmes. In the sub-dimension of sports club support, the CWPD showed increased values (p=.025) which implied a less positive experience in sports club support and no differences in CWOPD and CCWPD. The sub-dimension of peer support showed statistically significant differences (increased; p=.003) which implied a deterioration in peer support for the CWPD but not for CWOPD and CCWPD. In general, increased values indicate that the participants had a less positive experience of health.

*The dimension of socialisation evaluated between the groups (Table 6).*

The sub-dimensions of experience of nature, enjoyment, learning and physical activity showed no statistically significant differences between the groups before the sports programme started. However, statistically significant differences were found concerning friendship (p=.007), relaxation (p=.042) and a tendency towards a difference in self-esteem (p=.058), six months after the sports programme. In the dimension of socialisation evaluated between the three groups of children and adolescents, the CCWPD showed decreased mean values in all sub-dimensions with the exception of enjoyment and learning. This implied a
more positive level of socialisation for CCWPD compared with the other two groups. The CWPD showed increased mean values in all sub-dimensions. CWOPD showed decreased mean values in friendship, enjoyment and physical activity which implied a more positive level of socialisation in those sub-dimensions. In general, decreased mean values indicate an improved dimension of socialisation.

The dimension of socialisation evaluated within the groups (Table 7).

The only statistically significant difference reported in the sub-dimension of socialisation was found in experiencing nature by CCWPD (decreased; p=.039) which implied that the participants had an enhanced experience of nature. No other statistically significant difference was found concerning self-esteem, friendship, enjoyment, learning, relaxation and physical activity within the groups six months after the sports programmes.

DISCUSSION

Methodological considerations

The aim of the study was to evaluate the influences of the interventional sports programmes on children and adolescents with physical disabilities in Sweden, in terms of health and socialisation. Three different interventional sports programmes were used and evaluated. The purpose of an interventional sport programme is to improve the help and support for a specific group of people, in this case children and adolescents with physical disabilities. Therefore, the evaluation has both been made between and within the programmes. The sample consisted of a heterogeneous group of children and adolescents with physical disabilities. This is often a reality when dealing with sport programmes for special groups and shows the diverse situation coaches and others have to deal with. The dropout rate was 1 to 3 % in the three groups, which was deemed acceptable and understandable. The validity of the questionnaire
was ensured by its being scrutinised by experts in the field of sports and health. Furthermore, exploratory factor analyses (Norusis, 1998) were performed in order to define the construct validity, which was found to correspond well both with the theoretical basis, explaining well over 60% of the total variance, and with factor loadings > .32 (Tabachnick & Fidell, 2001). Regarding reliability, the Cronbach’s coefficient alpha was considered acceptable for the health oriented items (.60) and with the socialisation oriented items (.82). At an early stage of instrument development, a coefficient alpha of .60 was deemed to be satisfactory with regard to reliability (Burns & Grove, 1993). It must also be mentioned that acceptable reliability is dependent on the sample size used in the research (Streiner & Norman, 1995) and in this study the figures were small and the group heterogeneous. Reliability was acceptable in the view of the identical questionnaires used for all the programmes and the minimal difference in questions between the pre- and post-test. Accuracy was ensured by the use of the same procedure each time the questionnaire was handed out. Due to the ordinal distribution of the variables and the small number of observations (individuals), a non-parametric test for comparison between and within groups was used. The Wilcoxon matched-pairs sign-rank test was used to evaluate the differences within the groups, and the Kruskal-Wallis test was used to evaluate the differences between the groups. The level of significance was set at 5%.

**Interventional considerations**

There are few studies available on the effects of interventional sport programmes (Fenning et al., 2000; Nino et al., 2000). This fact makes the present study of interest despite its limited design, which prevents any general conclusions to be drawn, but nevertheless makes it possible to discern some trends. The findings showed statistically significant differences in the sport programmes when measured between the groups. The camp for children with physical disabilities showed decreased mean values in all sub-dimensions, while the children
with physical disabilities showed increased mean values in all sub-dimensions and the children without physical disabilities reported equal or almost equal mean values six months after the sport programmes. Decreased mean values indicate that the participants experienced improved health. The intensive sport programme covering one week shows that the intensity as well as the structure of the training and the programme are influential. Although neither the competence of the coaches nor the intensity and structure of the sport programmes have been directly investigated, there is no doubt that they are of great significance, as it takes time to build an understanding and a preparedness to help children and adolescents with physical disabilities to take part in organised sporting activities. It probably means a great deal to have educated and “handicap familiar” coaches as well as being in a social context that focuses on sports and fun activities almost day and night for a week. This corresponds with the findings about the growing importance of sport in people’s lives and lifestyles (Engström, 1999). The other kind of sport programmes may demand a structure that sustains the interest in sport over a longer period of time as well as knowledge in adapting both behavioural and technical details. Sørensen et al. (1999) found that the integration process in sports clubs takes a long time and that it cannot be taken for granted that all integrated programmes are the best for the individual. Nino et al. (2000) showed the difficulties in discerning differences between integrated and non-integrated sport programmes. It is probably easier for the children and adolescents with disabilities to recognise differences in health and socialisation after the intensive week compared with the longer period. This means that regular follow-ups are needed in order to obtain information about the sport programmes over a longer period of time. The findings in the socialisation related investigation (experiencing nature, self-esteem, friendship, enjoyment, learning, relaxation and physical activity) reveal one statistically significant difference within the sports programmes; the CCWPD reported positive differences in the sub-dimension of experiencing nature. The explanation for this positive
effect could be the combination of the different outdoor sports during the intense sport programme and the time of the year (summer), contributing to the participants regarding the nature as a new experience. On the other hand, the findings show more statistically significant differences in the sport programmes when evaluated between the programmes: friendship (p=.007), relaxation (p=.042) and a tendency towards a difference in self-esteem (p=.058), six months after the sports programme. The CCWPD showed decreased average scores in all sub-dimensions with the exception of enjoyment and learning, the CWPD showed increased mean values in all sub-dimensions and CWOPD showed decreased mean values in friendship, enjoyment and physical activity six months after the sports programmes. Decreased average scores indicate that the participants experienced an improvement in the dimension of socialisation.

On the other hand, the findings in the health oriented investigation (influences of sport, sports club support, perceived health and peer support) reveal that the sports programmes had little influence on the actual health dimension, as measured within the groups. The CWPD reported decreased differences in the sub-dimensions of influences of sport (p=.025) and peer support (p=.003). Decreased values indicated a deteriorated dimension of health. Perhaps the expectations of the participants in this programme were too high, as a result of the attention it had received from various sections of society. Due to the sample sizes being too small, analyses at the level of individual types of sport were not possible. It could be that the instrument was too blunt to detect any major differences between the programmes and that repeated measurements might merely have led to a broader analysis. The instrument showed only few statistically significant findings, 2 out of 14 in the dimension of socialisation evaluated between the groups and 1 out of 21 evaluated in the dimension of socialisation within the groups; 5 out of 8 in the dimension of health evaluated between the groups and 2 out of 12 evaluated in the dimension of health within the groups. The
participants had good reason to expect a nearly perfect sports programme since, for many of them, it was the first time that they took part in sports and since the organisation and sports clubs showed a great interest in them. The other programmes, CCWPD and CWOPD, actually continued on ”a familiar path” and probably did not have to create new structures and ways of thinking. It must also be mentioned that the CWPD coaches’ education in the disability field was lower. Kozub and Poretta (1997, 1998) and also Patriksson (1995) found that the personality of the coach as well as his or her level of education in the area of disability is of the utmost importance.

This indicates that the structure and implementation of the intensive sports programme suited the children and adolescents with physical disabilities. The results from the sports programme for children and adolescents without physical disabilities also show a similar outcome. A long-term programme is needed, with high accessibility for children and adolescents with physical disabilities, who also have a lower level of physical activity than their peers without disabilities (Grue, 1998). The importance of the coaches and other significant persons in terms of awareness, level of education, comprehension and knowledge is also in focus when the socialisation oriented sub-dimensions are evaluated (Sherrill & Williams, 1996). At the same time, it is desirable to evaluate the sport programmes over a longer period of time, preferably by means of qualitative approaches to identify more fully the influences of participation in sport on the health and socialisation of children and adolescents with physical disabilities.

**CONCLUSION AND IMPLICATIONS**

The differences between the sport programmes concerning intensity and structure seem to be obvious, with the sports programme for children with physical disabilities showing fewer benefits than the sports camp programme for children with physical disabilities and the
sports programme for children without physical disabilities. This is also the case in the health oriented and socialisation oriented dimensions, where the participants in the camp programme experienced an improvement in health and socialisation compared with the other two programmes. While it encourages support for intensive sports programmes, it nevertheless indicates that barriers still exist to sport club accessibility. At the same time, there are few children and adolescents with disabilities who participate in sports. The study shows the importance of counselling to encourage young people to take part in sports programmes as well as ongoing contact between the child, family, sports organisations and other relevant authorities. Today, in many cases it is necessary to have a group of project leaders who provide a link between sports clubs and children and adolescents with physical disabilities. One or more persons are needed to co-ordinate this activity. The value of having a person who monitors the child or adolescents during the sports-club activities and who coordinates the information between the various organisations cannot be emphasised strongly enough. However, the ongoing sports programme still lacks such a person. In spite of this, the step from the sports programme for children with physical disabilities experimental activity to a regular activity in a sports club has proved greater than expected, due to the fact that it takes time to build an understanding and a preparedness to pursue sports for children and adolescents with physical disabilities. Therefore, continued external support is regarded as necessary in order to help the sports clubs to implement permanent and well-functioning activities. Sports such as table tennis, bowling, athletics, golf, horse-riding and swimming can complement traditional interventional strategies of working with children and adolescents with physical disabilities. In addition, the findings highlight the importance of a team who can work towards building co-operation between the sports movement, organisations for the disabled, habilitation centres, children and their families. Sports-oriented habilitation and rehabilitation could provide valuable social benefits and
have positive effects on health. A personal sport and health counsellor, who would advise and support the children and adolescents to participate in physical activity, could provide this. Further research could include an intensive research approach, with greater closeness to the informants in the form of observations about participation and in-depth interviews. A challenge could be the inclusion of a larger group of participants, taking account of gender and different types of disabilities.

REFERENCES


Engström LM. Idrott som social markör (Sport as a social marker). Stockholm: HLS Förlag, 1999.


Table 1 Socio-demographic data of children and adolescents (n=69) with and without physical disabilities taking part in an interventional sports programme

<table>
<thead>
<tr>
<th>Groups</th>
<th>Participants</th>
<th>Mean age:</th>
<th>Gender: boys (n)</th>
<th>Place of residence:</th>
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<tr>
<td>CWPD</td>
<td>26</td>
<td>12</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>CWOPD</td>
<td>23</td>
<td>12</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>CCWPD</td>
<td>20</td>
<td>10</td>
<td>14</td>
<td>15</td>
</tr>
</tbody>
</table>

CWPD=children with physical disabilities; CWOPD=children without physical disabilities; CCWPD=camp for children with physical disabilities
Table 2. Factor loadings in 12-item (n=69) factor analysis (principal component with varimax rotation) comprising the dimension of health.

<table>
<thead>
<tr>
<th>Item</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor 1 Influences of sport</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Do you feel that the sporting activity will do you good</td>
<td></td>
<td>.75</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Do you believe that leaders are important when you take part in sport</td>
<td></td>
<td>.73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you believe that the sporting activity will be of use to you in later life</td>
<td></td>
<td>.58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you believe that your self-confidence will be improved by taking part in sport</td>
<td></td>
<td>.58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you feel that your logical and problem-solving ability will be improved by taking part in sport</td>
<td></td>
<td>.50</td>
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</tr>
<tr>
<td><strong>Factor 2 Sports club support</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Do you think that you will learn something new at the sports club</td>
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<td></td>
<td>.73</td>
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<tr>
<td>Do you believe that you will receive help and support at the sports club</td>
<td></td>
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<tr>
<td>Do you think that anybody is interested in the fact that you are a member of a sports club</td>
<td></td>
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</tr>
<tr>
<td><strong>Factor 3 Perceived health</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>How do you perceive your health today</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.76</td>
</tr>
<tr>
<td>How do you perceive your health when compared to a friend of your own age</td>
<td></td>
<td></td>
<td></td>
<td>.73</td>
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<td><strong>Factor 4 Peer support</strong></td>
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<tr>
<td>Do you believe that you will make new friends at the sports club</td>
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<td>Do you believe that friends are important when you take part in sport</td>
<td></td>
<td></td>
<td></td>
<td>.88</td>
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</tr>
<tr>
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<td>.57</td>
<td>.71</td>
<td>.41</td>
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<tr>
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<td>1.35</td>
<td>1.29</td>
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<td>7.62</td>
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<tr>
<td><strong>% Variance</strong></td>
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<td>16.58</td>
<td>16.47</td>
<td>11.37</td>
<td>63.53</td>
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</table>
Table 3. Factor loadings in 37-item (n=69) factor analysis (principal component with varimax rotation) comprising the dimension of socialization.

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<th>Item</th>
<th>Factor and factor loadings</th>
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<td></td>
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<tr>
<td>Nature - beneficial</td>
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<tr>
<td>Nature - important</td>
<td>.84</td>
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<tr>
<td>Nature - relaxing</td>
<td>.82</td>
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<tr>
<td>Nature - exciting</td>
<td>.77</td>
</tr>
<tr>
<td>Nature - meaningful</td>
<td>.72</td>
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<tr>
<td>Nature - enjoyable</td>
<td>.71</td>
</tr>
<tr>
<td>Nature - easy</td>
<td>.53</td>
</tr>
<tr>
<td>Become someone - important</td>
<td></td>
</tr>
<tr>
<td>Become someone - meaningful</td>
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<tr>
<td>Become someone - beneficial</td>
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<tr>
<td>Become someone – enjoyable</td>
<td></td>
</tr>
<tr>
<td>Become someone - exciting</td>
<td></td>
</tr>
<tr>
<td>Become someone - easy</td>
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<tr>
<td>Become someone - relaxation</td>
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<tr>
<td>Eigenvalue</td>
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<tr>
<td>% Variance</td>
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Table 3. Factor loadings in 37-item (n=69) factor analysis (principal component with varimax rotation) comprising the dimension of socialization.

<table>
<thead>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Learning - beneficial</td>
<td>.81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning - enjoyable</td>
<td>.73</td>
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<td><strong>Factor 6 Relaxation</strong></td>
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<tr>
<td>Physically - relaxation</td>
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<td>.73</td>
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<td></td>
</tr>
<tr>
<td>Friends - relaxation</td>
<td></td>
<td>.64</td>
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</tr>
<tr>
<td>Fun - relaxation</td>
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<td><strong>Factor 7 Physical activity</strong></td>
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</tr>
<tr>
<td>Physically - beneficial</td>
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<td>.49</td>
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<tr>
<td>Physically – meaningful</td>
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<td>.72</td>
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</tr>
<tr>
<td>Physically - important</td>
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<td></td>
</tr>
<tr>
<td>Physically - enjoyable</td>
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<td>.58</td>
<td></td>
</tr>
<tr>
<td><strong>Cronbach’s alpha coefficient</strong></td>
<td>.83</td>
<td>.69</td>
<td>.85</td>
<td>.82</td>
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<tr>
<td><strong>% Variance</strong></td>
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<td>7.79</td>
<td>7.06</td>
<td>71.27</td>
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<td>1.27</td>
<td>24.23</td>
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Table 4. The dimension of health of children and adolescents with and without physical disabilities taking part in an interventional sports programme evaluated between groups.

<table>
<thead>
<tr>
<th>Sub-dimensions</th>
<th>CWPD (n=26)</th>
<th>CWOPD (n=23)</th>
<th>CCWPD (n=20)</th>
<th>p</th>
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<tbody>
<tr>
<td></td>
<td>M</td>
<td>Sd</td>
<td>M</td>
<td>Sd</td>
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<tr>
<td>Influences of sport, before</td>
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<td>.63</td>
<td>1.77</td>
<td>.58</td>
</tr>
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<td>Influences of sport, after</td>
<td>2.33</td>
<td>.66</td>
<td>1.77</td>
<td>.56</td>
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<td>Sports club support, before</td>
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<td>1.97</td>
<td>.87</td>
<td>2.32</td>
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<tr>
<td>Sports club support, after</td>
<td>3.03</td>
<td>.94</td>
<td>1.89</td>
<td>.83</td>
</tr>
<tr>
<td>Perceived health, before</td>
<td>1.88</td>
<td>.88</td>
<td>1.54</td>
<td>.67</td>
</tr>
<tr>
<td>Perceived health, after</td>
<td>2.08</td>
<td>.92</td>
<td>1.48</td>
<td>.80</td>
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<tr>
<td>Peer support, before</td>
<td>2.38</td>
<td>2.38</td>
<td>1.85</td>
<td>.66</td>
</tr>
<tr>
<td>Peer support, after</td>
<td>2.94</td>
<td>2.94</td>
<td>1.76</td>
<td>.60</td>
</tr>
</tbody>
</table>

Kruskal-Wallis test; P-value<0.05, statistically significant; M=mean; Sd=standard deviation

CWPD=children with physical disabilities; CWOPD=children without physical disabilities; CCWPD=camp for children with physical disabilities

Lower scores indicate an increased health dimension.
Table 5. The dimension of health of children and adolescents with and without physical disabilities taking part in an interventional sports programme evaluated within the groups.

<table>
<thead>
<tr>
<th>Sub-dimensions</th>
<th>CWPD (n=26)</th>
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<th>CWOPD (n=23)</th>
<th></th>
<th>CCWP (n=20)</th>
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<tr>
<td></td>
<td>Before</td>
<td>After</td>
<td>p</td>
<td>Before</td>
<td>After</td>
<td>p</td>
</tr>
<tr>
<td>Influences of sport</td>
<td>2.05</td>
<td>2.33</td>
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<td>1.77</td>
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<td>1.89</td>
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Wilcoxon matched-pairs signed-rank test; P-value<0.05, statistically significant
CWPD=children with physical disabilities; CWOPD=children without physical disabilities; CCWP=camp for children with physical disabilities
Lower scores indicate an increased health dimension
Table 6. The dimension of socialisation of children and adolescents with and without physical disabilities taking part in an interventional sports programme evaluated between the groups.

<table>
<thead>
<tr>
<th>Sub-dimensions</th>
<th>CWPD (n=26)</th>
<th></th>
<th>CWOPD (n=23)</th>
<th></th>
<th>CCWP (n=20)</th>
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<tr>
<td></td>
<td>M</td>
<td>Sd</td>
<td>M</td>
<td>Sd</td>
<td>M</td>
<td>Sd</td>
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<tr>
<td>Experiencing nature, before</td>
<td>2.60</td>
<td>1.24</td>
<td>2.59</td>
<td>1.95</td>
<td>3.36</td>
<td>2.19</td>
<td>.371</td>
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<td>Experiencing nature, after</td>
<td>3.17</td>
<td>1.55</td>
<td>2.62</td>
<td>1.73</td>
<td>2.54</td>
<td>2.21</td>
<td>.237</td>
</tr>
<tr>
<td>Self-esteem, before</td>
<td>3.90</td>
<td>1.48</td>
<td>3.83</td>
<td>1.76</td>
<td>3.47</td>
<td>2.30</td>
<td>.434</td>
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<td>1.54</td>
<td>4.10</td>
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<td>2.89</td>
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<td>.95</td>
<td>.742</td>
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<td>1.03</td>
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Kruskal-Wallis test; P-value<0.05, statistically significant; M=mean; Sd=standard deviation
CWPD-S=children with physical disabilities; CWOPD=children without physical disabilities; CCWP=camp for children with physical disabilities
Lower scores indicate a more positive socialisation dimension.
Table 7. The dimension of socialisation of children and adolescents with and without physical disabilities taking part in an interventional sports programme evaluated within groups.

<table>
<thead>
<tr>
<th>Sub-dimensions</th>
<th>CWPD (n=26)</th>
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<th>CWOPD (n=23)</th>
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<td>p</td>
<td>Before</td>
<td>After</td>
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Wilcoxon matched-pairs signed-rank test; P-value<0.05, statistically significant
CWPD=children with physical disabilities; CWOPD=children without physical disabilities; CCWPD=camp for children with physical disabilities
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