

Outdoor and indoor workout - which is better? - A review article

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INTRODUCTION

Physical activity is known to provide a wide range of health benefits that can protect individuals from diseases and enhances their mental and physical health.¹ Regular physical activity can prevent and manage a range of chronic conditions, including cardiovascular disease, type 2 diabetes, and certain cancers and improve musculoskeletal health, weight management, motor skill development in children, and mental health problems.^{1,2} Consistent physical activity helps to maintain the physical functioning of the human body³, improves mental wellbeing⁴, and most of all reduces risks for chronic diseases^{3,5,6}. Given these widely published benefits, one would expect participation in physical activity to be the norm. But, unfortunately, this is not the case. However, global estimates show that around one-quarter of adults aged 18 years and above are insufficiently active, worldwide.¹ As a result, physical inactivity is one of the leading risk factors for global premature mortality, responsible for 9% of early deaths worldwide.⁷ Recommendations for health-enhancing

physical activity targeted to different population sub-groups, often make explicit reference to the activity mode, duration, intensity, and frequency. In the past decades, however, the environment in which physical activity takes place has emerged as an additional element that can determine the activity's health benefit. In particular, it has been postulated that physical activity in the presence of nature, a practice also known as green exercise, can provide additional health benefits and, thus, have greater value for preventing disease and enhancing health in the population⁸. Overall, increasing physical activity and the motivation for physical activity among people presents a major challenge. There is a huge variety of motivation levels between people starting from the people who have a lack of any kind of motivation to engage in any form of physical activity, and ending to the people who exercise for their inherent interest and enjoyment of the activity itself.⁹

Generally, people are driven to be physically active or inactive for a variety of reasons. An important factor motivating participation in physical activity, among all adult age groups, is health^{9,10,11,12,13}. Now a days when one thinks of exercise, the first thing that comes to mind is going to a gym. Nobody thinks about the traditional methods (walking, jogging, cycling etc) of exercise. So, a question arises that, is there a great benefit of going to a gym which is one of the form of indoor exercise, rather performing any indoor exercise versus out outdoor exercise? To get this question answered one should know the positive and negative aspects of exercising outdoors and indoors, which will help to make the choice that is best for one's fitness needs. This may also help to those who are just getting started on the fitness journey and

may help them to decide where to start, in terms of location. It may be also helpful to regular exercisers to change up their usual exercise routine.¹⁴ Evidence suggests that the positive influence of the natural environment on human well-being occurs through different pathways: environmental psychology, enhanced immune function, promotion of healthy behaviors, and improvement of environmental quality.¹⁵

Outdoor Exercises-Advantages (positive benefits) of outdoor exercises are :-

1, Mood Boosting, 2. Soaking up of vitamin D, 3. To move from one place to another.

1. **Mood Boosting:** Sun is a mood booster as it helps in production of key vitamins. According to a study, people who exercise outdoor, reported an increase in energy, decrease in hunger and had an overall revitalization feeling. Compared with people who exercised indoors, those who exercised outdoors were more likely to exercise again, so if one is not too keen of exercising, going outside can just be a motivator.
2. **Soaking up of Vitamin D:** Vitamin D promotes calcium absorption and vitamin D is produced by body when exposed to sun, Calcium keeps bones healthy, which is especially important for women, who are at a higher risk of osteoporosis.
3. **To move from one place to another:** It can be very boring to run on a treadmill, staring at nothing but while exercising outdoor, one can run through your favourite park or through the streets, It is also reported in New York Times that running or cycling outside actually results in better workout than simply running on a treadmill or riding a stationary bike.

There are several ways in which the added health benefits of green exercise might arise. Simply having better access to natural environments, such as parks, playing fields, or woodlands, provides the space and facilities for physical activity, which may in turn foster a more active lifestyle. Though intuitive, evidence that having good access to natural environments (green and blue space) can promote physical activity is equivocal¹⁶⁻¹⁸. A review of 50 epidemiological studies of objectively measured access to greenspace and physical activity found positive associations in 20 studies, whereas 28 studies offered little support and two reported negative associations¹⁷. However, this field of research is dominated by studies with cross-sectional design that often prevent the identification of causal relationships between availability of natural environments and increased physical activity in the local population^{19,20}. Therefore, a question remains about the possibility of a 'self-selection' phenomenon: do natural environments elicit increased physical activity and

well-being, or do physically active individuals choose to live in areas with more opportunities for physical activity? Secondly, there is evidence that people tend to engage in physical activity when in green space and might be active for longer and or at higher intensities in natural environments²¹. For example, the activities that might be well supported by outdoor environments, such as running, hiking, mountain biking, or horse riding, are those that might be undertaken for longer periods of time (compared with indoor activities)²². Other studies in trained athletes have indicated that they might be able to exercise at higher intensities in natural environments as they are more distracted from internal signs of fatigue²³ or have lower perceived effort^{24,25}. These two effects can interact, resulting in people being more active than they would be in other settings, thus gaining greater health benefits²⁶. Finally, being physically active in natural environments may confer additional health benefits, compared with those that would result from the equivalent activity in an urban/built or indoor environment²⁷⁻²⁹. This is associated with the notion that exposure to scenes of nature can elicit positive psychological states such as increased positive affect and reduction of psychophysiological stress²⁷⁻²⁹. The underlying mechanism linking nature exposure to such psychological outcomes is not yet clear. Possible explanations have included evolutionary perspectives^{30,31}, elicited feelings of connectedness with nature^{32,33}, and visual recognition of characteristic features such as the colour green³⁴, and geometrical fractals³⁵. Irrespective of the underlying processes, a 2010 review of 25 studies comparing responses to activities (mostly walking or running) in natural versus non-green outdoor built environments or indoor environments found that the former were associated with greater energy and reduced anxiety, anger, fatigue, and sadness²⁷. However, by conflating non-green outdoor built environments and indoor environments, as well as exercise and non-exercise conditions, this review might have not taken into account possible confounders such as factors eliciting negative emotional responses (e.g., street traffic) or the acute psychophysiological responses to physical exercise. Thompson Coon *et al.*²⁹ reviewed the effects of physical activity in natural environments compared with physical activity indoors on mental and physical wellbeing, health-related quality of life, and long-term adherence to physical activity in 11 studies. The authors reported beneficial effects of natural environments for a range of psychological outcomes, such as revitalization, positive engagement, tension, confusion, anger, depression, and energy. There was also evidence of greater enjoyment and satisfaction with outdoor activity, with indications of greater intent to repeat the activity. However, the review

was limited by the small number of papers included, poor methodological quality of the available evidence, and the heterogeneity of outcome measures employed. This made interpretation and extrapolation of the findings difficult.

DISADVANTAGES OF OUTDOOR EXERCISES:

One and only one major disadvantage of outdoor exercises is the weather Hazards. Some hazards are as follows,

1, Extreme Heat 2, Extreme cold 3, Precipitation etc.

1. **Extreme Heat:** Exercising during hot weather increases core body temp, so body has to work harder to keep oneself cool. Loss of water occurs during exercising in the form of sweat which is very more in hot weather so body should be adequately hydrated.
2. **Extreme cold:** In winter, when temp is low it becomes very difficult to get up early in the morning for exercise.
3. **Precipitation:** Rain Snow, Hail-Any type of precipitation makes it very difficult for exercising outdoor.

Our health and the environment are intertwined. Still, this relationship is most often viewed from a perspective of the adverse health effects resulting from contaminants in the environment.³⁶ But this is not the matter of concern.

So while exercising outdoor one has to keep in mind all above weather conditions and work as per. However, for those who live in places with more extreme weather have to take necessary precautions before venturing outdoors for exercise and also dress appropriately, according to the weather.

INDOOR EXERCISES: Advantages of indoor exercises are:

1. Group Fitness Classes, 2. Personal Trainers, 3. Gyms or playing indoor sports like badminton, table tennis etc.

1. **Group fitness classes:** Like yoga, laughter clubs etc allow to get trained in exercise which one may not have learned on your own. These classes are run by certified professionals, they help to get the correct form of the particular exercise. Exercising with improper guidance or training can lead to serious injuries and also sometimes are not helpful to get complete benefit of that form of exercise. Even while going to a class helps to skip all those difficult moves as the trainer is around.
2. **Personal Trainers:** They determine, what you want to get out of your exercise and then suggest which exercise will effectively help to achieve the goal i.e weight losing, muscle building, or just doing exercise to maintain health and fitness. As personal trainers are certified professionals,

they are able to show the correct form of that particular exercise.

3. **Gyms:** Going to highly equipped gyms with latest amenities is a great reward. Playing indoor games or going to gyms help in without break weather controlled exercise, conveniently.

DIADVANTAGES OF INDOOR EXERCISES,

1. While talking about gyms they charge huge membership fees which is not affordable to all. Some are also cheap, but they don't usually cover all latest amenities and many things like personal trainers, etc.
2. Getting to the gym is also a difficult task. If gym is far away, to get the gym can be a psychological hurdle, which is tough to overcome.
3. Gymtimidation can also be one of the drawback- at least for those who really can't overcome that fear and are conscious of their physique. It may seem silly, but poor body image is no joke. According to studies, body image is a leading reason why already overweight women avoid going to gyms.

CONCLUSION

Ultimately, where you do exercise is totally up to you. No matter, whether one prefers to exercise outdoor or indoor, what's important is that to stay active. Go for a run in the park or take a gym or a fitness class, but just get out there and exercise. Despite the differences between outdoor and indoor exercises there is no clear "winner" to this debate. The true answer is based on each and every individual's preference.

REFERENCES

1. World Health Organization. Global Recommendations on Physical Activity for Health; WHO: Geneva, Switzerland, 2010.
2. Durstine, J.L.; Gordon, B.; Wang, Z.; Luo, X. Chronic disease and the link to physical activity. *J. Sport Health Sci.* 2013, 2, 3–11.
3. Physical Activity Guidelines Advisory Committee. Physical Activity Guidelines Advisory Committee Report 2008. U.S. Department of Health and Human Services; 2008.
4. Paluska SA, Schwenk TL. Physical activity and mental health: Current concepts. *Sports Med.* 2000;29:167–180.
5. Morris JN, Everitt MG, Pollard R, Chave SP, Semmence AM. Vigorous exercise in leisure-time: Protection against coronary heart disease. *Lancet.* 1980;316:1207–1210.
6. Paffenbarger RS, Jr, Hyde RT, Wing AL, Hsieh CC. Physical activity, all-cause mortality, and longevity of college alumni. *NEngl J Med.* 1986;314:605–613.
7. Lee, I.-M.; Shiroma, E.J.; Lobelo, F.; Puska, P.; Blair, S.N.; Katzmarzyk, P.T. Effect of physical inactivity on major non-communicable diseases worldwide: An

- analysis of burden of disease and life expectancy. *Lancet* 2012, 380, 219–229.
8. 4. Shanahan, D.F.; Franco, L.; Lin, B.B.; Gaston, K.J.; Fuller, R.A. The Benefits of Natural Environments for Physical Activity. *Sports Med.* 2016, 46, 989–995.
 9. Ashford B, Biddle S, Goudas M. Participation in community sports centres: Motives and predictors of enjoyment. *J Sports Sci.* 1993;11:249–256
 10. Dacey M, Baltzell A, Zaichkowsky L. Older adult's intrinsic and extrinsic motivation toward physical activity. *Am J Health Behav.* 2008;32:570–582.
 11. Kolt GS, Driver RP, Giles LC. Why older Australians participate in exercise and sport. *J Aging Phys Act.* 2004;12:185-198
 12. Murcia JAM, Galindo CM, Pardo PM. Motivations and reasons for exercising in water: gender and age differences in a sample of Spanish exercisers. *IJARE.* 2008;2:237–246.
 13. Caglar E, Canlan Y, Demir M. Recreational exercise motives of adolescents and young adults. *J Hum Kinet.* 2009;22:83–89.
 14. Rene Daniel, The pros and cons of indoor and outdoor workout- Medclique-To live a healthy Future-Nov,4,2018
 15. Frumkin, H.; *et al.*. Nature Contact and Human Health: A Research Agenda. *Environ. Health Perspect.* 2017, 125 (7), 075001.
 16. Hartig, T.; Mitchell, R.; de Vries, S.; Frumkin, H. Nature and Health. *Annu. Rev. Public Health* 2014, 35, 207–228.
 17. Lachowycz, K.; Jones, A.P. Greenspace and obesity: A systematic review of the evidence. *Obes. Rev.* 2011, 12, e183–e189.
 18. Van den Bosch, M.; Ode Sang, Å. Urban natural environments as nature-based solutions for improved public health – A systematic review of reviews. *Environ. Res.* 2017, 158, 373–384.
 19. Calogiuri, G.; Chroni, S. The impact of the natural environment on the promotion of active living: An integrative systematic review. *BMC Public Health* 2014, 14, 873.
 20. Lee, A.C.K.; Maheswaran, R. The health benefits of urban green spaces: A review of the evidence. *J. Public Health* 2010, 33, 212–222.
 21. Joseph, R.P.; Maddock, J.E. Observational Park-based physical activity studies: A systematic review of the literature. *Prev. Med.* 2016, 89, 257–277.
 22. Pretty, J.; Peacock, J.; Hine, R.; Sellens, M.; South, N.; Griffin, M. Green exercise in the UK countryside: Effects on health and psychological well-being, and implications for policy and planning. *J. Environ. Plan. Manag.* 2007, 50, 211–231.
 23. Pennebaker, J.W.; Lightner, J.M. Competition of internal and external information in an exercise setting. *J. Pers. Soc. Psychol.* 1980, 39, 165–174.
 24. Ceci, R.; Hassmen, P. Self-monitored exercise at three different RPE intensities in treadmill vs. field running. *Med. Sci. Sports Exerc.* 1991, 23, 732–738.
 25. Harte, J.L.; Eifert, G.H. The effects of running, environment, and attentional focus on athletes' catecholamine and cortisol levels and mood. *Psychophysiology* 1995, 32, 49–54.
 26. Gladwell, V.F.; Brown, D.K.; Wood, C.; Sandercock, G.R.; Barton, J.L. The great outdoors: How a green exercise environment can benefit all. *Extreme Physiol. Med.* 2013, 2, 3.
 27. Bowler, D.E.; Buyung-Ali, L.M.; Knight, T.M.; Pullin, A.S. A systematic review of evidence for the added benefits to health of exposure to natural environments. *BMC Public Health* 2010, 10, 456.
 28. Richardson, E.A.; Pearce, J.; Mitchell, R.; Kingham, S. Role of physical activity in the relationship between urban green space and health. *Public Health* 2013, 127, 318–324.
 29. Thompson Coon, J.; Boddy, K.; Stein, K.; Whear, R.; Barton, J.; Depledge, M.H. Does Participating in Physical Activity in Outdoor Natural Environments Have a Greater Effect on Physical and Mental Wellbeing than Physical Activity Indoors? A Systematic Review. *Environ. Sci. Technol.* 2011, 45, 1761–1772.
 30. Ulrich, R.S.; Simons, R.F.; Losito, B.D.; Fiorito, E.; Miles, M.A.; Zelson, M. Stress recovery during exposure to natural and urban environments. *J. Environ. Psychol.* 1991, 11, 201–230.
 31. Kaplan, S. The restorative benefits of nature: Toward an integrative framework. *J. Environ. Psychol.* 1995, 15, 169–182.
 32. Cervinka, R.; Röderer, K.; Hefler, E. Are nature lovers happy? On various indicators of well-being and connectedness with nature. *J. Health Psychol.* 2012, 17, 379–388.
 33. Mayer, F.S.; Frantz, C.M.; Bruehlman-Senecal, E.; Dolliver, K. Why Is Nature Beneficial?: The Role of Connectedness to Nature. *Environ. Behav.* 2009, 41, 607–643.
 34. Akers, A.; Barton, J.; Cossey, R.; Gainsford, P.; Griffin, M.; Micklewright, D. Visual Color Perception in Green Exercise: Positive Effects on Mood and Perceived Exertion. *Environ. Sci. Technol.* 2012, 46, 8661–8666.
 35. Joye, Y.; van den Berg, A. Is love for green in our genes? A critical analysis of evolutionary assumptions in restorative environments research. *Urban For. Urban Green.* 2011, 10, 261–268.
 36. Advancing Environmental Epidemiology to Assess the Beneficial Influence of the Natural Environment on Human Health and Well-Being, Raquel A. Silva, Kim Rogers, and Timothy J. Buckley, *Environ. Sci. Technol.* 2018, 52, 9545–9555.

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