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REHABILITATION:

FUNCTIONAL AND OCCUPATIONAL

INTRODUCTION

The very nature of human beings right from the primitive ages have made our ancestors to be involved in various kinds of rigorous physical activities. The primitive man had to be involved in various kinds of physical activities for his survival. Though in the present scenario the level of physical labour has gone down considerably compared to that of the primitive man, but the involvement in moderate or rigorous physical activities continues to be an integral part of the sustenance of living beings. Each and every individual performs a wide variety of movements in their day to day life. A professional in the field of Physical education and Sports is even more actively and widely involved in a variety of movements ranging from simple to complex ones; movements are a part and parcel of a sportspersons life. Just as the fact goes that movements are inseparable from the life of an athlete, a sportsperson or a physical education professional, similarly a very famous saying emphasizes on injuries related to the above category of people as, 'injuries are the ornaments of a sportsperson'.

The whole training process of a sportsperson ranges from general exercises which forms a part of the athlete's warm-up before training sessions and competitions, and plays an important role in the prevention of injuries. Sportspersons at various levels despite using all kinds' protective gears of the best quality, undergoing planned and systematic training under qualified personnel and minimizing all possible risks of injuries still encounter minor or major injuries. Many a times even the slightest bit of carelessness on the part of the individual can lead to injuries ranging from minor to fatal ones. The immediate step that follows in such cases is

first aid and treatment of the injury. However, the most important function that comes after the administration of first aid is rehabilitation. In most cases, the rehabilitation of the injured part is ignored which delays the recovery process or may even lead to permanent damage.

Rehabilitation is a process used to give a healing touch to the patients who are suffering from physical and mental disorders, addiction, etc. Rehabilitation program 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 program is given to patients based on their needs. Every person's requirements vary so the program is subjective. Personal attention is given to each patient and his or her development is monitored on regular basis.

In India, The Rehabilitation council of India (RCI) was set up as a registered society in 1986, on September, 1992 the RCI Act was enacted by Parliament and it became a Statutory Body on 22nd of June 1993. The act was again amended by the parliament on 2000 to make it more broadbased. The mandate given to the RCI are to regulate and monitor services given to persons with disability, to standardize syllabi and to maintain a Central Rehabilitation Register of all qualified professionals and personnel working in the field of Rehabilitation and special education. The Act also prescribes punitive action against unqualified persons delivering services to persons with disability.

There are various kinds of rehabilitation programs that are tailor made according to the needs of the concerned individual. Following is a list of the types of rehabilitation:

- Occupational/Vocational Rehabilitation
- Physical/Medical/Functional Rehabilitation
- Aquatic Rehabilitation
- Cognitive Rehabilitation
- Social Rehabilitation

FUNCTIONAL REHABILITATION

Human being is a complex organization of various systems functioning in proper coordination and absolute harmony with each other. Each system has its own personal importance and a unique set of functions to dispose every living second of our life. It is impossible to imagine a human body without any of the system in it. It is hard to imagine a human body functioning at its optimum when there is the slightest bit of disturbance in any of the systems of our body. A slight abnormality in the digestive system becomes a problem for the whole day; similarly irregularity in the secretion of the appropriate hormones by the respective glands can cause 'n' number of problems in the functioning of all the other systems associated to it. The two most important systems that are equally vital in our survival are the nervous system and the muscular system and the rhythmic coordination between the two.

Maintaining a fit and healthy lifestyle is an important pre-requisite to live a long and productive life. Just as an object lying at one place for a long time attracts

dust and dirt, similarly an inactive individual becomes like a magnet for different types of lifestyle related diseases as well as inactivity related illnesses which in the long run proves very harmful to the individual, thereby reducing the functional ability to minimal levels. As professionals in the field of Physical Education and Sports, we are always at a liberty of enjoying a more active schedule in our day to day life. However even in our field inactivity takes dominance in the middle and later stages of life due to various factors which may be from the personal or professional front, it makes people, even from our profession to become victims of inactivity. The major cause of functional limitation particularly in the field of Physical Education and Sports are injuries. Ranging from a minor sprain to major fractures, athletes at various levels are vulnerable to them. At some point or the other we have come across various instances where an individual suffers injuries that do not heal even for the rest of his life. But that does not mean that the sportspersons professional life has come to an end, at this very point of times focus should be places on the following three important aspects:

- First-aid provided to the injured;
- The recovery from the injury;
- The rehabilitation of the injured part;

Our area of focus in this very text is the third aspect that is the rehabilitation of the injured part.

Rehabilitation, as we know is a specialized branch of medicine that helps to improve the condition of an injured or disabled person. Rehabilitation is the combined and coordinated use of medical, social, education and vocational measures for retaining the individual to the highest possible level of functional ability.

The dictionary meaning of rehabilitation is ‘to restore an individual to healthy or normal life by training and therapy after imprisonment, addiction or illness.’

The World Health Organization says that "Rehabilitation of people with disabilities is a process aimed at enabling them to reach and maintain their optimal physical, sensory, intellectual, psychological and social functional levels. Rehabilitation provides disabled people with the tools they need to attain independence and self-determination."

Having understood the concept of rehabilitation, it will now be proper to introduce the term Functional Rehabilitation.

Meaning

Functional rehabilitation also referred to as Physical and/or medicine rehabilitation is a branch of medicine that aims to enhance and restore the functional ability and quality of life of those with physical impairments or disabilities. Although, Functional rehabilitation in the general athletic and fitness industry is a relatively new mainstream concept, however, professional athletes have for long understood the benefits that increased strength (an ability to overcome resistance), balance, stability (also referred to as equilibrium), flexibility (range of motion) and endurance (the ability to delay the onset of fatigue) can bring to their game. Functional rehabilitation is an extension of the traditional elements of physical therapy. Functional Training involves more than simply increasing the force-producing capability of a muscle or

group of muscles. Rather, it requires physical modification to enhance the coordinated working relationship between the nervous and muscular systems. Functional Rehabilitation involves performing controlled movements in an area of dysfunction, in such a manner that the improvement in strength, conditioning (A process of physical modification by which a patient comes to associate a desired behaviour with a previously unrelated physical activity) and coordination (Harmonious functioning of muscles or groups of muscles in the execution of movements.) directly improves the performance of movements so that an individual's activities of daily living are easier to perform.

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Cross Functional Rehabilitation

Functional rehabilitation being a new mainstream concept has had an impact on the thought process of the athletes about its benefits to their sports performance. Cross Functional Rehabilitation, on the other hand is a unique program that combines the specialty of Chiropractic, physical therapy and strength and conditioning with hands on education all in one facility. This allows not only improving athlete's strength, flexibility and endurance, but also in most cases eliminating any previous pain or limitations due to injury. This 360° approach gives patients the absolute best outcome in the shortest period of time.

Chiropractic being a form of alternative medicine mainly focused on diagnosis and treatment of mechanical disorders of the musculoskeletal system particularly that related to the spine, as they believe that these disorders affect general health via the nervous system. **Physical therapy** which is also a part of cross functional rehabilitation is another dynamic and exciting healthcare profession. Physical therapists who have thorough knowledge of the body, use therapeutic exercise, education, manual techniques and modalities to help lessen disability, decrease pain and improve overall bodily function.

Purpose

The purpose of functional rehabilitation is to return the athlete to highly complex movement patterns such as athletics.

The primary goal of Cross Functional Rehab Specialists is to transfer the improvements by functional rehabilitation to the area of dysfunction by enhancing the performance of the entire neuromuscular system. This highly specialized rehabilitation will help every athlete recover faster and perform better.

Scope

The common conditions that are treated by the physical or functional rehabilitation therapists include amputation, spinal cord injury, sports injury, stroke, musculoskeletal pain syndromes such as low back pain, fibromyalgia, and traumatic brain injury (TBI). Cardiopulmonary rehabilitation involves optimizing function in those afflicted with heart or lung disease. Chronic pain management is achieved through a multidisciplinary approach involving psychologists, physical therapists, occupational therapists, exercise therapists, anesthesiologist, and interventional procedures when indicated. In addition to the previous methodology, stroke is often treated with the help of a speech therapist and recreational therapist when possible. Physical medicine and rehabilitation physicians utilized electro diagnostic medicine studies to help diagnose patients with symptoms of numbness, cramps or tingling.

Specialized sub- specializations

Six formal sub-specialisations are recognized by the field in the United States:

- Hospice and Palliative Medicine
- Neuromuscular Medicine
- Pain Medicine
- Pediatric Rehabilitation
- Spinal Cord Injury Medicine
- Sports medicine

Other sub-specialities within the field that are recognized include the following:

- Musculoskeletal Pain Management
- Intervention Psychiatry
- Surgical Rehabilitation
- Rheumatological Rehabilitation
- Obesity and Other Lifestyle Disease Modifications
- Cardiopulmonary Rehabilitation
- Amputee Care
- Electrodiagnostic Medicine
- Traumatic Brain Injury (TBI)

Procedure

In addition to the traditional elements of physical therapy such as strength (the application of high force against a heavy resistance) and flexibility, the functional rehabilitation program incorporates agility and proprioceptive/kinesthetic training, which enables the athlete to participate at pre injury levels of activity while reducing the risk of recurrent injury. The functional rehabilitation program is designed to progress the athlete from simple activities, such as walking or jogging, to highly complex sport-specific activities that require refined levels of proprioceptive acuity. The final phase of the functional rehabilitation program determines when the athlete is ready to resume participation in their respective sport. This is a very important and sometimes overlooked component of the functional rehabilitation program. The decision for returning an athlete to participation should be made using objective assessments of function that simulate sport activity whenever possible. Last, return to sport activity should be done gradually. Progression into the sport activity is essential to a full and healthy return to participation.

The Nationwide Children's Hospital in Columbus, has launched a Nationwide Children's Sports Medicine Functional Rehabilitation program, which is an aggressive program that is designed to fully return their patients to their pre injury level. The program is provided by licensed athletic trainers who take into account any de-conditioning that may take place. Their specialists monitor the functional mechanics for any unnatural compensations and also make sure that the corrections are made to prevent re-injury. The major components that they include are flexibility, muscle strength, power, balance, agility and functional coordination or body control.

Closed kinetic chain and functional rehabilitation, also have lately received increased attention in the rehabilitation community. An analysis of these biomechanical events (in the foot, ankle, and knee under open versus closed chain conditions) supports the notion that function results from the integration of muscles and joints to achieve desired outcomes. This leads to the conclusion that rehabilitation exercises, in order to be functional, must demand integration of muscular activity, must be of a closed kinetic chain nature, and must challenge the utilization of normal proprioceptive mechanisms.

Functional rehabilitation is one of the most important forms of rehabilitation in the field of physical education and sports as well. We are well aware that despite monitoring protection from all aspects sportsperson involved in sports and games, whether they are individual or team events have to encounter unforeseen challenges leading to minor or acute injuries. Most of the experts or trainers in fact all the trainers and experts render the first aid required for the considered injury, but the part that is neglected the most is to restore the proper functioning so as to return to its original state, i.e. the rehabilitation of the injured part. Thus, the knowledge of functional rehabilitation is extremely important for a physical education professional or trainer.

Functional Rehabilitation in India

According to a list provided by the National Leprosy Eradication Program working tirelessly to eradicate leprosy, there are atleast 32 Functional RCS (reconstructive surgery) and Rehabilitation institutions supported by the World Health Organization under the International Federation of Anti-leprosy Associations (ILEP) existing in almost all parts of India. A list of 7 Medical Colleges/PMR institutions from Bihar, Orissa, Jharkhand, New Delhi and West Bengal has also been provided that are facilitated for RCS with ILEP support. 9 Physical Medicine and Rehabilitation Centres (PMR)/institutions are also being upgraded in the states of Assam, Chhattisgarh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and Uttar Pradesh. Further there are 3 Central Institutions Located in Tamilnadu, Chhattisgarh and Uttar Pradesh for providing RCS services as well.

- **VARDAN**

Vardan, a welfare initiative from the times group, with its office in New Delhi, India, working tirelessly in this area for more than 10 years now, brings a unique and effective treatment system that focuses on the optimum performance of the body. Vardan promotes health and healing in communities. Vicky and Gregory Johnson (PT, FFFMT, FAAOMPT, Co-Founder of Physical Art USA) developed a Functional Manual Therapy (FMT) an integrated evaluation and treatment system that promotes optimum human performance by enhancing total body mobility and core first postural and movement strategies. The unique aspect of the FMT is the integration of the mobility treatment with neuromuscular facilitation (ability to initiate the right muscles at the right time with proper strength and endurance) and motor control (the ability to effectively produce coordinated postural and movement strategies).

The ultimate goal of FMT is to provide the patient with the mechanical ability and the neuromuscular tools of strength and endurance and proprioceptive awareness to become self sufficient and more proficient in all areas of human performance.

Other organizations provide services in the form of Physical therapy and/or physiotherapy in hospitals and physiotherapy clinics in various parts of the country. Many educational and professional institutions also provide degrees and diplomas in this discipline.

OCCUPATIONAL/VOCATIONAL REHABILITATION

An occupation is a job, an activity, often regular, and performed in exchange of payment, vocation is also an occupation but in this case a person is specially drawn to it or he is suited, trained or qualified for the same. In any case, one get involved in an occupation or vocation to get payments so as to survive in this material world. Today nothing is available for free. Even to breathe pure air we have to travel to exotic locations by paying a fairly good amount of money. Today we have to pay even for basic amenities like food, clothing and shelter. It is unimaginable or next to impossible to survive and have a good quality of life if we do not have any source of income. Each and every person on earth strives to earn in order to live a socially and psychologically satisfying life. But the potential of injury and/or disability is persistent at our work place as well. We hear of minor and major accidents at various

work places every now and then, in some cases the damage is beyond repair, whereas in others there is a scope of improvement and a hope to return to normalcy. The damage of workplace varies in nature, they can be physical, mental, sociological, geographical, etc. In order to deal with all these injuries and/or disorders that are caused at the workplace there is a specialized branch of rehabilitation that is commonly referred to as Occupational or Vocational rehabilitation.

Meaning

Occupational/Vocational Rehabilitation is the science and practices of returning injured workers to a level of work activity that is appropriate to their functional and cognitive capacity, both of which are influenced by the severity of a worker's injuries. In this whole process the role of an occupational therapist (OT) is indispensable.

Many workers have an increased risk of developing common mental disorders (CMDs) in the workplace due to job stressors such as job insecurity, bullying or psychological harassment, low social support at work, employee perceptions of fairness in the workplace, and an imbalance between job demands and rewards. These CMDs may include anxiety disorders, alcohol dependence, addiction-related disorders, suicidal ideation, and depression.

The role of the occupational therapist in the workplace is to facilitate individuals' ability to return to work. Occupational therapists assist their clients in reaching their maximum level of function with the aim of meeting the physical and emotional demands of their job. Occupational therapists are also qualified to make recommendations to employers on how to downgrade job demands to meet the functional status of an employee in order to prevent further injury during occupational rehabilitation. Individual functional capacity evaluations are used to screen for person-environment fit. Industrial occupational therapists use a collaborative approach involving the workers and employers to encourage a supportive work environment that empowers the worker to reach productivity and other work related goals. Occupational rehabilitation's therapeutic interventions in occupational rehabilitation include developing assertiveness; communication and interpersonal skills; controlling anger; and stress management.

This particular type of Rehabilitation is also recommended for those victims who do have lost some important skills after they have met with a paralytic stroke or any unfortunate major accident. We have to perform these skills every day in our life, without which it is impossible to survive. Skills like writing, reading, cooking food etc. We lose this skill if our brain is injured; therefore victims lose interest in communicating with other people. This particular therapist helps you to do regular physical exercises, meditation to make your muscle strong. The patient is given special care by their counselor and psychologist so as to restore the capacity of the individual to earn a livelihood.

Purpose

The purpose of occupational therapy/occupational rehabilitation/vocational rehabilitation is to help the patient to regain the ability to do normal everyday tasks.

Scope

Vocational rehabilitation services are available to all disabled persons, whatever the origin and nature of the disability and whatever their age, provided they can be prepared for, and have reasonable prospects of securing and retaining, suitable employment.

Procedure

The purpose of occupational/vocational rehabilitation may be achieved by restoring old skills or teaching the patient new skills to adjust to disabilities through adaptive equipment, orthotics, and modification of the patient's home environment. Occupational therapy is mainly prescribed to rehabilitate a patient after amputation, arthritis, cancer, cardiac disease, head injuries, neurological injuries, orthopedic injuries, pulmonary disease, spinal cord disease, stroke, and other injuries/illnesses. The duration of the occupational therapy program varies depending on the injury/illness being treated and the patient's response to therapy.

Occupational/vocational therapy includes learning how to use devices to assist in walking (artificial limbs, canes, crutches, walkers), getting around without walking (wheelchairs or motorized scooters), or moving from one spot to another (boards, lifts, and bars). The therapist will visit the patient's home and analyze what the patient can and cannot do. Suggestions on modifications to the home, such as rearranging furniture or adding a wheelchair ramp, will be made. Health aids to bathing and grooming could also be recommended.

In today's rapidly changing trends in the professional fields it is very essential for a physical education professional to adapt to the changing conditions as it is very essential for the professional to do so as delay on his part will lead to increasing the work load on the professional. Further physical injuries also leads to deterioration of the performance of a physical education professional as involvement in physical activities is a part and parcel of his profession. Inadequacy in work leads to physical as well as psychological issues that leads to vocational or occupational disorders.

The Pennsylvania Office of Vocational Rehabilitation or OVR is one such organization that provides vocational rehabilitation services to help persons with disabilities prepare for, obtain, or maintain employment. OVR provides vocational rehabilitation to eligible individuals with disabilities, both directly and through a network of approved vendors. They provide services on an individualized basis. Statewide OVR has 21 District Offices staffed with trained, professional Vocational Rehabilitation Counselors which serve Pennsylvania in all 67 counties. The OVR provides a wide range of Vocational rehabilitation services to eligible applicants. Some services help to overcome or lessen the disability; others directly help one to prepare for a career. The services are provided on the basis of an individual's need and not everyone is need to take all the services. OVR services include:

- **Diagnostic services:** Medical, psychological and audiological examinations and tests used to better understand the disability and needs for specific types of services.
- **Vocational evaluation:** Aptitude, interest, general ability, academic exams, work tolerance and 'hands-on' job experience used to understand the job potential.
- **Counseling:** Vocational counseling helps to better understand the potential, so as to rely on one's ability, to set realistic goals, to change them when necessary, to develop successful work habits and to begin a satisfying career. Counseling is available throughout the rehabilitation program.
- **Training:** Education to prepare for a job including, but not limited to, basic academic, vocational/technical, college, on-the-job training, independent living skills and personal and work adjustment training.
- **Restoration services:** Medical services and equipment such as physical therapy, wheelchairs and automobiles hand controls can be provided to enable one to pursue and achieve employment.
- **Placement assistance:** Counseling, job-seeking programs, job clubs, and job development used to increase one's ability to get a job. The concerned receives ideas, practice, and advice on finding job leads, filling out applications, getting interviews for a job, and on how to interview. The counselor may also give job leads or contact employers about available tax credits and hiring incentives. The more contacts with employers the individual makes, the better the chances are of finding a job.
- **Assistive technology:** Assistive technology includes a wide range of devices and services that can empower persons with disabilities to maximize employment, independence and integration into society. OVR can assist an individual with a disability in effectively selecting and acquiring appropriate assistive technology. OVR can arrange for a consultant to evaluate the individual's situation and to make appropriate recommendations. OVR also operates and maintains its own Center for Assistive and Rehabilitation Technology (CART) at the Hiram G. Andrews Center. There is no charge for evaluation and vocational counseling services through OVR. Based upon the financial needs, the disabled may have to contribute to the cost of assistive technology devices and services.
- **Support services:** Other services are provided for eligible persons if they are necessary to start and maintain employment. Such services may include:
 - Room, board, and transportation costs during an evaluation or while completing a rehabilitation program.
 - Occupational tools, licenses, or equipment.
 - Home modifications, adaptive or special household equipment in order to help to get ready to go to and be on time for a job. Van or car modifications, including special driving devices or lifting devices to enable travel to the job.

- Personal care assistance provided to help with daily needs in order to enable one to participate in a vocational rehabilitation program.
- Job site modifications that will enable one to get and keep a job. Independent living training to provide the means to become more self-sufficient and thereby make it possible to participate in employment.
- Text Telephone (TT), signalling devices, hearing aids, and interpreters services may be provided to help better communication.
- Specialized services such as Rehabilitation Teaching, and Orientation and Mobility Training for persons who are blind or visually impaired.

Occupational/Vocational Rehabilitation in India

Vocational rehabilitation is an area that has been given due consideration in our country as well. There are 20 Vocational Rehabilitation centers set up by the Government at different locations in India, namely, Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, New Delhi, Orissa, Rajasthan, Tamilnadu, Tripura, Uttar Pradesh and West Bengal. These organizations work tirelessly with the aim of:

- Vocational evaluation and adjustment of the physically handicapped persons.
- Assessment of the medical, psychological, rehabilitation needs.
- Assist in developing rehabilitation plans depending upon the specific needs.
- Sponsor physically handicapped registrants like scholarships/aids and appliances.
- Make referrals to financial institution for funding self-employment ventures.

CONCLUSION

From all the above discussions that have been done on functional as well as occupational rehabilitation it is crystal clear that rehabilitation is very important for people belonging to different sectors of life. As we know that the main goal of rehabilitation is to restore lost mobility or to return to as normal position as possible. As for a sportsperson it is important to monitor the healing process so that the injured area is not overused and the healing process is not delayed any further. It is a common sight among the athletes that they do not always have the patience to wait for an injury to heal, and it is also common for intensive training to be started too early. This emphasizes the important role of the trainer as well as the rehabilitation therapist to oversee the training program to ensure that it is appropriate for the process in both its type as well as the intensity. Along with functional rehabilitation, occupational or vocational rehabilitation is also equally important for a physical education professional, trainer or coach. A professional goes through 'n' number of hindrances in the professional front that leads to physical and/or psychological disorders that may lead to a destruction of the vocational life of a professional.