

Empowering Wellness: Unveiling the Key Role of Physiotherapy in Preventive and Promotive Health

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How to cite this article:

Srikanta Padhan, Avilash Mohapatra/Empowering Wellness: Unveiling the Key Role of Physiotherapy in Preventive and Promotive Health/Indian J. Prev. Med. 2023;11(2)63-69.

Abstract

Physiotherapy plays a crucial role in disease prevention and health promotion. Non-communicable diseases (NCDs) are a leading cause of mortality and morbidity worldwide, and physiotherapy interventions can help prevent and manage conditions such as cardiovascular disease, arthritis, obesity, incontinence, falls and injuries, orthopedic conditions, and sports injuries. Physiotherapists design exercise programs, provide education and promote lifestyle modifications to enhance joint functionality, reduce pain, and prevent complications. They also contribute to the prevention of chronic musculoskeletal disorders and promote overall health and well-being. Additionally, physiotherapy is involved in health promotion by empowering individuals to improve their health and increase control over it. Despite the challenges posed by the COVID-19 pandemic, physiotherapists continue to advocate for physical activity and provide services to clients, patients, and the community. It is crucial to prioritize and allocate resources to physiotherapy within primary healthcare, recognizing its significant role in secondary and tertiary care settings. Physiotherapy not only improves individuals' health but also enhances productivity and contributes positively to the economy. This article highlights the importance of physiotherapy in disease prevention, health promotion, and the overall well-being of individuals across their lifespan.

Keywords: Physiotherapy; Disease prevention; Health promotion; Non-communicable diseases (NCDs); Exercise programs.

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Received on: 09.05.2023

Accepted on: 15.06.2023

INTRODUCTION

Physiotherapy is a field of healthcare that focuses on enhancing, cultivating, sustaining, and reinstating the highest level of mobility and functional capacity in individuals across their lifespans. Its primary aim and concern is to recognize and optimize the quality of life and physical potential of each individual, encompassing the domains of promotion, prevention, treatment,

and intervention, as well as adaptation and rehabilitation of health.¹

The World Health Organization emphasizes that physical inactivity stands as one of the primary risk factors for global mortality, leading to 3.2 million deaths annually.² Additionally, it is evident that physical activity can mitigate the occurrence of non-communicable diseases. Therefore, the role of the physiotherapy profession becomes crucial. In the twenty-first century,

chronic non-communicable diseases (NCDs) pose a significant public health threat, closely associated with unhealthy lifestyles. In order to alleviate the burden of NCDs, collaborative efforts in health promotion from various healthcare providers are imperative. Physiotherapy not only strives to deliver the highest standard of care to individuals but also actively engages in promoting public health initiatives.

Table 1: Levels of prevention in health

Level of Prevention	Definitions	Mode of Intervention
Primordial Prevention	Taking measures to avoid the occurrence or formation of risk factors	Health Education Health Promotion
Primary Prevention	Preventing the onset of disease in the presence of risk factors	Lifestyle Modification Immunization
Secondary Prevention	Preventing the occurrence of disease complications	Early Diagnosis Prompt, optimized, and sustained care
Tertiary Prevention	Preventing the onset of disability or mortality	Disability limitation Rehabilitation
Quaternary Prevention	Preventing unnecessary diagnosis and treatment	Rehabilitation Disability Prevention

Recently physiotherapy have role in all level of preventions from emergency till rehabilitation. Previously physiotherapy was applied only some limited diseases but now its role is unignorable in different branches of medicine and rehabilitation.

Role of physiotherapy in disease Prevention

1. Role of physiotherapy in NCDs Prevention

Non-communicable diseases (NCDs) encompass a wide range of chronic diseases that are not transmissible, implying they cannot be acquired from another individual. These diseases are characterized by their prolonged duration, typically exhibiting a gradual progression, and serve as the primary contributors to adult mortality and morbidity worldwide. Among NCDs, four particular ailments are commonly recognized as the leading causes of both mortality and morbidity: cardiovascular diseases (including heart disease and stroke), diabetes, cancer, and chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma).³

Individuals with chronic health conditions can

enhance their overall well-being by acquiring knowledge on how to boost their physical activity levels and engage in safe exercise practices, all under the guidance and expertise of trained physiotherapists. It is crucial to introduce physical activity gradually, especially for individuals who are overweight, unfit, elderly, or living with chronic ailments. Physiotherapists excel in this domain by conducting thorough assessments of individuals, suggesting exercise protocols that are both safe and suitable for their specific needs, and imparting essential education on recognizing warning signs. This makes them highly qualified professionals to prescribe physical activities and design exercise programs tailored to address non-communicable diseases.

2. Role of physiotherapy in CVD Prevention

Cardiovascular disease (CVD) refers to any critical or abnormal condition affecting the heart itself or its blood vessels, specifically the arteries and veins. It stands as a significant global and United States cause of mortality, encompassing ailments such as coronary heart disease, stroke, peripheral vascular disease, congenital heart diseases like

Aterial Septal Defect and Vetricular Septal Defect, as well as myocardial infarction, among others.

Engaging in physical activity at an intensity exceeding 40% of maximal aerobic capacity has demonstrated substantial benefits in reducing the onset or progression of CVD. With each increase of one metabolic equivalent (MET) in aerobic fitness, there is an associated decrease in premature death by approximately 8-17%. Aerobic exercise enhances cardiac output, maximum heart rate, endurance, and arterial blood flow in individuals. Moreover, it can improve their blood lipid profiles and promote a healthy heart. For individuals already diagnosed with cardiovascular disease, physiotherapists can prescribe tailored aerobic exercise programs that effectively reduce long-term risk.⁴

Engaging in aerobic conditioning activities such as running, rowing, and walking, in addition to incorporating resistance strength training exercises, has been consistently linked to a decreased risk of coronary heart disease. Furthermore, building increased muscle strength can also contribute to a lowered risk of experiencing a heart attack while improving one's ability to perform daily activities. The most effective approach to prevent heart disease and heart failure is to maintain a healthy lifestyle and mitigate risk factors. It is crucial to prioritize physical activity, exercise regularly, and adopt healthy habits. Regular physical activity and exercise yield several benefits, including:

- Reduction in blood pressure and cholesterol levels.
- Decreased risk of experiencing an initial cardiac event, such as a heart attack.
- Positive impact on physical, mental, and social well-being.
- Improvement in other chronic conditions like diabetes, obesity, depression, and certain types of cancers.

3. Role of physiotherapy in Arthritis Prevention

Arthritis is a complex and wide ranging subject, encompassing numerous types, subtypes, and variations. It is characterized by acute or chronic inflammation of the joints, often accompanied by pain, stiffness, and structural damage in and around the affected areas. Physiotherapists play a crucial role in restoring function and preventing disability for individuals dealing with arthritis.

They can develop tailored exercise programs to alleviate pain and enhance joint functionality and mobility. Additionally, physiotherapists provide education about the condition, offering guidance on necessary lifestyle modifications to manage the disease and minimize complications. Managing arthritis requires long-term changes, and graded exercises are implemented to reduce pain, gradually progressing in intensity. Furthermore, therapists provide advice on maintaining proper body posture during daily activities to alleviate pain and prevent further damage.⁵

Physiotherapy for arthritis encompasses more than basic exercises or the use of modalities. It extends to alternative activities like swimming, which offers an excellent form of exercise while minimizing joint pressure. Water based exercises provide joint relief, aid in reducing body fat, and enhance mood, co-ordination, and range of motion. Additionally, poor body posture during prolonged sitting and work activities can worsen arthritis symptoms. Simple exercises performed at home or in the workplace can help prevent arthritis. These exercises may include neck rotations, head tilts, leg raises, hamstring stretches, finger and thumb bends, and wrist rotations to alleviate joint tension while working at a desk. Furthermore, physiotherapists offer guidance on proper ergonomics for computer workstations and daily activities. They emphasize correct postures, the use of ergonomic equipment, and techniques for joint protection.

4. Role of physiotherapy in Obesity Prevention

Obesity is a significant and preventable cause of death and disease worldwide. Since 1980, the global prevalence of obesity has more than doubled.⁶ Physiotherapists have a role to play in educating clients about weight loss and assessing and designing exercise programs. These programs focus on modifying energy expenditure through exercise. Individuals with obesity are more susceptible to early onset arthritis and other musculoskeletal problems due to their excess weight. Physiotherapists develop exercise protocols that promote weight reduction while ensuring joint protection and preventing further complications.

To prevent weight regain, enhance weight loss, and improve overall fitness, it is recommended to engage in a minimum of 150 to 300 minutes of moderate physical activity per week or 75 to 150

minutes of vigorous physical activity per week. However, individuals aiming for weight loss are advised to aim for a minimum of 200 to 300 minutes of moderate to vigorous physical activity per week to achieve sustainable weight loss in the long term. Exercising to reduce obesity, with a specific focus on reducing fat mass, offers benefits that go beyond mere fat loss. Improved fitness levels have been linked to more positive clinical outcomes, including a reduced risk of metabolic disease, cardiovascular disease, Alzheimer's disease, and inflammation.⁷

5. Role of physiotherapy in incontinence prevention

Urinary incontinence (UI) is a prevalent condition that often remains untreated. The prevalence estimates vary depending on the population, measurement period (e.g., daily or weekly), and assessment tools used to determine severity. It is estimated that approximately 50% of adult women and 3% to 11% of adult men are affected by UI; however, only 25% to 61% of affected women seek medical care. Behavioural therapy focuses on lifestyle modifications, such as fluid and diet management, weight control, and bowel regulation, to address UI. Educating individuals about bladder irritants, including caffeine, is an important aspect of treatment.⁸ In India, there is a significant lack of awareness among women regarding pelvic floor exercises and their benefits in managing incontinence.

Pelvic floor muscle training (PFMT) conducted during pregnancy has been proven to reduce the short-term risk of urinary incontinence in women who did not experience prior symptoms. Theoretically, targeted training to strengthen the pelvic floor muscles holds the potential to prevent urinary incontinence and pelvic organ prolapse. Strength training could potentially increase the volume of the pelvic floor muscles and elevate the levatorani plate to a higher position within the pelvis. When the pelvic floor muscles possess sufficient stiffness, they have the potential to counteract the rise in abdominal pressure that occurs during physical exertion. Previous studies on prevention have primarily focused on training during pregnancy or after childbirth. These studies have demonstrated that women without incontinence exhibit significantly stronger pelvic floor muscles in comparison to those with incontinence.⁹

6. Role of physiotherapy in Fall & Injury Prevention

A fall is an incident that occurs when a person unintentionally comes to rest on the ground, floor, or a lower level. While falls can result in fatal injuries, most are non-fatal. The risk of injury from a fall can be influenced by factors such as age, gender, and overall health. Globally, falls are the second leading cause of unintentional injury deaths. Each year, an estimated 684,000 individuals lose their lives due to falls, and around 37.3 million falls require medical attention. Among all age groups, adults aged 60 years and older experience the highest number of fatal falls.¹⁰ As experts in movement and function, physiotherapists play a crucial role in helping individuals reduce their risk of falls through personalized programs. These programs may include exercise prescription, the use of assistive technology like mobility aids, and educational interventions. Exercise, particularly when structured and guided by a physiotherapist, is an effective component of fall prevention programs. Additionally, physiotherapists may directly assist individuals in addressing home hazards, modifying footwear, and providing education on fall risk reduction strategies.

To fully understand the scope of fall prevention in the elderly, it's important to recognize the common conditions and risk factors that contribute to falls. Falls should be viewed as a symptom rather than a diagnosis. Therefore, when an elderly patient reports a history of falls, it's crucial to identify the underlying causes. With this knowledge, a wide range of preventative measures and treatment options can be explored. Physiotherapy can be a valuable tool not only for post-injury or post-procedure recovery, but also for strengthening joints and ligaments to prevent serious injuries. Pilates and plyometric exercises are two rehabilitation techniques that can be utilized for this purpose.

7. Role of Physiotherapy in the Prevention of Orthopedic Conditions

Physiotherapists who specialize in Musculoskeletal/Orthopedic disorders often come across patients with chronic conditions and unhealthy lifestyle behaviors. As a result, they are well-positioned to promote health and wellness among their patients, which can significantly reduce the burden of non-communicable diseases (NCDs) and chronic musculoskeletal disorders.

Here are Six effective ways to prevent Orthopedic Problems

1. ***Maintain a healthy weight:*** Excess weight increases the risk of developing osteoarthritis. It also places additional strain on joints, weakening muscles and making injuries more likely.
2. ***Stay active:*** Engaging in low impact exercises such as stretching, walking, swimming, and biking on level ground is beneficial for individuals with orthopedic sensitivity. It's important to avoid exercises that excessively stress the joints, such as deep knee bends. Regardless of age, striving to increase muscle mass through appropriate exercises is crucial.
3. ***Develop a strong core:*** Strong core muscles help balance the body's weight and reduce the risk of back and spinal pain. Yoga and Pilates are excellent exercises for strengthening the core and promoting orthopedic health.
4. ***Stretch before exercising:*** Stretching before and after exercise is essential to maintain flexibility, improve performance, and reduce the risk of stress related injuries like sprains and strains. Warm-up and stretching exercises are particularly important before engaging in weightlifting or high impact aerobics. These exercises enhance flexibility and help prevent muscle and joint injuries.
5. ***Wear comfortable shoes:*** Choosing shoes with proper sole and heel support promotes proper alignment and prevents foot pain and joint stress. Wearing faulty or improper footwear is a leading cause of conditions such as plantar fasciitis, metatarsal pain, and heel pain. Regularly wearing high heels increases the risk of developing back pain and knee pain, especially in women.
6. ***Schedule regular check-ups:*** Regular visits to your primary care doctor, ideally on a yearly basis, are crucial for maintaining orthopedic health. This is particularly important for older adults who are more susceptible to developing arthritis and experiencing injuries. By discussing preventive measures, a primary care doctor can help protect both orthopedic and overall health.

Remember, "prevention is better than cure", and implementing these preventive measures can significantly contribute to the well being of your

musculoskeletal system and overall health.

8. Role of Physiotherapy in Sports injury prevention

Sports and Exercise Physiotherapists play a crucial role in the prevention and treatment of injuries associated with sports and exercise, regardless of age or ability level. Physiotherapy serves as an effective means of injury prevention, as many sports related injuries occur due to imbalances in muscle strength and weakness. Physiotherapists assess the biomechanical function of athletes to identify and correct any movement patterns that could potentially lead to future injuries. It is essential for athletes to enhance their strength, flexibility, coordination, speed, and power to mitigate the risk of injuries.

Sports injury prevention can be achieved through adherence to a periodized training program, proper nutrition and sleep, adequate hydration, and the use of appropriate equipment for the specific sport. An optimal periodized training program involves planning the sports season in well structured blocks that allow sufficient time for building strength and power, implementing conditioning methods for endurance and aerobic fitness, and incorporating sport specific skills into the overall plan. Maintaining a balanced and nutritious diet is crucial for all athletes, as it supports muscle tissue development and repair, facilitates the transportation of oxygen and essential nutrients throughout the body, and ensures proper hydration levels. Biomechanical assessments are conducted to identify any deficits that may increase the risk of injury in a particular sport. Once identified, a combination of corrective exercises and hands-on treatment is employed to address movement patterns and equip athletes with the necessary tools to prevent future injuries.¹¹

Lastly, the use of appropriate sports specific equipment, footwear, and protective gear is paramount in any sport. Inadequate or illfitting shoes and equipment can lead to injuries during sports activities. Ensuring access to up-to-date clothing and equipment is essential in minimizing risks and allowing athletes to focus on achieving their best performance.¹²

Role of Physiotherapy in Health Promotion

Health promotion is defined as the process

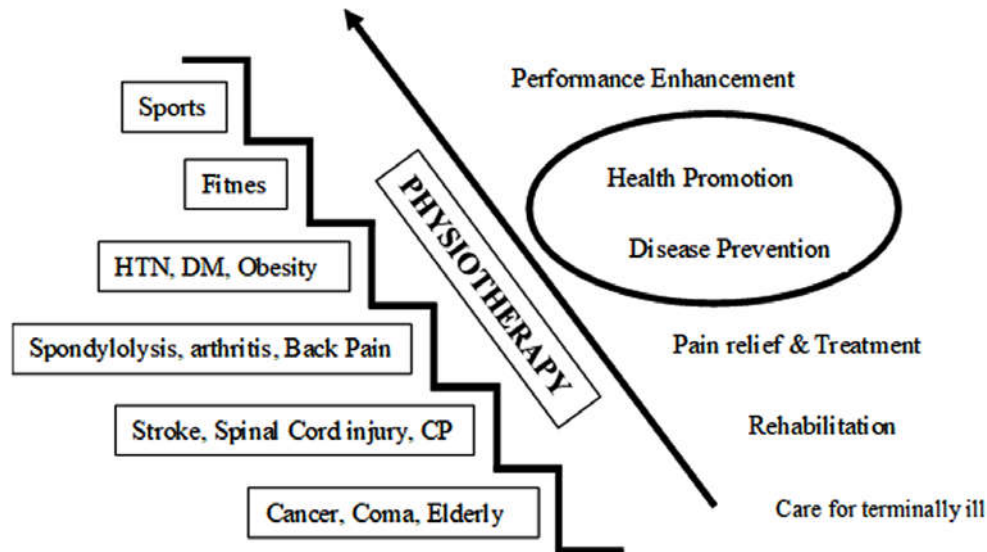


Fig. 1: Role of physiotherapy at all levels of healthcare

of empowering individuals to enhance their health by increasing control over it. Assessment, communication, and improving health literacy are key methods employed in promoting health.¹³ The World Physiotherapy (formerly known as the World Confederation for Physical Therapy) states that physical therapists provide services aimed at developing, maintaining, and restoring individuals' maximum movement and functional ability. Physical therapists play a vital role in maximizing people's quality of life across physical, psychological, emotional, and social dimensions.¹⁴

As members of the health promoter community, physiotherapists actively contribute to health promotion, wellness, fitness, and the prevention and management of diseases and disabilities. They serve as a crucial link between health and healthcare delivery. Physiotherapists leverage their expertise to support individuals and populations in improving overall health and preventing health issues. Their roles may encompass education, direct intervention, research, and advocacy, all aligned with the profession's objective of empowering individuals to take charge of their own health.

Physiotherapists also adapt health advice to the specific community where individuals live, work, learn, and engage in recreational activities. They consider and address social determinants of health when providing both clinical and community services. Moreover, physiotherapists employ specialized techniques to facilitate behavioral changes and ensure the integration, accessibility, and mutual reinforcement of clinical and

community treatments.

Even during the pandemic, physiotherapists have continued to serve their clients and patients. They maintain a strong focus on promoting physical activity as a vital aspect of their duties and responsibilities. Enhancing body function and movement through physical activity remains a central intervention in physiotherapy. Despite the lurking risk of COVID-19 transmission, physiotherapists persist in their role of promoting physical and treating the pulmonary complications during the pandemic. They are committed to consistently advocating for physical activity among clients, patients, and the broader community.

Health promotion holds particular significance for the disabled population. While emerging technologies have extended the lifespan of individuals with disabilities, there may be a lag in addressing the quality-of-life aspect. Promoting healthy behaviors can serve as a powerful tool to enhance the quality of life for patients with disabilities and complement their medical interventions.

CONCLUSION

A comprehensive approach to healthcare should encompass all aspects of health promotion and disease prevention. Physiotherapy, as a healthcare discipline, is well-positioned to play a vital role in primary healthcare. Physiotherapists must acquire the necessary education and experience to address

the requirements of health promotion and disease prevention effectively. It is essential to prioritize and allocate resources to physiotherapy within and community healthcare, while recognizing the significant role it already plays in secondary and tertiary care settings. Physiotherapy not only contributes to the overall health of individuals but also enhances their productivity, leading to positive contributions to a country's economy. The provision of physiotherapy services should be conducted within an environment of trust, respecting human dignity, and guided by robust clinical reasoning and scientific evidence.

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