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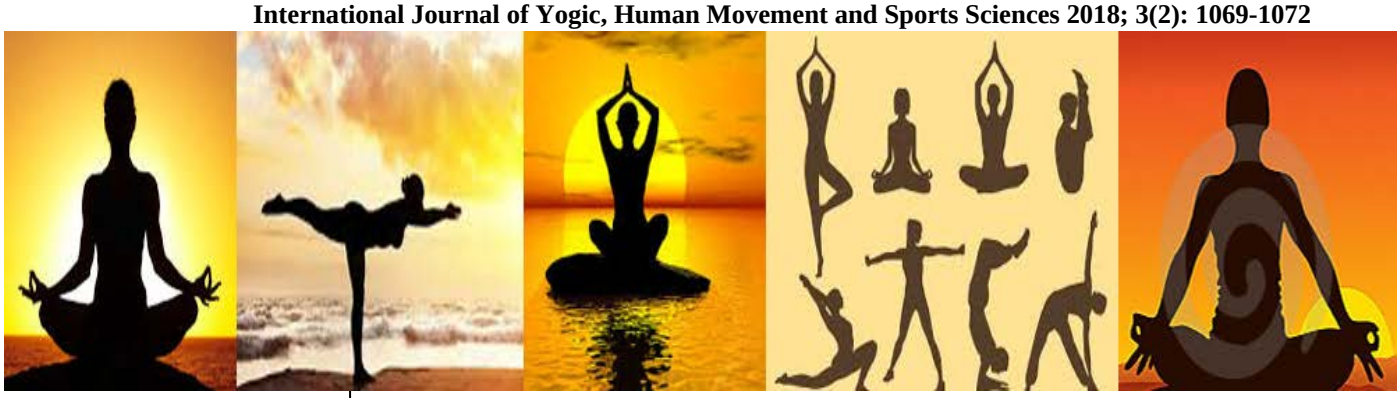

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In-depth research highlighting the advantages of engaging in physical activity

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Abstract
Physical activity encompasses any motion facilitated by skeletal muscles, demanding energy expenditure. It's crucial to distinguish it from exercise, which represents a specialized and intentional form of physical activity. The World Health Organization (WHO) delineates exercise as structured, repetitive, and purposeful movements within the broader spectrum of physical activity.
Consistent engagement in physical activity stands as an essential pillar for optimal health. Disturbingly, global statistics position physical inactivity as the fourth principal contributor to mortality. Numerous studies unequivocally affirm that integrating regular physical activity into one's routine yields a plethora of health advantages.

Keywords: Healthy life, physiology, yoga

Introduction
Physical activity refers to any voluntary movement by skeletal muscles that necessitates energy expenditure. This inclusive term encompasses all activities, irrespective of intensity or timing, whether planned or incidental, integrated into daily routines. These integrated activities, while not necessarily structured for fitness improvement, encompass daily tasks like walking to the local shop, household chores, occupational tasks, or active commuting. The absence of physical activity correlates with adverse health outcomes, whereas increased engagement yields multifaceted benefits for physical, mental, cognitive, and cardiovascular health.
Strategies aiming to bolster population-wide physical activity encompass diverse investments, including holistic school programs, active urban design, initiatives promoting active transportation, healthcare interventions, public education through mass media, inclusive sporting endeavors, workplace wellness programs, and community-wide initiatives. By increasing energy expenditure, physical activity plays a pivotal role in regulating body weight.

Terminology Misconception
The distinction between "exercise" and "physical activity" is pivotal. Though often used interchangeably, they denote distinct concepts. Exercise represents a structured subset of physical activity, intentionally geared towards enhancing physical fitness. Conversely, physical activity encompasses both planned exercise and spontaneous, non-structured movements undertaken for various purposes.
A recent 2021 study reveals that those successfully initiating physical activity programs tend to sustain their engagement for a minimum of three months.

Intensity
Intensity in physical activity spans a wide spectrum, from minimal muscle twitches to maximal exertion. This spectrum delineates a continuum from sedentary behavior to vigorous activity. Intensity levels are broadly categorized using metabolic equivalents (METs), ranging from sedentary behavior to light, moderate, and vigorous activities.

Example Activities at Each Intensity
An illustrative table below catalogs examples of activities corresponding to different intensity levels.

These examples highlight the variability inherent in assigning activities to specific intensity categories, as individual capabilities and specific activities may transcend or shift across these intensity demarcations.

Intensity	Example Activities
Sedentary Behavior	Sitting, lying
Standing	Standing still
Light Physical Activity (LPA)	Slow walking, shuffling around the house
Moderate Physical Activity (MPA)	Brisk walking, jogging, light swimming, stair climbing
Vigorous Physical Activity (VPA)	Fast running, fast cycling, sprinting

Physical Activity as Prevention and Therapy

Numerous studies have underscored the potential advantageous impacts of physical activity in both preventing and managing various conditions such as obesity and irritable bowel syndrome. Physical activity has exhibited its capacity in mitigating anxiety across different contexts: from individual sporadic physical exercises to consistent engagement in specific physical activities as a regimen. Furthermore, it has demonstrated efficacy in alleviating psycho-physiological manifestations of anxiety, notably in reducing blood pressure and heart rate.

Moderate physical activity has been associated with a decline in short-term physiological reactivity, fostering recovery from immediate physiological stressors. In instances where individuals grapple with severe depressive episodes and anxiety disorders, extended and brief walks have emerged as notably effective interventions. Conversely, for individuals contending with substance abuse disorders, bipolar disorder, or frequent psychotic decompensation, rigorous gymnastics and equestrian activities have shown notable effectiveness.

Physical Activities during Leisure and Clusters of Different Forms of Meaningfulness

Various categories of leisure-time physical activities can be categorized into distinct clusters united by a common thread of significance, as depicted in the model to the right. These distinct categories of significance encompass competitive and championship activities, nature-oriented pursuits, aesthetic-expressive endeavors, fitness-oriented exercises and recreational play, routine exercises, and five fundamental forms of physical training encompassing aerobic, anaerobic, strength, flexibility, and coordination training.

The evolution of these divergent clusters, spanning from 1813 to the contemporary era, concerning their integration into teacher training for physical education within the Swedish school system, has been meticulously elucidated by Swedish professors specializing in human movement science.

The pivotal role of regular physical activity in preventing and managing noncommunicable diseases such as heart disease, stroke, diabetes, and certain cancers has been substantiated. Additionally, it aids in averting hypertension, maintaining a healthy body weight, and enhancing mental well-being, overall quality of life, and general wellness.

Physical activity encompasses all forms of movement, whether in leisure, transportation, or occupational contexts. Popular means of staying active include walking, cycling, engaging in sports, recreational activities, and play, catering to individuals of varying skill levels and for their sheer enjoyment.

Despite the proven benefits, global estimates indicate that a substantial portion of the population, one in four adults and 81% of adolescents, fail to engage in adequate physical activity. The surge in inactivity levels, reaching up to 70% in some economically advancing nations, is attributed to shifting transportation patterns, increased technological reliance for work and leisure, evolving cultural norms, and a surge in sedentary behaviors.

This escalating trend in physical inactivity bears adverse ramifications on health systems, environmental sustainability, economic progress, communal well-being, and overall quality of life.

The World Health Organization (WHO) defines physical activity as any bodily movement necessitating energy expenditure, encompassing activities during leisure, transportation, or occupational pursuits. Both moderate and vigorous physical activity offer health benefits, catering to individuals across skill levels, emphasizing enjoyment and inclusivity.

Regular engagement in physical activity is scientifically proven to mitigate and manage noncommunicable diseases, maintain healthy body weight, forestall hypertension, and bolster mental health, ultimately enhancing overall well-being and life quality.

Recommendations for Physical Activity (including Sleep and Sedentary Behavior)

Global Recommendations

The World Health Organization recommend the following:

Adults Aged 18-64

- Adults between 18 and 64 years of age are recommended to engage in at least 150 minutes of moderate-intensity aerobic activity per week, or 75 minutes of vigorous-intensity aerobic activity per week, or a combination of both intensities totaling an equivalent duration.
- Aerobic activity should be performed in sessions lasting a minimum of 10 minutes each.
- For added health benefits, adults in this age group are encouraged to increase their moderateintensity aerobic activity to 300 minutes weekly, engage in 150 minutes of vigorous-intensity aerobic activity weekly, or opt for a blend of moderate and vigorous activity to meet these recommendations.
- It is advised for adults to incorporate muscle-strengthening activities involving major muscle groups at least two days per week.

Adults Aged 65 and Above

- Adults aged 65 and above are advised to engage in a minimum of 150 minutes of moderateintensity aerobic activity weekly, 75 minutes of vigorous-intensity aerobic activity weekly, or a combination of both intensities equating to the recommended duration.
- Aerobic exercises should be conducted in episodes lasting at least 10 minutes each.
- For additional health benefits, older adults are encouraged to increase their moderate-intensity aerobic activity to 300 minutes per week, engage in 150 minutes of vigorous-intensity aerobic activity per week, or a mix of moderate and vigorous activities to fulfill these guidelines.
- Individuals in this age bracket experiencing mobility challenges should incorporate physical activities aimed at improving balance and preventing falls on three or more days per week.
- Muscle-strengthening exercises involving major muscle

groups should be performed at least two days per week.
- When health conditions limit individuals in this age group from meeting the recommended activity levels, they should strive to engage in physical activities suitable for their abilities and conditions.

Children and Adolescents Aged 5-17
- Children and adolescents aged 5-17 should aim to accumulate a minimum of 60 minutes of moderate to vigorous physical activity daily.
- Engaging in physical activity beyond 60 minutes provides additional health benefits.

Predictors of Physical Activity Levels
The extent of physical activity within a population, and the proportion adhering to guidelines, are influenced by various factors including demographics (age, gender, ethnicity), overall health, cultural elements, and the environmental infrastructure supporting physical activity. Intersecting demographic groups, such as females facing social disadvantages, may face increased challenges in meeting activity recommendations.
Research indicates that increased accessibility to natural settings (parks, woodlands, water bodies) corresponds to higher reported levels of leisure-time physical activities like walking and cycling. Meteorological conditions also impact physical activity differently across various environments. For instance, in a large-scale study in England, higher temperatures and reduced wind speeds were associated with increased physical activity.

Global Statistics and Health Indicators
Globally, in 2016, a pooled analysis of 298 surveys revealed that around 81% of students aged 11–17 did not meet recommended physical activity levels. High-income Asia Pacific regions reported the highest prevalence of insufficient activity during this period.
As a health indicator, physical activity, expressed through a Physical Activity Vital Sign (PAVS), has been proposed as a screening tool in primary healthcare settings. It is suggested to correlate with BMI and chronic diseases when coupled with demographic information, aiding in identifying patients not meeting recommended activity levels. However, self-reported medical questionnaires used to evaluate this metric can significantly impact its validity and applicability in clinical decision-making.

Physical Activity (PA) Increases the Health
Regular engagement in physical activity is paramount for maintaining optimal health. Active individuals tend to exhibit higher levels of health-related fitness and are at a reduced risk of various debilitating medical conditions compared to their sedentary counterparts. It's widely acknowledged that the benefits of physical activity extend beyond physical health, encompassing significant mental components. Extensive research has yielded clear recommendations regarding the level of physical activity necessary to garner health benefits.

Hypertension
High blood pressure, a prevalent risk factor for heart disease, stroke, and kidney issues, holds a significant position as a leading cause of mortality. Recent meta-analyses indicate that individuals engaged in high-level recreational physical activity demonstrate a decreased risk of developing hypertension compared to those with low-level physical activity (RR 0.81). Aerobic endurance training among individuals with existing hypertension has shown notable reductions in blood pressure readings.

Diabetes
Type 2 diabetes, a global concern with profound health, social, and economic implications, emerges from a complex interplay of environmental and genetic factors. There's substantial evidence linking modifiable risk factors like obesity and physical inactivity as primary contributors to the disease. Trials involving lifestyle interventions, including healthy diet modifications and moderateintensity physical activity such as brisk walking for at least 150 min/week, have demonstrated a significant reduction in diabetes incidence compared to a placebo or metformin intervention.

Stroke
Stroke, ranking as the third leading cause of mortality in Canada, is notably linked to physical inactivity, elevating the risk by 60%. A systematic review highlights a 31% risk reduction in stroke incidence associated with high levels of physical activity, spanning both genders and various stroke types.

Depression
Exercise is widely acknowledged for its antidepressant effects. While individuals with clinical depression often exhibit reduced physical activity capacity, they have attested to the significance of exercise as a crucial element in comprehensive depression treatment programs.

Anxiety
Numerous studies have validated the link between acute and chronic exercise and the reduction of anxiety, supported by over 30 published papers substantiating this relationship.

Self-esteem
Exercise exerts a positive influence on enhancing self-esteem, particularly in individuals with lower self-esteem levels. However, there's limited research direction regarding exercise types and dosage recommendations for self-esteem improvement.

Cognitive Function
Physical activity plays a crucial role in preserving cognitive function in older adults and promoting healthy aging. Studies indicate that PA protects against cognitive decline, with even low-to-moderatelevel exercise demonstrating significant risk reduction. PA also correlates with increased production of neurotrophic factors, potentially mitigating gray matter loss in the brain.

Physical Inactivity and Risk Factors
Physical inactivity ranks as the fourth leading cause of death globally. Eliminating behavioral risk factors like physical inactivity, unhealthy diet, tobacco smoking, and alcohol use could prevent a significant percentage of cancers, heart disease, stroke, and type 2 diabetes cases. A study assessing the population attributable risk of physical inactivity on non-communicable disease-related deaths found that 6.0–10.0% of such deaths worldwide were linked to physical inactivity.

Conclusion
Research unequivocally indicates that engaging in consistent physical activity yields numerous health advantages. Several

health conditions associated with physical activity manifest more prominently with advancing age, notably encompassing heart disease and cancer. Mitigating the risk of these conditions often necessitates sustained participation in regular physical activity over an extended period. Nevertheless, beyond the reduction of such risks, regular physical activity also contributes to heightened physical and mental fitness.

References

1. McAuley E, Blissmer B, Katula J, Duncan TE, Mihalko SL. Physical activity, self-esteem, and self-efficacy relationships in older adults: A randomized controlled trial. Ann Behav Med. 2000;22:131-9.
2. Booth FW, Gordon SE, Carlson CJ, Hamilton MT. Waging war on modern chronic diseases: Primary prevention through exercise biology. J Appl Physiol. 2000;88:774-87.
3. Myers J, Prakash M, Froelicher V, Do D, Partington S, Atwood JE. Exercise capacity and mortality among men referred for exercise testing. N Engl J Med. 2002;346:793-801.
4. Bherer L, Erickson KI, Liu-Ambrose T. A review of the effects of physical activity and exercise on cognitive and brain functions in older adults. J Aging Res. 2013;2013:657508.
5. World Health Organization. Copenhagen. Regional Office for Europe, World Health Organization; c2016.
6. Gulhane TF. Benefits of exercises. Int J Phys Educ Sports Health. 2015;1:105-6.
7. Janssen I. Physical activity guidelines for children and youth. Appl Physiol Nutr Metab. 2007;32:S109-21.
8. Oja P, Bull F, Fogelholm M, Martin B. Physical activity recommendations for health: What should Europe do? BMC Public Health. 2010;10:10.
9. Yadav Devraj. Physical Fitness and Wellness, Angel Publication, New Delhi.
10. World Health Organization. A Global Brief on Hypertension. Geneva: World Health Organization; c2013. Available from: http://www.who.int/cardiovascular_diseases/publications/global_brief_hypertension. [Last accessed on 2015 Mar 01].
11. Huai P, Xun H, Reilly KH, Wang Y, Ma W, Xi B. Physical activity and risk of hypertension: A meta-analysis of prospective cohort studies. Hypertension 2013;62:1021-6.
12. Cornelissen V, Fagard RH. Effects of endurance training on blood pressure, blood pressureregulating mechanisms, and cardiovascular risk factors. Hypertension. 2005;46:667-75.
13. Tuomilehto J, Lindström J, Eriksson J, Valle TT, Hämäläinen H, Ilanne-Parikka P, *et al*. Prevention of Type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance. N Engl J Med. 2001;344:1343-50.
14. Knowler WC, Barrett-Connor E, Fowler SE, Hamman RF, Lachin JM, Walker EA, *et al*. Reduction in the incidence of Type 2 diabetes with lifestyle intervention or metformin. N Engl J Med. 2002;346:393-403.
15. Statistics Canada. Leading Causes of Death; c2012. Available from: http://www.statcan.gc.ca/ tables-tableaux/sum-som/l01/cst01/hlth36a-eng.html. [Last accessed on 2016 Jan 22].
16. Katzmarzyk PT, Janssen I. The economic costs associated with physical inactivity and obesity in Canada: An update. Can J Appl Physiol. 2004;29:90-115.
17. Lee IM, Hennekens CH, Berger K, Buring JE, Manson JE. Exercise and risk of stroke in male physicians. Stroke. 1999;30:1-6.
18. Raz N, Rodrigue KM. Differential aging of the brain: Patterns, cognitive correlates and modifiers. Neurosci Biobehav Rev. 2006;30:730-48.
19. Sofi F, Valecchi D, Bacci D, Abbate R, Gensini GF, Casini A, *et al*. Physical activity and risk of cognitive decline: A metaanalysis of prospective studies. J Intern Med. 2011;269:107-17.
20. Cotman CW, Berchtold NC, Christie LA. Exercise builds brain health: Key roles of growth factor cascades and inflammation. Trends Neurosci. 2007;30:464-72.
21. Erickson KI, Leckie RL, Weinstein AM. Physical activity, fitness, and gray matter volume. Neurobiol Aging. 2014;35:S20-8.
22. Erickson KI, Colcombe SJ, Elavsky S, McAuley E, Korol DL, Scalf PE, *et al*. Interactive effects of fitness and hormone treatment on brain health in postmenopausal women. Neurobiol Aging. 2007;28:179-85.
23. Kohl HW, Craig CL, Lambert EV, Inoue S, Alkandari JR, Leetongin G, *et al*. The pandemic of physical inactivity: Global action for public health. Lancet. 2012;380:294-305.
24. World Health Organization. 2008-2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases. Geneva: World Health Organization; c2008. Available from: http://www.whqlibdoc.who.int/publications/2009/9789241597418_eng.pdf. [Last accessed on 2016 Jan 22].
25. Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT. Effect of physical inactivity on major non-communicable diseases worldwide: An analysis of burden of disease and life expectancy. Lancet. 2012;380:219-29.
26. Fox KR. The influence of physical activity on mental well-being. Public Health Nutr. 1999;2:411-8.
27. Dunn AL, Trivedi MH, Kampert JB, Clark CG, Chambliss HO. The DOSE study. The DOSE study: A clinical trial to examine efficacy and dose response of exercise as treatment for depression. Control Clin Trials. 2002;23:584-603.
28. Scully D, Kremer J, Meade MM, Graham R, Dudgeon K. Physical exercise and psychological well-being: A critical review. Br J Sports Med. 1998;32:111-20.
29. Callaghan P. Exercise: A neglected intervention in mental health care? J Psychiatr Ment Health Nurs. 2004;11:476-83.