PHYSICAL EDUCATION
PAPER NO. : B. P. Ed. 4-III A3

Title:
Adapted Physical Education B. P. Ed. 3rd Year

TOPIC NO. 5
Rehabilitation

Lecture - 62
IMPORTANCE OF ADAPTED PROGRAMME IN REHABILITATION

INTRODUCTION

The relationship between man, physical activity and rehabilitation is uniquely important. The term to rehabilitate comes from the medieval Latin word "*habilitas*", meaning "to make able" and involves building bridges over disruptions that have occurred between the past and present, and with regard to control over one's life. Rehabilitation means helping the individual achieve the highest level of functioning, independence, participation and quality of life possible. The popular portrayal of sports in disability as "ability not disability counts" (e.g., Dallas Mavericks online), suggests that the aim of sport and rehabilitation are actually similar, only at different ends of the normal distribution curve. Thus, the methods of training, increasing motivation, and social conduct in sport and physical education may be of particular relevance to rehabilitation efforts and structures.

In the following pages we will be putting light on Adapted Programme, Rehabilitation and it importance particularly in context to the field of physical education and sports and the individual/s associated with it.

THE IMPORTANCE OF ADAPTED PROGRAMME IN REHABILITATION

The phrase '*mens sana in corpore sano'* (a healthy mind in a healthy body) is a famous Latin quotation of the Roman poet Juvenal of the first and second century, construed (interpreted) to mean that a healthy body is needed to produce or sustain a healthy mind. An editorial entitled with this phrase in the important medical journal Annals of Internal Medicine, highlights the role of physical activity in protecting brain structure and function, and the role of exercise in the elderly in reducing the risk for all-cause dementia and Alzheimer disease. Physical activity had an important role in the lives of Ancient cultures including the Greeks, Romans, and Jews. King Herodikos of Seylembria (5th Century BC) was claimed by Plato (translated by Lee 1955) of abusing physical activity, apparently due to this King's habit of promoting exercise in unsuitable cases. The Roman physician Galen (129-210 AD) was apparently the earliest source for describing benefits of exercise by condition and intervention details in his famous work De Sanitate Tuenda (translated by Green 1951). In the middle ages, Moses Maimonides, the Spanish physician, theologian and philosopher of the 12th century, who had a major impact on the Jewish and Arabic world at that time, praised exercise as a protective factor confronting illness as well.

The modern evolution of physical activity and sports as an active means of rehabilitation is attributed, among others, to the Swedish scholar Per Henrik Ling (1776-1839), who established in the 19th century a system of medical gymnastics in the University of Stockholm, Sweden after curing himself from rheumatism and paralysis through practicing fencing and gymnastics. The term Medical gymnastics was later transferred to other European and to American institutions of both medical and educational sciences, but was not accepted. It was transformed in the USA into corrective gymnastics and later sports for the handicapped (Strafford 1939), Special Physical Education (Dunn and Leitschuh 2005); Adapted Physical Education (e.g., Winnick 2005), and ultimately Adapted Physical Activity (APA: Reid 2003; Sherrill 2004).

The term 'adapted' is the past tense form of the word 'ADAPT', the literary meaning of the term is to make (something) suitable for a new use or purpose or to modify; to get or become adjusted to new conditions. On the basis of the literal interpretation of the term adapted, an Adapted Programme which is also known as Specialized Programmes are for individuals who have special needs and/or disabilities and who want to be involved in recreational activities. These programmes support people who have special needs and/or

disabilities to be with other people who have similar interests, abilities and needs in a safe and positive environment.

Adapted Programmes are made on the basis of the contents available in Adapted Physical Education (APE), Adapted Physical Education is the art and science of developing, implementing and monitoring a carefully designed physical education instructional programme for a learner with a disability, based on a comprehensive assessment, in order to give the learner the skills necessary for a lifetime of rich leisure, recreation and sports experiences, so as to enhance the physical fitness and wellness of the individual.

Adapted Physical Education forms a specialized branch of adapted programme and is provided to students with disabilities which define Physical Education as the development of:

- Physical and motor skills,
- Fundamental motor skills and patterns (such as: throwing, catching, walking, running, etc.) and
- Skills in aquatics, dance and individual and group games and sports (including intramural and lifetime sports.)

The beginning of Adapted Physical Education was marked with the implementation of the **Education of all Handicapped Children Act of 1975 (P.L. 94-142)**. This act recognized physical education as a direct service under which specially designed physical education programmes were made available to every handicapped child receiving a Free Appropriate Public Education. After the P.L. 94-142, the **Americans with Disabilities Act** (ADA) was enacted in the year 1990 in order to prohibit discrimination of individuals with disabilities in the public and private sectors. The Americans with Disabilities Act outlaws discrimination against a person with a disability in five spheres: employment, public services, transportation, public accommodations and telecommunications. Americans with Disability Act requires accessibility in physical education facilities. Few of its examples include: Weight rooms that accommodate wheelchair users, gym lockers that use combination locks, playground surrounded by a fence, and well lighted gymnasiums to aid students with visual impairments.

Education of all Handicapped Children Act of 1975 i.e. PL 94-142 was reauthorized in 1993 as the Individuals with Disabilities Education Act (IDEA), Individuals with Disabilities Education Act, was again reauthorized in 1997 and 2004. IDEA continued to emphasize upon FAPE (Free Appropriate Public Education), IEP (Individualized Education Programme), LRE (Least Restrictive Environment) and Physical Education as a direct educational service. With

the reauthorization, person-first terminology was instituted, and emphasis was placed on the education of students with disabilities within the general curriculum and parent involvement in the educational programmeming. Under Federal Law, in order to qualify for this special education programmeming, students must fall within one of the thirteen disability categories identified under IDEA and demonstrate an academic need.

Rehabilitation, is the next important topic to be considered before discussing the importance of Adapted Programme in the whole process of rehabilitation of an injured, disabled or individual concerned. Rehabilitation is the re-integration into society, the dictionary meaning of the term is 'to restore to good health or useful life, as through therapy and education: rehabilitate a patient; rehabilitate a prison inmate.'

Rehabilitation is a process used to give a healing touch to the patients who are suffering from physical and mental disorders, addiction, etc. Rehabilitation programme helps the patient to get back to his/her normal life and earn a livelihood. Rehabilitation plays an important role in the lives of addicts and persons who have suffered from diseases or accidents. Rehabilitation plays a key role in the lives of people who have suffered from a trauma. This programme is given to patients based on their needs. Every person's requirements vary so the programme is subjective. Personal attention is given to each patient and his or her development is monitored on regular basis.

Rehabilitation also refers to:

- **Medical and Physical Health**
    1. Physical Medicine and Rehabilitation (PM&R): PM & R is also known as **physiatry,** a branch of medicine that aims to enhance and restore functional ability and quality of life to those with physical impairments or disabilities.
    2. Physical Therapy: Physical therapy is also known as physical rehabilitation or physiotherapy, treatments and exercises concerned with remediation of physical impairments and disabilities through promotion of mobility, functional ability and quality of life.
    3. Aquatic Therapy: It comprises treatments and exercises performed in water for relaxation, fitness, physical rehabilitation, and other therapeutic benefit.
    4. Medical Nutrition Therapy (MNT): MNT is a therapeutic approach to treating medical conditions and associated symptoms via specifically tailored diet.

5. Physical Exercise: Physical exercises are bodily activities that enhance or maintain physical fitness and overall health and wellness.
6. Sports Medicine: It is a branch of medicine that focuses on physical fitness, as well as treatment and prevention of injuries related to sports and exercise.
7. Athletic Training: It consists of exercises and regimes to optimize performance and ability to participate in athletic activities.
8. Vision Rehabilitation: Medical rehabilitation to restore functional ability and improve quality of life and independence in individuals who has lost visual function through illness or injury.

- **Mental Health**
    1. Drug Rehabilitation: Medical or psychotherapeutic treatment for dependency on psychoactive substances such as alcohol, prescription drugs and street drugs.
    2. Rehabilitation (Penology): The rehabilitation of criminal behaviour.
    3. Neuropsychology Rehabilitation: Therapy aimed at improving neurocognitive function that has been lost or dismissed by disease or traumatic injury.
    4. Psychiatric Rehabilitation: A branch of psychiatry dealing with restoration of mental health and life skills after mental illness.
    5. Rehabilitation Counselling: Counselling focused on helping people who have disabilities achieve their goals.
    6. Rehabilitation Robotics: The use of robotic devices to augment rehabilitation.
    7. Tele-rehabilitation: The delivery of rehabilitation services over telecommunication networks and/or through the internet.
- **Others**
    1. Rehabilitation Engineering: It is a systematic application of engineering sciences to design, develop, adapt, test, evaluate, apply and distribute technological solutions to problems confronted by individuals with disabilities. Functional areas addressed through rehabilitation engineering may include mobility, communications, hearing, vision, cognition and activities associated with employment, independent living, education and integration into the community.
    2. Sanatorium
    3. Vocational rehabilitation: It is a process which enables persons with functional, psychological, developmental, cognitive and emotional impairments or health disabilities to overcome barriers to accessing, maintaining or returning to employment or other useful occupation

Both adapted programme as well as a rehabilitation programme works on improving the condition of individuals with deviations from normal functioning physiologically, psychologically or socially. Thus, both the programmes are basically interlinked. However, adapted physical education forms a very important part of the whole rehabilitation process.

The inclusion of adapted programme (adapted physical activity and sports) into rehabilitation services is associated with the legacy of the medical rehabilitation specialist Sir Ludwig Guttmann (1976) who was also known as the founder of the International Stoke Mandeville Games Federation. Later models of Jocheim (1990); Rimmer (1999) and Schüle and Huber (2004) suggested physical activity programmes within a health promotion delivery system of rehabilitation from hospital into the community. Today, physical activity and sports for participants with functional limitations and activity restrictions are increasingly being referred to within the framework of Adapted Physical Activity (APA), Paralympics, Special Olympics, health promotion, and rehabilitation medicine.

Adapted Physical Activity (APA), Sports and Physical Therapy play a pivotal role in rehabilitation. Many professionals and laymen exhibit difficulty in separating Adapted Physical Activity and Sport in rehabilitation from physical therapy. The differences suggested in 1961 by Lorenzen are still evident even today. The differences pointed by Lorenzen are listed below:

1. Medical orientation in physical therapy, compared to pedagogical in adapted physical activity and sports.
2. Intervention goals are mostly referring to the impairment in physical therapy compared to the whole person and participation in adapted physical activity and sports.
3. Activity is typically prescribed in physical therapy, compared to self- motivation in adapted physical activity and sports.
4. The participant is passive and active in physical therapy but only active, mostly in group settings, in adapted physical activity and sports.
5. The goal in physical therapy is mostly restricted to specific biological changes, while in adapted physical activity and sports the goal is promoting activity across the lifespan.
6. The intervention is mostly identified as treatment in physical therapy, compared to self-determined action in adapted physical activity and sports.

The importance of adapted programme in rehabilitation can be summarized as under:

- An adapted programme commonly referred to as Adapted Physical Education (APE) can play a key role in the lives and communities of people with disabilities, the same as it can for people without a disability. There is a wealth of evidence to support participation in sport and physical activity for people with a disability concerning trends, barriers and benefits of participation. Over the past three decades, numerous studies have revealed that physical activity and sport participation result in **improved functional status and quality of life among people with selected disabilities**.

- Scientific research that have been conducted across disability groups reveal that participation in sport and physical activity as designed in the Adapted Programme leads to **improved levels of physical health and well-being**.

- Involvement in Adapted programme has also shown to improve physical fitness and general mood in psychiatric patients with depressive and anxiety disorders considerably. In addition to this, sport and physical activity have been linked to **improvements in self-confidence, social awareness and self-esteem that can contribute to empowerment of people with disabilities.**

- The inclusion of adapted programme into the process of rehabilitation has shown considerable improvement in the **body structure/s and the functioning of the systems,** with an increase in the joint mobility and the neuromuscular coordination. Further the co working of Adapted programme and the therapists can effectively lead to weight reduction, alignment of posture, increase in the bone density as well as increase in the muscle mass.

- The incorporation of adapted programme into the rehabilitation process further leads to an **increase in the aerobic and/or anaerobic endurance as and when required by the sportsperson or patient under rehabilitation**. In USA, the adapted programme expert and the therapists are seen working together to restore the range of motion, increase muscle strength and power, increase the cardiovascular function as well as increase the energy efficiency.

- Participation in adapted physical education programmes such as participating in ball games or any other team activities enables the participant to **be assertive, be accepted among peers, achieve the desired level of leadership qualities, be able to compete and even assume responsibility or responsibilities.** All the above programmes are however done under the supervision of a team of experts.

- Another important function that adapted programme plays can be more clearly seen from the fact that physical activity has very tangible outcomes. When mastery and success are accomplished through learning a new motor skill, such as swimming, riding, cycling, batting, etc., or through increasing the strength needed to push the body away from the floor, thus **initiating different modes of locomotion, individuals of all ages and abilities, which ultimately leads to gain of confidence in their body and consequently their life**. Thus, fulfilling one of the most important objectives of rehabilitation that is; 'the individual gains control his life and not allow the disorder, injury or disability control it.'

- The blend of adapted programme and rehabilitation **leads to self determination and empowerment as a part of the community** related rehabilitation outcome. As we know that the principal aim of Rehabilitation is to optimize social participation and quality of life. This normally involves helping to empower the individual to decide upon and to achieve the levels and pattern of autonomy and independence that they wish to have, including participation in vocational, social and recreational activity. Adapted Physical Activity calls for increasing choice, empowerment and responsible decision making of the rehabilitation client, leading to counselling initiatives providing alternatives for participation in sport activities in the community.

- Another important factor of sports or adapted Physical activities in the rehabilitation process is that sports can be used by classification as an activity enhancing and human rights agent. One of the major agents enhancing the participation of individuals with disability in sport programmes has been the classification principle. In sports of participants with disabilities the

classification system is aimed at increasing participation of all individuals including those with severe disabilities across the life span. Therefore, ranges of functional limitations are identified, forming competitive categories enabling relatively equal but also broad enough competition. The Classification systems in sports for persons with disabilities are aimed to provide an equitable starting point based on functional ability, i.e. performance should depend upon training, talent, motivation and skill rather than on belonging to a favoured or disadvantaged group based on functional capacity. By means of the classification systems both able-bodied and relatively severely impaired participants can be included and enjoy participation for example in reverse integrated wheelchair basketball. Thus, the continuous establishment of classification systems in sports would increase the likelihood of equal status participation, conforming to the UN Convention on human rights of persons with disability (the is the Article 30 of the United Nations Commission for Equal Rights of People with Disabilities).

The importance of Adapted Physical activity in terms of physical education and sports are better elaborated under the following heads:

1. **Adaptation theory as a leading paradigm**

APA is a generic term that links physical activity with adaptation of various environmental, social and individual systems. Thus it may be viewed as a practical application of the Darwinist concept of *adaptive strategies*, i.e., a mode of coping with competition or environmental conditions on an evolutionary time scale (Darwin 1859). Adaptive strategies and *adaptive systems* are strongly anchored in contemporary information theory, mathematics and biology, referring to systems that have the capacity to change and learn from experience. Adaptation theory (Sherrill 1995; 2004) suggests a philosophy, concepts, models and strategies applicable not only to physical activity adaptations required for performing under disability conditions, but also to age, gender, and heterogeneity-related adaptation principles. The experimental work of Burton and associates (Davis and Burton 1991; Burton et al. 1993), Hutzler (2007a; 2007b) suggested a Systematic Ecological Modification Approach (SEMA) for designing, implementing and analyzing intervention outcomes, referring to five main modification criteria (task, environment, equipment, rules and instruction) widely accepted in the literature (e.g.Lieberman and Houston-Wilson 2002; van Lent 2006). This model links person and environment factors to the rehabilitation task goals, desired performance criteria as

well as limiting and facilitating factors, adheres to ICF terminology, and provides a useful guide for practice. A variety of applications for Adapted Physical Activity within the rehabilitation frame of reference are discussed in the following sections.

Inactivity epidemic

A recent source of concern, contributing to the expansion of sports in rehabilitation is the trend of sedentary lifestyle and physical inactivity, challenging the society, causing serious health problems and increasing costs for health agencies. Inactivity and its detrimental outcomes are even more common in individuals with disability. Data of Brown et al. (2005) based on a survey of 74,900 adults 50 years of age and older, depict a considerable decrease of respondents with disability being active at the recommended level (28.8 and 43.4%, respectively) and an increase in inactive respondents with disability (35.5 and 17.5%, respectively), compared to peers without disability. According to Boslaugh and Andersen (2006) only 25% of a representative sample of US adults with disability met the recommendation for moderate physical activity level. Post-rehabilitation community sport programmes are, therefore, a promising area for APA professional engagement, study and research. Based on multi site focus group and content analytic research, Rimmer et al. (2004) have identified a series of barriers and facilitators to participation in fitness and recreation programmes/facilities among persons with disabilities. Lifetime fitness and adapted physical activity programmes are becoming recognized as a crucial element in the maintenance of health and prevention of secondary complications for example in stroke survivors. Models and programmes have been suggested, focusing on a service delivery from acute through rehabilitation to post-rehabilitation community-based programmes. While in the acute programmes medical supervision dominates, the community-based programme warrants psycho-social interaction and education processes contributing to lifelong physical activity. Community based educational programmes require the pedagogical expertise of APA practitioners and thus provide a promising field for innovative design and implementation of health programmes.

The motivational nature of physical activity and sports

Physical activity has very tangible outcomes. When mastery and success are accomplished through learning a new motor skill, such as swimming, riding, cycling, batting, etc., or through increasing the strength needed to push the body away from the floor,

thus initiating different modes of locomotion, individuals of all ages and abilities gain confidence in their body and consequently their life. As proposed by Lorenzen (1961), APA is mostly accomplished in group settings, thus further providing a social motivational factor based on model learning. The advantage of motivating activities such as virtual reality in rehabilitation has been summarized elsewhere (Weiss et al. 2004). The motivational effects of APA in a health and rehabilitation context have been linked not only to initiating a desired exercise behaviour, but mainly for maintaining it, thus increasing the probability of life-long adherence (Rieder 1996). Evidence supporting the motivational effect of sport in rehabilitation is mostly qualitative and anecdotal (Hutzler and Sherrill 1999), with few exceptions, one of which comes from psychiatric rehabilitation, where based on 180 respondents, Huber (1999) determined five factors, including:

a. perceived self-efficacy and control
b. increased performance in activities of daily living (ADL)
c. social support
d. improved body-image and control, and
e. endured health competence

A model for studying and implementing physical activity in rehabilitation based on the ICF terminology and motivational theories has recently been introduced, acknowledging self-efficacy, intention and attitude as important personal attributes and transportation, accessibility, assistance, adapted equipment and supports as environmental factors.

Self-determination and Empowerment as Community Related Rehabilitation Outcomes

The principal aim of Rehabilitation Medicine are to optimize social participation and quality of life. This normally involves helping to empower the individual to decide upon and to achieve the levels and pattern of autonomy and independence that they wish to have, including participation in vocational, social and recreational activity.

APA calls for increasing choice, empowerment and responsible decision making of the rehabilitation client, leading to counseling initiatives providing alternatives for participation in sport activities in the community. Randomized comparative interventions consisting of personalized tailored counselling with regard to:

a. sport stimulation and
b. daily physical activity promotion programmes

A combined intervention of sport and exercise had increased sports participation and daily physical activity behaviour nine weeks and one year after the end of inpatient or outpatient rehabilitation, in contrast to sport only and exercise only during the corresponding rehabilitation programmes. Further initiatives based on the Saluto genesis model, have acknowledged the impact of sports as a protective factor. These factors are very much in common with the personal and environmental facilitators postulated in the ICF model. Attributes such as increased physical fitness can be recognized as protective factors in a variety of senses:

a. Buffering the detrimental effect of environmental hazards (e.g., stress;) on psychological function (e.g., depression)
b. Mediating a sense of perceived physical self-efficacy and thus facilitation motivation toward performing recreational and vocational activities, and
c. Increasing the actual capacity of accomplishing tasks in daily life and leisure time, such as gardening, crossing a busy road fast enough, enjoying the environment through hiking etc.)

Evidence supporting this approach is yet to be disclosed.

Classification as an activity enhancing and human rights agent

One of the major agents enhancing the participation of individuals with disability in sport programmes has been the classification principle. In sports of participants with disabilities the classification system is aimed at increasing participation of all individuals including those with severe disabilities across the life span. Therefore, ranges of functional limitations are identified, forming competitive categories enabling relatively equal but also broad enough competition. The Classification systems in sports for persons with disabilities are aimed to provide an equitable starting point based on functional ability, i.e. performance should depend upon training, talent, motivation and skill rather than on belonging to a favoured or disadvantaged group based on functional capacity. By means of the classification systems both able-bodied and relatively severely impaired participants can be included and enjoy participation for example in reverse integrated wheelchair basketball. Thus, the continuous establishment of classification systems in sports would increase the likelihood of equal status

participation, conforming to the UN Convention on human rights of persons with disability (Article 30 of the United Nations Commission for Equal Rights of People with Disabilities).

CONCLUSION

Adapted programme involving sports can have a positive impact on the lives of people with disabilities but many face challenges to getting involved in sport, especially in developing countries. It can play a key role in the lives and communities of people with disabilities, the same as it can for people without a disability. There is a wealth of evidence to support participation in sport and physical activity for people with a disability concerning trends, barriers and benefits of participation. Over the past three decades, numerous studies have revealed that physical activity and sport participation result in improved functional status and quality of life among people with selected disabilities.

Adapted sports and recreation programmes surveyed in 1996 and again in 2006, report overall that the health of the participants was good, and many retained the same programmeming, financial support mechanisms, leadership and participant mix over the years. Many have increased athlete participation despite financial challenges being a predominant concern. They even reported that their staying power of the participants were dependent on many factors which included leadership, participant referrals, an ample supply of volunteers, and consistent community and financial support. They felt that their success was important to the physical and psychological well-being of individuals with disabilities and that an increased focus on corporate sponsorship, participation and mentorship by those with disabilities may also assist in future growth.