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Physical Activity in Nepal at a Crossroads

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Physical activity is a foundational determinant of health across the life course. From early childhood through older age, regular movement supports physical, metabolic, cognitive, and mental health, reduces the risk of major non-communicable diseases, and preserves functional capacity.[1,2]

Global guidelines reflect the centrality of physical activity to population health. The World Health Organization (WHO) recommends at least 180 minutes of daily physical activity for children younger than 5 years, 60 minutes of moderate- to vigorous-intensity activity per day for children and adolescents aged 5–17 years, and 150–300 minutes of moderate- to vigorous-intensity activity per week for adults.[1,2] Yet adherence remains poor. Around 80% of children and adolescents, and nearly one third of adults, do not meet these recommendations.[1,3] Physical inactivity has increased steadily over the past two decades and, if current trends persist, is projected to reach 35% globally by 2030.[3,4] The consequences are substantial. Insufficient physical activity increases the risk of premature mortality by 20–30% and is projected to result in almost 500 million new, preventable cases of non-communicable disease between 2020 and 2030, imposing an estimated US$300 billion burden on health-care systems worldwide.[2,4]

In response, the WHO launched the Global Action Plan on Physical Activity (GAPPA) 2018–2030, aiming to reduce physical inactivity by 15% among adults and adolescents by 2030.[5] GAPPA advances a whole-of-system approach, recognising that physical activity is shaped not only by individual behaviour but also by social norms, built environments, and governance structures. It calls for active societies, environments, people, and systems, and for sustained cross-sector collaboration.

Progress towards these goals has been uneven. Global physical activity research remains heavily concentrated in high-income settings, with substantial underrepresentation of low- and middle-income countries, despite rapidly rising non-communicable disease burdens.[6] High-income countries have invested widely in physical activity surveillance, research, and intervention development across the life course. These investments have enabled increasingly sophisticated approaches to measurement and analysis, moving beyond questionnaire-based assessments to device-based methods, including accelerometry, wearable sensors, and machine-learning approaches that allow detailed characterisation of activity patterns and postural behaviours.[7] By contrast, between 1950 and 2023, Nepal contributed only 0·12% of global physical activity research output, ranking 71st of 182 countries, according to the Global Observatory for Physical Activity (GoPA).

In Nepal, non-communicable diseases now account for nearly two-thirds of the national disease burden, yet physical activity remains weakly embedded within prevention strategies. Although recent policy documents, including the Multisectoral Action Plan for the Prevention and Control of Non-communicable Diseases (2021–2025), acknowledge the importance of physical activity, national surveillance and research capacity remain limited. Population-level evidence relies largely on two STEPwise surveys conducted in 2013 and 2019 and a single Global School-based Student Health Survey from 2015. Notably, Nepal has no nationally representative data on physical activity among younger children, leaving a critical gap at the earliest and most influential stages of the life course. While research interest has increased in recent years, most studies remain small in scale, cross-sectional, and locally focused, limiting their ability to inform national policy or guide population-level action.

Available evidence nonetheless points to a rapid and

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concerning transition. Among adults aged 15–69 years, physical inactivity more than doubled between 2013 and 2019, rising from 3% to 7.4%, with the largest increases observed in urban areas and among men.[8] These changes mirror accelerating urbanisation, increased motorisation, and a shift away from physically demanding work. Physical activity in Nepal remains dominated by occupational, transport, and household activities undertaken largely out of necessity rather than choice, while leisure-time physical activity is minimal.[9] As economic development continues, these traditionally dominant forms of activity are likely to decline, eroding the historically high activity levels associated with an agrarian economy. Patterns among adolescents are more concerning still. Fewer than one in six adolescents aged 13–17 years meet WHO recommendations for daily moderate- to vigorous-intensity physical activity,[10] and the absence of national data for younger children further obscures early-life trends. Findings from the SUNRISE pilot study, which showed that only 10% of preschool children met WHO 24-hour movement guidelines, suggest that low activity levels and high sedentary behaviour may already be entrenched at the start of life. Together, these patterns signal a generational shift that risks accelerating Nepal's future burden of non-communicable disease.

Despite providing national estimates, existing surveillance systems have important limitations. Both STEPwise surveys and the Global School-based Student Health Survey rely on self-reported physical activity, making them vulnerable to recall and social desirability biases. Common instruments, including the Global Physical Activity Questionnaire, were not designed to capture unstructured or culturally specific activities prevalent in Nepal, such as agricultural work, household labour, and informal employment, leading to misclassification or underestimation. The Global School-based Student Health Survey provides limited detail on activity domains and excludes adolescents who are not enrolled in school. Beyond national surveys, most subnational studies similarly rely on self-reported methods, with only a small number of recent studies using device-based measurement.[11, 12] Although widespread nationwide deployment of device-based methods is still difficult, hybrid surveillance strategies that strengthen self-report tools and selectively incorporate device-based measurements are both practical and urgently needed. Across both national and subnational research, important gaps remain in coverage across age groups and abilities, including limited inclusion of people with disabilities.

Since 2015, Nepal has strengthened its engagement with global physical activity monitoring initiatives through collaborations with the GoPA and the Active Healthy Kids Global Alliance. These efforts have helped identify data gaps, raise awareness, and increase international visibility. However, substantial structural deficits persist. Nepal lacks national physical activity guidelines, explicit population-level targets, dedicated institutions to advance physical activity research, and clear mechanisms for multisector implementation. Public awareness initiatives remain sporadic and are not systematically embedded within primary health care, education systems, or community programmes. At the same time, rapid urbanisation, loss of public and play spaces, increased motorisation, expanding access to digital technologies, and lifestyle changes continue to reduce opportunities for everyday movement. Sports participation remains low across the life course, and traditional outdoor play among children is declining. Under Nepal's federal system, municipal governments have become central actors, yet they often lack the technical guidance, resources, and accountability mechanisms required to prioritise active living in urban planning and transport policies.

Reversing current trajectories will require a coordinated, whole-of-system response. Surveillance systems must be strengthened through the adoption of objective and contextually validated measurement tools, alongside improved coverage across age groups, abilities, and settings. Research priorities should include longitudinal studies to track trends over time, analyses of how urbanisation and economic development shape activity patterns, and the routine production of disaggregated data by gender, geography, disability, ethnicity, and socioeconomic position. Action must extend well beyond the health sector. Cross-sector collaboration with urban planning, transport, education, and local government is essential to address the structural drivers of physical activity. Priority actions include the development of national physical activity guidelines and targets, investment in safe walking and cycling infrastructure, improvements in road safety, and increased access to well-maintained public spaces such as parks, playgrounds, and recreational facilities. Programmes must promote physical activity across the life course and for people of all abilities, with explicit safeguards to ensure that interventions do not widen existing inequalities.

Physical activity is not a marginal lifestyle choice but a core societal investment with benefits that accrue across generations. Nepal stands at a narrowing window

of opportunity. With strategic investment, multisector coordination, and sustained research capacity building, the country can still shape environments, policies, and norms that support active living from early childhood through older age. Failure to act risks locking in patterns of inactivity that will be far more costly to reverse. The choice is not whether Nepal can afford to prioritise physical activity, but whether it can afford not to.

REFERENCES

1. WHO. Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age: World Health Organization. 2019. [cited 2025 Dec 26]. Available from: https://www.who.int/publications/b/47489

2. WHO. WHO guidelines on physical activity and sedentary behaviour. Geneva: World Health Organization. 2020:1-582. [cited 2025 Dec 26]. Available from: https://www.who.int/publications/i/item/9789240015128

3. Strain T, Flaxman S, Guthold R, Semenova E, Cowan M, Riley LM, et al. National, regional, and global trends in insufficient physical activity among adults from 2000 to 2022: a pooled analysis of 507 population-based surveys with 5· 7 million participants. The Lancet Global Health. 2024; 12:e1232-e43.doi: https://doi.org/10.1016/S2214-109X(24)00150-5

4. WHO. Global status report on physical activity 2022: country profiles: World Health Organization; 2022. [cited 2025 Dec 26]. Available from: https://www.who.int/publications/i/item/9789240064119

5. WHO. Global action plan on physical activity 2018-2030: more active people for a healthier world: World Health Organization; 2019. Available from: https://www.who.int/initiatives/gappa/action-plan

6. Aubert S, Brazo-Sayavera J, González SA, Janssen I, Manyanga T, Oyeyemi AL, et al. Global prevalence of physical activity for children and adolescents; inconsistencies, research gaps, and recommendations: a narrative review. International Journal of Behavioral Nutrition and Physical Activity. 2021; 18:81. doi: https://doi.org/10.1186/s12966-021-01155-2

7. Clark CC, Barnes CM, Stratton G, McNarry MA, Mackintosh KA, Summers HD. A review of emerging analytical techniques for objective physical activity measurement in humans. Sports medicine. 2017; 47:439-47. doi: 10.1007/s40279-016-0585-y

8. Dhimal M, Bista B, Bhattarai S, Dixit LP, Hyder MKA, Agrawal N, et al. Report of Non Communicable Disease Risk Factors STEPS Survey Nepal 2019. Kathmandu, Nepal: Nepal Health Research Council 2020. Available from: https://nhrc.gov.np/wp-content/uploads/2020/04/NEPAL%E2%80%93Noncommunicable-disease-risk-factors-STEPS-Survey-2019-%E2%80%93-Tobacco-Factsheet.pdf

9. Paudel S, Owen AJ, Smith BJ. Socio-ecological influences of leisure-time physical activity among Nepalese adults: a qualitative study. BMC Public Health. 2021; 21:1443. https://doi.org/10.1186/s12889-021-11484-3

10. Aryal KK, Bista B, Khadka BB, Pandey AR, Mehta R, Jha BK, et al. Global School Based Student Health Survey Nepal. Kathmandu, Nepal: Nepal Health Research Council2017. https://nhrc.gov.np/wp-content/uploads/2017/10/Ghsh-final-with-cover-and-anex.pdf

11. Shrestha R, Adhikari TB, Khatri B, Neupane D, Paudel S, Nielsen RØ, et al. Community-based promotion of physical activity in Nepal: study protocol for a cluster-randomized controlled trial. Trials. 2025; 26:170. doi: https://doi.org/10.1186/s13063-025-08885-9

12. Adhikari S, van Rens F, van Nispen RM, Galna B, Elsman EB, Poudel M, et al. Differences in Objective Physical Activity Between Children With Visual Impairment and Those With Normal Sight. Translational vision science & technology. 2024; 13:18. doi:https://doi.org/10.1167/tvst.13.7.18