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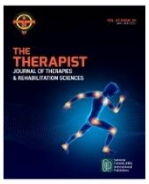

Review Article

Physical Activity and Immunity

Sidra Khalid[1]
[1]Faculty of Allied Health Sciences, The University of Lahore, Lahore, Pakistan

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Corresponding author:
Sidra Khalid
Faculty of Allied Health Sciences, The University of Lahore, Lahore, Pakistan
Sidrakhalid.uaf@gmail.com

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ABSTRACT

Physical exercise during childhood and adolescence also provides protection against a wide range of chronic diseases and risk factors connected with diseases, since it has an anti-inflammatory impact. Improper diet or lack of good sleep or physical activity may affect immunity and make a person more vulnerable to diseases. While having a healthy lifestyle can help you fight against such conditions. Sleeping for 8-10hr daily and brisk walking for half an hour minimum with some aerobic exercises may have a positive effect on health. Avoiding junk and fast food and replacing it with organic food helps in positive immune response.

INTRODUCTION

A sedentary lifestyle is linked to a higher rate of age-related illness and mortality. Increased systemic inflammatory milieu and immunological senescence are linked to these illnesses. Regular exercise and physical activity have been shown to have anti-inflammatory and anti-immune senescence benefits, potentially delaying the onset of health problems associated with ageing. No immune cell is immune to the effects of ageing, and exercise appears to alter a variety of immune activities [1]. Regular exercise has been shown to boost neutrophil microbicidal activities, lowering the risk of infection. Workout involvement is also connected to longer telomeres in immune cells, which may be linked to better vaccination responses. Reduced inflammatory immune cell profiles and decreased inflammatory cytokine concentrations demonstrate the anti-inflammatory impact of frequent exercise and negative energy balance. Upper respiratory problems can be reduced by walking for at least 8 weeks [2]. In general, brisk walking is described as walking at a speed of 2.5 to 4.0 miles per hour. A single 20–30-minute session of brisk walking or moderate-intensity cycling increases the activation of multiple types of immune cells. These beneficial reactions are thought to lead to a healthier immune system when exercise is done on a regular basis [3]. Researchers discovered that persons who exercise frequently have a lower risk of upper respiratory symptoms like coughing, sore throat, and runny nose. Over a 12-week period, those who engaged in aerobic activity at least five days per week had 43 percent fewer days with upper respiratory symptoms than those who exercised only once per week [4]. Adults who exercised at least three times per week were 26 percent less likely to have a cold over the course of a year [5].

Aging and Immune System

Aging causes a variety of changes in the body's physiological systems, including the immune system, increasing vulnerability to infectious illness and contributing to cardiovascular, metabolic, autoimmune, and neurological disorders [5]. Age-related changes in physiological systems such as the endocrine, neurological, digestive, cardio-vascular, and muscle-skeletal systems have an impact on the immune system [6]. The bone marrow (BM) is important for the long-term preservation of immunological memory. However, no research has been done on the effect of ageing on the generation of survival factors by effector/memory T cells and plasma cells in the human BM. However, because inflammation and

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oxidative stress play a role in age-related changes in immune cell survival factors in the BM, antioxidants may be useful in preventing immune senescence by increasing immunological memory in the elderly [7].

Life Style and Immune System

Adolescence is a critical stage in a person's life when important changes in lifestyle behavior and psychological functioning occur, affecting dietary requirements, eating habits, and physical activity patterns. Inflammatory treatments have been linked to ineffective living behaviors. Metabolic disorders and obesity are linked to health issues in the initial stages of life, causing illness progression and changes in metabolism and immune system [7]. Adolescent behavioral patterns might lead to energy imbalances and nutritional status instabilities. Physical activity, duration of sleep and composition of body are all important contributors in a healthy adolescent individual. Numerous dietary habits linked to early obesity development have been identified, including frequency of meal, composition of diet, missing meals, use of soft drinks, junk food consumption and eating at a rapid pace [8]. This is why combining enough physical activity with a balanced dietary pattern may be beneficial in preventing the most prevalent nutrition-based diversity, such as metabolic disorders and obesity, as well as possible changes in bone mineralization and other clinical and metabolic and energetic characteristics [9]. At least 60 minutes of moderate-to-vigorous physical exercise per day is recommended for reducing CVDs and metabolic health biomarkers in adolescents (MVPA). Insulin resistance, lipid profile, blood pressure, inflammatory and cardiorespiratory fitness markers are also reduced in children and adolescents [9]. Patterns of sleep are linked to various factors responsible for health and a reverse association has been observed between sleep hours and C-reactive protein levels [10]. Indeed, for teenagers, the best sleeping duration is between 8 and 9 hours and is associated to an anti-inflammatory pattern [11]. As a result, research into these lifestyle variables is required for the implementation of public health preventative programs. Quitting smoking, decreasing weight or keeping a healthy body mass, eating a nutritious diet rich in fruits and vegetables, avoiding alcohol, and so on are all good things to do. Getting adequate sleep and exercising on a regular basis are essential. Washing your hands more frequently, reducing stress and focusing on mental wellbeing, and receiving timely immunizations have all been shown to be effective techniques for maintaining a strong immune system [12].

CONCLUSION:

In conclusion, we concluded that factors such as stress, physical activity, diet, sleep and aging have a significant impact on immunity building.

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