Academe *Journal of Education & Psychology* *ISSN: 2249-040X*
Volume-16, (Special Issue: March 2026) *Peer Reviewed & Refereed Journal (IF: 6.25)*
PP: 338-344 *Journal Website:* www.academejournal.in

PHYSICAL ACTIVITY PRESCRIPTION FOR NON COMMUNICABLE DISEASES (NCDs)- AN OVERVIEW

Shobha.S

Physical Education Director, Bharathi College Autonomous, Bharathinagara, Maddur

ABSTRACT

Non-Communicable Diseases (NCDs) are one of the world's largest health challenges. These diseases are Diabetes, Cancer, Cardiovascular Disease, Chronic Respiratory Diseases and Mental Illness. According to the WHO 71% of all deaths globally are as a result of NCDs. Most NCD deaths are a result of cardiovascular disease, followed by cancer, respiratory diseases and diabetes. These conditions result in over 80% of all premature NCD deaths. The risk of NCDs is influenced by modifiable behaviours and physical inactivity is one of the most important and relevant of these.

Keywords: WHO, good health, wellbeing, physical activity, chronic diseases, physical inactivity.

INTRODUCTION

Physical activity is an organized activity and is further divided into different categories (transport/work/leisure) according to the purpose. The primarily physical activity is aimed at physical and health capacity improvement. Physical activity is defined as any bodily movement produced by skeletal muscles that require energy expenditure. Those activities are included in sustainable physical activity, performed with sufficient duration, frequency, and intensity to promote good health and wellbeing. Further, physical activity is a universal concept and defined as "bodily movement produced by the contraction of skeletal muscles, and that substantially increases the amount of energy you expend". According to the World Health Organization, the first indicator of health is physical activity at the community level.

The risk of many chronic diseases such as cancer, cardiovascular condition, and diabetes (type 2) reduce through regular physical activity. The sedentary lifestyle is the leading cause of the increased mortality rate globally, and WHO stated that about 3.2 million deaths per year are occurring due to physical inactivity across the world. Physical activity plays a fundamental role in balancing energy and weight control. About 81% of school-going adolescents and 23% of adults have insufficient physical activity across the globe. In general, girls and women are less physically active than boys and men, and older adults are also inadequate physical activity than younger adults. In developing and developed countries, chronic health conditions and non-communicable diseases are linked with physical inactivity.

According to the WHO, regular physical activity has various benefits for psycho-physical health. At all stages of life, physical activity plays an essential role in the prevention of non-communicable diseases. Physical activity has a strong relationship with major non-communicable diseases. The member countries of WHO are agreed to reduce relatively about 10% of low physical activity prevalence by 2025. It is one of the essential global targets for improving the preventive, diagnostic, and treatment measures of non-communicable diseases. Globally, physical inactivity is the main reason behind the obesity epidemic, which is further resulting in spreading chronic diseases across the world.

To promote active and healthier societies, WHO launched a program in June 2018 with the title of "More active people for a healthier world." This program's primary plan is to create

more active and healthier societies by improving spaces and places for physical activity. The improved spaces and areas for physical activity will provide more opportunities for every age group to do dance, sport, walking, cycling, and play. Physical inactivity has become a challenge due to the rising rate of non-communicable diseases. WHO has launched a global action plan to decrease physical inactivity and sedentary behavior in 2025, about 10%, and in 2030, about 15%. Physical activity has become part and parcel of a healthy life and living. An adult needs to do moderate-intensity sustainable physical activity at least 150 minutes throughout the week, according to the WHO recommendations.

In this modern era, physical activity has become the priority in public health from childhood to adults, from a young age to an older age among men and women. Globally people are less active due to technological advancement, social changes, and economic growth. In ancient times people were more active because they need to find food (hunting and gathering) and fight or flight for safety. In this technologically advanced era, studies explored that leisure activity and sports levels have increased. Physical activity is allied with transportation, housework, or any other human body act that needs energy for consumption due to different economic growth interventions for economic growth. Modern technological advancement is the main factor in declining the level of physical activity in developed countries like the USA and developing countries, for example, China. Physical activity level was decreased by about 35% in men and 46% in women from 1991 to 2006 in China.

Globally, physical inactivity is the main reason behind the obesity epidemic, which is further resulting in spreading chronic diseases across the world. Physical activity and health status have a linear relationship as physical activity increase, then physical fitness and health also improved. Regular physical activity has a substantial impact on heart health, such as improving blood circulation, improved the contract's contract, and the heart's relaxed ability, which further affects blood pumping effectiveness. Physical activity is also helpful in altering the blood lipid profile, which reduces the risk factor of stroke and heart diseases.

CONCEPT OF EXERCISE PRESCRIPTION

Commonly refers to the specific plan of fitness-related activities that are designed for a specified purpose, which is often developed by a fitness or rehabilitation, or Exercise medicine specialist for the client or patient. Due to the specific and unique needs and interests of the client/patient, the goal of exercise prescription should focus on motivation and customization, thus making achieving goals more likely to become successful. Exercise prescription should take into account the patient's medical history, and a pre-examination of a patient's physical fitness to make sure a person has the capacity to perform the exercises.

It follows the FITT principle

- Frequency
- Intensity
- Time
- Type.

NCDs are long-term medical conditions or diseases that are not passed from person to person. They are typically of a chronic nature and result from a mix of genetic, physiological, environmental, and behavioral factors. Some commonly known NCDs are heart diseases, cancers, chronic respiratory diseases, diabetes, and mental health disorders.

NCDs have major health impacts on individuals and communities alike. As these diseases progress slowly, they can lead to lasting disability and put a strain on healthcare systems. It is therefore crucial to understand how to prevent NCDs.

MAJOR RISK FACTORS FOR NCDS

There are several factors that significantly increase the risk of NCDs:

- Eating unhealthy diets is one of the key contributors to NCDs. Foods high in unhealthy fats, sugar and salt can lead to obesity, heart disease, stroke, diabetes, and even some types of cancer.
- Conversely, diets rich in fruits, vegetables and whole grains are associated with a reduced risk of these diseases.
- An inactive lifestyle is another leading risk factor for NCDs.
- Regular physical activity helps maintain a healthy body weight and reduces the risk of NCDs such as heart disease, stroke, diabetes and cancer.
- So, how can you prevent NCDs? A good start is to incorporate more physical activity into your daily routine.
- Tobacco use and excessive alcohol consumption are other important risk factors for NCDs.;
- Both tobacco smoking and alcohol misuse can lead to severe health issues including cancer, cardiovascular diseases, lung diseases, liver cirrhosis, and mental health disorders.

PHYSICAL ACTIVITY: A KEY LIFESTYLE FACTOR IN PREVENTING NCDS

Physical activity is crucial when it comes to preventing NCDs:

1. Guidelines for Physical Activity Levels

- The American Heart Association recommends at least 150 minutes per week of moderate-intensity aerobic activity or 75 minutes per week of vigorous aerobic activity, or a combination of both, preferably spread throughout the week.
- Regular physical activity helps control weight, reduces the risk of heart disease, and can also help improve mental health.

2. Impact of Regular Exercise on Health Outcomes

- Regular exercise has a positive impact on various health outcomes. It not only helps prevent NCDs like heart disease, stroke and diabetes, but also aids in managing stress, anxiety, and depression.

Effective lifestyle modifications and interventions

Lifestyle changes can have a big impact on preventing NCDs:

1. Strategies for changing dietary habits

- To promote healthier eating habits, strategies can range from awareness campaigns to taxing unhealthy foods.
- Restricting the marketing of unhealthy foods and sugary drinks is another effective strategy.

- Schools and workplaces can also play their part by adopting healthy eating policies.

2. Increasing physical activity levels

- Regular physical activity is an important aspect of a healthy lifestyle that can prevent NCDs.
- Strategies to increase physical activity levels can include encouraging walking or cycling for transport, promoting physical activities during leisure time, creating safe spaces for active play in children, and organizing workplace physical activity programs.

3. Role of Behavioral Therapy and Stress Management

- Behavioral therapy can be an effective tool for helping individuals modify their health behaviors.
- It can assist individuals in developing skills to adhere to a healthy diet, increase physical activity levels, manage stress effectively, quit smoking, and reduce alcohol consumption.

Lifestyle changes and their impact on specific NCDs

Lifestyle changes can have a significant impact on preventing specific NCDs:

a. **Cardiovascular diseases:** Adopting a healthy lifestyle can significantly reduce the risk of cardiovascular diseases. Eating a healthy diet, engaging in regular physical activity, and avoiding tobacco use and excessive alcohol consumption are key lifestyle changes that can prevent these diseases.

b. **Type 2 diabetes:** Healthy lifestyle habits such as regular physical activity and a balanced diet can prevent or delay the onset of type 2 diabetes. These changes help maintain a healthy body weight, improve insulin sensitivity, and reduce the risk of diabetes complications.

c. **Obesity:** Healthy eating habits and regular physical activity are central to preventing obesity. These changes help achieve a healthy body weight, which in turn reduces the risk of various NCDs including heart disease, stroke, and diabetes.

Implementing public health strategies and policies

Public health initiatives play a key role in preventing NCDs:

a. **Awareness campaigns and taxation**: Raising awareness about the risk factors for NCDs through public health campaigns is an important strategy to promote healthy lifestyles. Policies such as taxation on unhealthy foods and drinks can also encourage healthier choices.

b. **Promoting smoke-free zones and air quality monitoring:** Creating smoke-free zones in public places, homes, and workplaces can protect people from exposure to tobacco smoke. Monitoring air quality can also help reduce exposure to harmful pollutants which are risk factors for respiratory diseases.

Policy and public health perspective

From a public health perspective, physical activity is a primary, low-cost intervention for managing the escalating burden of Non-Communicable Diseases (NCDs), which account for over 70% of global mortality

Policy Frameworks & Global Targets

WHO Global Action Plan (GAPPA) 2018–2030: A "systems-based" blueprint targeting a **15% reduction** in physical inactivity by 2030. It emphasizes 20 policy actions across four strategic pillars: Active Societies, Active Environments, Active People, and Active Systems.

- **Voluntary Global Targets**: Member states aim for a **10% decrease** in insufficient physical activity by 2025 as part of the broader goal to reduce premature NCD mortality by 25%.
- **Sustainable Development Goals (SDGs)**: Physical activity promotion is explicitly linked to **SDG 3.4**, which targets a one-third reduction in premature NCD deaths by 2030.

Public Health Strategies

Multisectoral "Whole-of-Government" Approach: Effective management requires coordination beyond the health sector, involving urban planning (active transport, public parks), education (school-based activity), and employment (reducing workplace sedentariness).

- **Clinical Integration & "Exercise as Medicine"**: Policies increasingly focus on integrating **exercise prescription** into primary healthcare. This includes standardized referral systems where physicians assess physical activity as a "vital sign" and refer patients to specialized professionals like physiotherapists.
- **Environmental Modification**: Creating **active environments** by improving road safety, access to public open spaces, and cycling networks is proven more effective at scale than individual counseling alone.
- **Community Empowerment**: Public education campaigns aim to shift cultural norms, particularly addressing barriers like "gendered" social censuring or the myth that household chores are sufficient for NCD prevention.

Economic & Health Impact

- Cost-Effectiveness: Investing in physical activity is considered a public health "Best Buy". It is estimated that every $1 spent on promoting activity can save significant downstream costs in hospitalizations and medications for conditions like diabetes and heart disease.
- Health Burden Reduction: Increasing population-level activity could reduce the incidence of major NCDs by 6% to 10% and lower the risk of all-cause mortality by 20% to 30%.

Technology assisted physical activity prescription

Technology-assisted physical activity (PA) prescription leverages digital tools—primarily **wearables**, **mobile health (mHealth) apps**, and **telemedicine**—to bridge the gap between clinical advice and sustainable daily habits.

Role in Management

- **Precision and Personalization**: Digital tools provide objective, real-time data (e.g., step counts, heart rate, VO2 max) that allow healthcare providers to tailor exercise "doses" to a patient's specific condition and fitness level.

- **Behavioral Reinforcement**: Features like **gamification**, **push notifications**, and **personalized feedback** significantly increase patient adherence compared to traditional verbal advice.
- **Safety and Monitoring**: For high-risk NCDs like heart failure, wearables can monitor physiological markers (e.g., peripheral edema or arrhythmias) to ensure exercise is conducted within safe intensity thresholds.
- **Remote Continuity of Care**: Telehealth platforms and mHealth apps facilitate continuous monitoring and remote coaching, reducing the need for frequent in-person hospital visits and lowering the burden on medical staff.

Technological Tools

- **Wearable Devices**: Trackers such as Fitbit, Garmin, or smart rings (e.g., Gabit) enable self-monitoring of activity intensity and energy expenditure.
- **mHealth Applications**: Apps like eSanjeevani or condition-specific platforms provide educational modules, video tutorials for home-based exercises, and direct communication channels with doctors.
- **Integrated Data Ecosystems**: AI-driven platforms can analyze large datasets from wearables to predict health outcomes and adjust prescriptions dynamically based on the patient's progress.

Implementation Challenges

(a). Digital Literacy: Low technological proficiency, particularly among elderly populations with NCDs, can limit the effectiveness of digital interventions.

(b). Data Privacy & Interoperability: Issues regarding the security of sensitive health data and the lack of standardization between different devices and hospital record systems remain significant barriers.

(c). Equity and Access: The high cost of advanced wearable devices can create a digital divide, potentially excluding underserved populations from these benefits.

CONCLUSION

Physical inactivity is a major modifiable risk factor for non-communicable diseases (NCDs), which are the leading cause of premature death and disability globally. Regular physical activity improves physiological functions like insulin sensitivity, lipid profiles, and cardiovascular efficiency, thereby reducing the risk and progression of conditions such as type 2 diabetes, heart disease, and various cancers. From a public health standpoint, the World Health Organization aims to reduce physical inactivity by 15% by 2030 through multisectoral strategies that promote "Active Societies," integrating exercise into healthcare, urban planning, and community programs. Physical activity is presented as an essential component in managing and preventing non-communicable diseases (NCDs) by optimizing biophysiological function. From a public health perspective, regular activity can significantly reduce global NCD mortality and lower the socioeconomic burden on healthcare systems. The World Health Organization emphasizes a multisectoral "whole-of-society" approach, integrating physical activity into various policy frameworks.

REFERENCES

1. Saqib ZA: Physical Activity is a Medicine for Non-Communicable Diseases: A Survey Study Regarding the Perception of Physical Activity Impact on Health Wellbeing.
2. The Role of Lifestyle in Preventing Non-Communicable Diseases
3. Daley A. Exercise and depression: A review of reviews. J Clin Psychol Med Settings (2008) 15:140–147
4. American College of Sports Medicine (ACSM 2009).AMCSM's Guideline for Exercise Testing and Prescription, eight edition, ACSM 2009.
5. World Health Organization. (2010). Global Recommendations on Physical Activity for Health. Geneva: WHO.
6. Lee, I. M., Shiroma, E. J., Lobelo, F., Puska, P., Blair, S. N., & Katzmarzyk, P. T. (2012). Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. Lancet, 380(9838):219-29
7. World Health Organization. Global health risks: mortality and burden of disease attributable to selected major risks. Geneva: World Health Organization, 2009.
8. Lee IM, Skerrett PJ. Physical activity and all-cause mortality: what is the dose-response relation? Med Sci Sports Exerc 2001;33: S459e71.