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Leese, Callum; Al-Zubaidi, Hussain

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REVIEW

Urban green and blue spaces for influencing physical activity in the United Kingdom: A narrative review of the policy and evidence

Callum Leese¹  | Hussain Al-Zubaidi² 

¹Department of Population Health and Genomics, University of Dundee, Ninewells Hospital, Dundee, UK

²Royal College of General Practitioners, London, UK

Correspondence

Callum Leese, Department of Population Health and Genomics, University of Dundee, Ninewells Hospital, James Arrott Drive, DD2 4BF Dundee, UK.

Email: Cleese001@dundee.ac.uk

Abstract

Introduction: With the rapid growth of urbanization globally and in the UK, increasing attention is now being directed towards urban green spaces (UGS). The appeal of UGS to policymakers lies in their capacity to address multiple policy objectives, including improving physical and mental wellbeing, mitigating noncommunicable diseases (NCDs), combating climate change through carbon sequestration, providing climate adaptation measures, and enhancing biodiversity.

Method: This narrative review gives an overview of the current literature and UK policy relating to urban green and blue spaces, with a particular focus on the use of UGS to increase physical activity levels.

Results: UGS have a profound impact on public health, with evidence indicating their positive effect on both physical and psychological health. Thirty-eight percent of adults in the UK do not live within 15 minutes of UGS, so policy makers at national and international level are aiming to address this gap. One reason for the health benefits of UGS is associated increased physical activity, a vital component needed to address the burden of non-communicable disease. To effectively harness UGS to promote physical activity various factors must be considered; proximity and diversity of urban green spaces, and the presence of suitable infrastructure features. Tailoring UGS to meet the needs and preferences of different population demographics is essential, as is ensuring safety, and addressing barriers to access particularly for lower socio-economic groups. The careful planning of UGS must avoid potential gentrification effects and displacement of vulnerable communities, whilst utilising the equigenic nature of UGS.

Conclusions: To create a brighter future and capitalize on the potential of UGS, a collaborative approach is needed, involving communities, local governments, and national authorities. Primary-care professionals, represented by organizations like the Royal College of General Practitioners (RCGP), can play a crucial role in advocating for UGS and physical activity, promoting their use, and providing guidance and support.

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KEYWORDS

physical activity, policy, urban blue spaces, urban green spaces

1 | INTRODUCTION

The knowledge of the benefits of green spaces to humans is not new. In 1833, a report by the House of Commons Select Committee on Public Walks highlighted the potential of public open spaces to increase social cohesion, prevent disease and combat poor behaviour.¹ This precipitated the Victorian development of public parks, of which many of us still benefit from today. And yet with the rapid increases in urbanisation both globally and within the United Kingdom² increasing attention is being paid to urban green and blue spaces (UGS). In January 2023, the UK government published their Environmental Improvement Plan 2023, highlighting a 'new and ambitious commitment ... to ensure that anyone can reach green or blue space within 15 minutes from their front door'.³ This is not related to, and should not be confused with, the World Health Organisation (WHO) and United Nations (UN) backed 15-min cities initiative: a revolutionary, and at times controversial, concept of proximity-based planning to ensure all basic services are accessible by foot within 15 min.⁴

UGS have not been clearly defined.⁵ Generally, however, urban green spaces are used to refer to any natural feature within urban environments, including parks, gardens, street trees and planting within structures.⁶ Urban blue spaces similarly refer to any body of water, including coastal margins of cities, rivers, canals and lakes.⁶

The traction currently afforded to UGS is in part due to their value to policymakers, with their potential to simultaneously address multiple policy objectives for national and regional governments, including (1) improving physical and mental well-being and addressing noncommunicable diseases, (2) addressing global climate change via carbon sequestration, (3) provision of climate adaptation, via urban cooling and reducing flood risk and (4) addressing biodiversity.⁶

UGS understandably have the capacity to have significant environmental benefits. Plants accumulate carbon, with a Chinese study highlighting the significant carbon capture capacity of Beijing's green spaces (95,6000 tonnes of carbon stored).⁷ Blue spaces in Finnish parks have resulted in an increase in water storage capacity, changing water flows and ultimately leading to an increase in water quality.⁸ Trees also provide shade, offering potential for decreasing temperatures in urban spaces – increasingly important in the context of climate breakdown.⁹ In addition, they have the capacity to manage heat, decrease exposure to air pollution and help manage urban noise.¹⁰

The impact of UGS on health has a significant and growing body of evidence. In a recent review by Jimenez and colleagues,¹¹ UGS was associated with improved stress, affective state, anxiety, mood, cognitive function, blood pressure, immune function, physical activity levels and decreased obesity rates. There is also evidence to support a decrease in all-cause mortality. These findings are supported by evidence from two WHO reports, 'Nature, Biodiversity and Health: An Overview of Interconnections'¹² and 'Urban Green Spaces: A Review

of Evidence'.¹³ The benefits of UGS can be particularly pronounced in children, highlighted via a report from UNICEF in 2020.¹⁴

The health improvements offered by UGS occur through three inter-related dimensions: activity levels, mental health and social interactions.¹⁵ Firstly, UGS facilitate active lifestyles by enhancing both recreational and commuter-time physical activity.¹⁶ Access is one of the key determinants of UGS use to improve physical activity, increasing both the likelihood and frequency of physical activity.¹⁷ The mental health benefits are linked with increased physical activity and social interaction but independently through relaxation and mindfulness properties of green space, particularly important in the highly stimulating modern world.¹⁸ Finally, UGS have been shown to decrease social isolation and generate social capital.¹⁹ Social interactions can increase by both allowing a space for pre-existing relationships to meet and also fostering new relationships.²⁰ In their review, Jennings and Bamkole²⁰ identify a number of UGS features that can foster social interaction including a good path system, relaxing areas and a functional playground.

In the United Kingdom, one third of adults fail to meet the Chief Medical Officers' physical activity guidelines,²¹ resulting in huge detrimental implications on an already stretched health service. For example, according to the Department for Health of England and Wales, physical inactivity is associated with one in six deaths in the United Kingdom and costs the NHS £0.9 billion annually (and £7.2 billion to the UK economy).²² UGS have the potential to positively influence physical activity and so in light of recent UK government policy, this article will discuss UGS within the United Kingdom, with a particular focus on the use of UGS to increase physical activity levels within the population.

2 | CURRENT STATE OF AFFAIRS

The UK Government Environmental Improvement Plan highlighted that 38% of adults in the United Kingdom do not have a UGS within 15 min walk of their home, leading to their commitment to address this.³ The Office for National Statistics released a report in 2018 regarding UGS in the United Kingdom,²³ identifying more than 62,000 UGS in the United Kingdom, with 31% of all urban areas classified as natural space (and by default a UGS). However, of this 31%, only 5% were publicly accessible green spaces, with the remainder representing non-publicly accessible spaces such as golf courses, allotments or growing spaces, bowling greens and sports facilities such as cricket grounds.

The Office for National Statistics report²³ found the average distance to a functional green space from home for a UK resident was 259 m and 365 m to a blue space. Despite this, improving access to suitable green space for all has been predicted to save the NHS £2.1 billion per year due to increased physical activity.²⁴

3 | CURRENT POLICY

In addition to the 2023 Environmental Improvement Plan,³ the UK government released an updated review in 2020 on Improving Access to Greenspace²⁴ building on a previous iteration in 2014.²⁵ The importance of green spaces is also acknowledged in several other UK government strategies (Table 1):

Health: Childhood Obesity Strategy,²⁶ Everybody Active Every Day,²⁷ Sporting Future,²⁸ Prevention is Better than Cure,²⁹ 5-year forward view for mental health³⁰;

Social: Strategy for tackling loneliness,³¹ integrated communities action plan³²;

Environmental: Clean Air Strategy,³³ The Second Cycling and Walking Investment Strategy,³⁴ 25-year Environment Plan.³⁵

UGS also address the UK Government's UN Sustainable Development Goal³⁶ requirements and aligns with WHO policy.⁶ A recent paper³⁷ reviewed the evidence for UGS in achieving the sustainable development goals (SDGs). The majority of the 181 included papers addressed SDG 3 (health and well-being), SDG 11 (inclusive, safe, resilient and sustainable cities) and SDG 13 (combat climate change). However, it highlighted that UGS could theoretically contribute to 15 of the 17 SDGs.

4 | FUTURE OF UGS TO ACCOMMODATE PHYSICAL ACTIVITY

There is a significant amount of evidence regarding interventions to promote physical activity in UGS, but this is frequently limited in its quality and applicability across different nations.³⁸ A systematic review by Hunter and colleagues in 2015³⁸ included 12 studies in an assessment of interventions for physical activity (PA) in UGS. The interventions included varied significantly, including trails, playgrounds, landscaping, outdoor gyms and skate parks to name a few. A lack of evidence existed for a specific intervention. However, more promising evidence did exist for the use of PA programmes combined with physical changes to the built environment.

The WHO has highlighted guidance for UGS design in a brief for action: proximity to people, diversity of urban green spaces (not over-designed for specific function or attraction of specific users), simple design, easy and visible access, prepared for different seasons, consideration of safety issues and availability of infrastructural features (parking and bike storage, for instance).³⁹

There is significant evidence to support the proximity of UGS to homes at increasing both the frequency and amount of PA.^{40–47} There are also a number of other features highlighted in research to improve PA levels: paved trails,^{48,49} water features,⁵⁰ presence of a playground,^{48,51} presence of wooded areas,^{45,48,50} street lighting^{50,51} and infrastructure (including parking, toilets, resting areas, shelters).^{50,52}

Given variations in individual wishes and needs, no such thing as a perfect green space exists. Barriers and facilitators to PA in UGS are

dependent on populations assessed. Elderly populations have specific barriers which need to be accounted for when planning UGS.⁵³ These include ensuring regular resting places staggered throughout UGS and the presence of toilets. This might contrast to the importance a parent of a young child places on the presence of a playground. Furthermore, the attributed value by the individual can affect the dynamics of users, with the presence of some members making the UGS less appealing to others. For example, Cohen and colleagues showed that the presence of a skate park led to increased use by teenagers, but subsequently had a negative influence on use by other community members, most notably older people.⁴⁰

Given the differing demands of different demographics and personal preferences, a wide variety of green spaces offering different things within walking distance of homes is important. This is an important consideration in the planning of a new UGS. Large green spaces may be able to accommodate the wishes of a large percentage of the population simultaneously, explaining why increasing the size of green space leads to an increase in PA levels of the surrounding population.^{43,48,52,54,55}

A major barrier to the utilisation of UGS is perceived safety.⁵⁶ A review by Sreetheran and van den Bosch⁵⁷ highlighted three main elements influencing the perception of safety: (1) personal factors (e.g., gender, age and comorbidities), (2) social factors (e.g., crime and deprivation) and (3) physical attributes of the park (e.g., signs of negligence or incivilities, absence of good street lighting). Addressing safety is vitally important and is acknowledged (alongside many other important features of green spaces) as part of the UK's Green Flag Awards.⁵⁸ The award scheme is designed to recognise and reward well-managed parks and green spaces, marked against eight set criteria areas. These criteria are (1) a welcoming place; (2) healthy, safe and secure; (3) well maintained and clean; (4) environmental management measures; (5) biodiversity, landscape and heritage; (6) community involvement; (7) marketing and communication and (8) management. Across the United Kingdom, only 17% of public parks have green flag status (England 18%, Wales 15% and Scotland 9%).

Future UGS must also account for the needs of lower socio-economic classes. Currently, higher socio-economic classes benefit more from UGS; however, UGS have been noted to be equigenic, in that the health benefits linked with access to green spaces are strongest among the lowest socio-economic groups.⁵⁹ Therefore, they hold the possibility to decrease health inequalities. Careful planning is required in the design of UGS with new UGS having the potential to lead to gentrification of geographical locations, higher house prices and ultimately displacement of lower socio-economic classes to areas with less UGS. In England and Wales, houses and flats within 100 m of UGS are an average of £2500 more expensive than they would be if more than 500 m away.²³

Furthermore, user satisfaction with green space is a higher predictor of use than just the presence of green space,⁶⁰ with community ownership of UGS a valuable tool in enhancing both use, maintenance and safety.¹⁴ Co-design (the inclusion of local community and intended users in the planning process) ensures local needs are met and has

TABLE 1 Summary of UK government policies including green and blue space.

Policy	Year	Department	Statement	Recommendations for prioritising urban green and blue spaces	Funding commitment
Environmental Improvement Plan	2023	Department for Environment, Food and Rural Affairs	'ensure that anyone can reach green or blue space within 15 minutes from their front door'	Y	Y
Improving Access to Greenspace	2020	Public Health England	'evidence showing that access to greenspaces really matters for our health'	Y	N
Childhood Obesity: A Plan for Action	2018	Department for Health and Social Care	'Local authorities have a range of powers...prioritise active travel in transport plans...and ensure access to quality green space to promote physical activity'	N	N
Everybody active, every day: an evidence-based approach to physical activity	2014	Public Health England	Acknowledges active environments as one of the four action areas, acknowledging the importance of green space for health and physical activity. 'Local authorities are seizing their new opportunity to link local health policy with other policy strands such as planning, transport infrastructure and housing.'	N	N
Sporting Future: A New Strategy for an Active Nation	2015	Department of Culture, Media and Sport	'The opportunities to realise the multiple benefits that can be achieved for communities by investing in green spaces and routes as venues for sport and healthy activity should be considered whenever they arise.'	Y	N
Prevention is better than cure: Our vision is to help you live well for longer	2018	Department of Health & Social Care	'Our mental and physical health is also shaped by the neighbourhoods we live in, including access to green space, community safety and cycling or walking routes'	N	N
The Five-Year Forward View for Mental Health	2016	NHS England	'importance of addressing the wider determinants of mental health, such as good quality housing, debt, poverty, employment, education, access to green space and tough life experiences such as abuse, bullying and bereavement'	N	N
A connected society: a strategy for tackling loneliness	2018	Department for Digital, Culture, Media and Sport	'commitments include creating more green infrastructure, in recognition of the important benefits this will provide to health, wellbeing and social connection'	Y	N
Integrated Communities Action Plan	2019	Ministry of Housing, Communities & Local Government	'We will continue to work with the Parks Action Group on how to enhance the sustainability of parks and green spaces and how they can best promote integration, including through the setting of standards for Green Spaces to help make those spaces safe, accessible and attractive places where local communities can meet, mix and strengthen social connections'	Y	N
Clean Air Strategy	2019	Department for Environment, Food & Rural Affairs	'This will require a mix of action to address pollution from traffic and other sources and to improve the ability of the natural environment to reduce public exposure to air pollution through intelligent tree planting and better access to green infrastructure.'	Y	N

(Continues)

TABLE 1 (Continued)

Policy	Year	Department	Statement	Recommendations for prioritising urban green and blue spaces	Funding commitment
The second cycling and walking investment strategy (CWIS2)	2023	Department for Transport	'ambition for more people to improve their health and wellbeing through access to green spaces, including developing green infrastructure in towns and cities'	Y	Y
25 Year Environment Plan	2018	Department for Environment, Food & Rural Affairs	'Chapter 3: Connecting people with the environment to improve health and wellbeing'	Y	N

been shown to have a beneficial impact on communities.⁶¹ Recognising the value of this, in 2017, the WHO recommended that planning of UGS should be done with local community and intended user input.³⁹

5 | ACTIONS FOR A BRIGHTER FUTURE

Given the benefits of UGS, and the existing research highlighting the importance of proximity to UGS, it is important to contextualise the UK government's new 'ambitious commitment' to ensure every household is within a 15-min walk of a UGS.³ The concept is not new, and the plan is not particularly ambitious. The WHO, in 2016, suggested 300 m as an advisory figure for distance to a UGS.¹³ Action is needed at all levels. In their report on green space for child development, UNICEF offers a template to drive future actions,¹⁴ which adapted to the promotion of physical activity provides a vision for movement in the United Kingdom.

- **Community:** regular maintenance and clean-up events to maintain local parks and their facilities, establishment of local physical activity groups and organisations to deliver PA sessions in UGS, partnerships with private entities to aid in the creation and renewal of UGS with a view to PA, lobbying of local and national governments and the monitoring of the use of UGS.
- **Local governments:** set infrastructure regulations and land use standards, support real estate to exceed UGS standards and guidelines, provide funds and expertise to reclaim/redesign urban spaces and provide funds and framework for physical activity programmes locally in UGS
- **National governments:** set minimum standards to UGS, set independent bodies to assess and monitor, assist in the funding and provision for physical activity programmes and UGS development.

As primary-care professionals, the authors acknowledge the role of primary care in supporting this vision for more UGS supporting physical activity. The Royal College of General Practitioners (RCGP) is committed to addressing physical inactivity and climate breakdown.^{62,63}

Addressing this, in 2022 the RCGP developed a new professional topic guide within the RCGP curriculum on population and planetary health. First, primary care practitioners need to be advocates of UGS and physical activity through both their actions (by visibly using it) and also through promotion and lobbying. Given that GP practices have real estate, they should look to use space to provide UGS that promotes movement. Finally, the RCGP must offer guidance, accountability and support to GPs whilst also lobbying regional and national governments to enact change.

6 | INSPIRATIONS FOR OUR GREENER COMMUNITIES

Brown space re-design: Castlefield Viaduct, Manchester, UK:

In July 2022 the National Trust re-developed the Castlefield Viaduct, a disused 19th-century railway viaduct in central Manchester, into a 330 m long sky-park.⁶⁴ The 'sky-park' imaginatively re-purposes a former brownfield site of little socio-economic or ecological worth into a precious oasis of biodiversity in (and on) the Manchester skyline.

Greener cities: Copenhagen, Denmark:

Copenhagen was awarded the European Green Capital in 2014 recognising the cities urban green spaces,⁶⁵ a contributing factor to it also being recognised as one of the world's most environmentally friendly cities.⁶⁶ In 2015, the municipality implemented *Urban Nature in Copenhagen 2015–2025* with two over-arching aims: create more UGS in Copenhagen and improve the quality of existing UGS.⁶⁷ The policy was implemented in three main ways: (1) a green planning tool, calculating a score based on quality and quantity for proposed projects, to guide permissions, (2) creation of a tree policy and (3) planting of 100,000 additional trees in a decade.

7 | CONCLUSION

The value of UGS in improving physical and mental well-being, addressing climate change, promoting diversity and enhancing social cohesion is increasingly recognised by policymakers and researchers alike. The UK government's Environmental Improvement Plan 2023 signifies a commitment to ensure that every household can access a green or blue space within a 15-min walk from their front door. While this commitment is commendable, it is not a novel concept, with the WHO recommending more ambitious proximity guidelines. Despite the benefits of UGS and its positive role in promoting movement, there are challenges in effectively promoting physical activity through UGS interventions. The quality and applicability of intervention studies vary across different regions, and the needs and preferences of different populations must be considered in UGS planning. Safety concerns, barriers to access for lower socio-economic classes, and the risk of gentrification are important considerations that should be addressed in future UGS development.

To create a brighter future and maximise the potential of UGS to promote physical activity and overall well-being, a collaborative effort is needed. Communities should be involved initially in the co-production and co-design of UGS to ensure they meet the needs of the people they are intended to serve, and in maintaining and enhancing these (and existing) UGS. Local and national governments must set standards, regulations and provide funds to support UGS development and appropriate physical activity programmes to best utilise the space. By working together, we can ensure that UGS become a vital component of healthier, more sustainable and inclusive urban landscapes, benefiting both present and future generations.

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No dataset was used in the development of this manuscript.

ORCID

Callum Leese  <https://orcid.org/0000-0002-2708-0499>

Hussain Al-Zubaidi  <https://orcid.org/0000-0002-4912-7227>

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