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ORIGINAL ARTICLE

Sporting Lifestyle in Singapore

Centralized urban planning and the making of a potential hub for physical activity, sports and exercise

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Summary

This article outlines the core physical pillars of Singapore's long-term, egalitarian land-use planning approach to providing infrastructure and public space for physical activity, sports and exercise in its high-density urban landscape. The city's centralized key urban features such as the non-private sports complexes, city parks, park connectors and outdoor gym facilities, in particular, are believed to have laid the physical foundation for the city's sporting lifestyle evolution. In order to further broaden the appeal of health-enhancing outdoor and indoor physical activities among Singaporeans and to enhance the city's liveability, this article makes recommendations for the diversification and expansion of the existing recreational and sporting amenities. It also argues that this densely populated South-East Asian city could potentially become an internationally recognisable urban sporting lifestyle hub with global marketability by incorporating this evolving aspect of healthy urban living into its city identity and city branding.

1. Urban Sporting Lifestyle

Singapore, a city-state located in South-East Asia, is widely known for its economic clout, modernism and rapidly growing prosperity, regularly retaining its top position in city rankings regarding business-friendliness, global finance services, socio-political stability, government efficiency, personal safety, technology readiness, infrastructure, education and global appeal[1,2,3,4]. Yet this top-tier world city is less known for its evolving urban sporting lifestyle. The rapidly changing attitudes towards living a healthier life have over the years resulted in greater physical activity participation levels among Singaporeans, with 26% of Singapore residents participating in physical and sporting activities at least three times a week – compared to merely 8% in 1992[5,6].

In particular, running, which is one of the least capital-intensive physical activities, has become deeply ingrained in Singapore's city life, making it the most popular form of physical exercise; 14% of Singapore residents are reported to be participating in recreational running at least once a week (with 15% walking is leading the top activities ranking). Participation in running competitions has also surged by 100% in the past 5 years (totalling 126 local running events in 2016)[7], implying an increased societal interest in physical health, body image and performance assessment.

Since creating physical activity-enhancing built environments is believed to be supportive in reducing the burden on various chronic medical conditions[8,9] and boosting activity participation rates among urban residents[10,11,12,13,14,15], a city-wide provision of sufficient and adequate infrastructure and open public space for physical activity, sports and exercise understandably plays a critical role in any active lifestyle promotion efforts.

As for the increasingly densely populated Singapore **(see Chart 1)**, the city appears to have found a balance between creating high-density urban settings and providing its residents with suitable urban space for physical activities and recreation. It is therefore reasonable to assume that its progressive city-planning concepts have, to large extent, laid a sustainable physical foundation for its urban sporting lifestyle evolution. For these reasons, the city's land-use planning and its centralised approach to establishing adequate built environments for physical activity, sports and exercise in this large, high-density world city deserve a brief historical introduction and analysis.

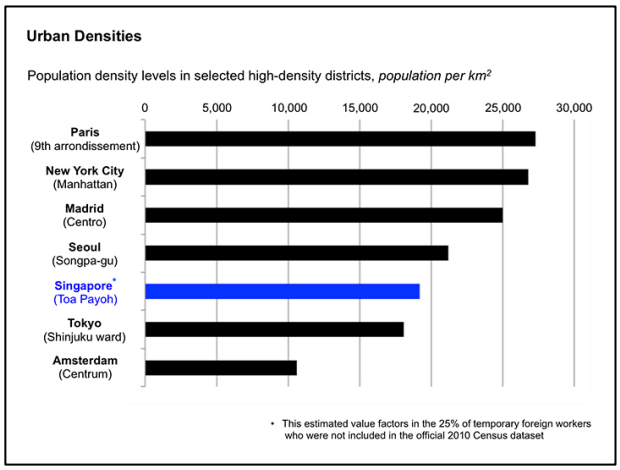


Chart 1. Urban densities of selected districts in large-sized cities[16]

2. Centralized Land-Use Planning

The pivotal moments of Singapore's provision of sporting facilities and green space for recreational purposes can be traced back to the 1960s and 1970s periods, during which these crucial urban features were embedded into the city's modern urban planning strategies. After gaining independence in 1965 the re-elected government and an international expert team affiliated with the United Nations started working on the first city plan, which recommended the creation of residential 'satellite cities' across the island[17,18]. This urban development strategy for modern Singapore appears to have been largely in-

spired by the *New Town Movement* – a once popular urban planning concept that merged the *Socialist City* planning model[19,20,21] with the rather contrasting principles of *Garden Cities*[22,23].
In unifying these two urban planning concepts, *Socialist City* and *Garden Cities*, Singapore has over the past decades created largely self-sufficient population centres that are characterized by uniform, egalitarian residential areas consisting of publicly-subsidized high-rise apartments – the so-called *New Towns* (or just *Towns*). The centralized urban structure of its *Towns* follows a standardized land-use distribution formula, guaranteeing the provision of almost identical sports and recreational facilities in every such district (standardization is one of the key characteristics of the *Socialist City* urban planning concept). Singapore's standardised land-use quotas for publicly accessible sporting amenities apply to all *Towns* – which account for 3% of the entire area of a *Town*[24,25]. By contrast, the city's rigid separation of residential and industrial sectors and the formation of clusters of physically separated 'satellite cities' encircling the city centre clearly complies with Ebenezer Howard's principles of *Garden Cities*.

Verticalization and densification have become the cornerstones of Singapore's city planning concept

Over the past years the city's residential districts have entered a period of constant transformation, resulting in increasing verticalization and densification of these subsidized HDB-public housing estates (the acronym HDB stands for the Housing Development Board, a statutory board of the Singapore government that manages all public housing estates). Simultaneously, the areas of enclosed higher-quality private condominiums and private houses have undergone substantial expansion procedures. Yet despite this housing privatization trend, the HDB-districts have remained the residential heartlands and the core pillar of the city's social fabric, representing residential areas in which 82 per cent of the local population still lives[26]. Providing public sports and recreational facilities in these large, densely populated districts has therefore been one of the key elements of the government's urban planning strategy since the 1970s[27].
In general, the availability of sports and exercise facilities in close proximity to residential areas is an enabling factor for participation in physical activities[12,28,29]. Hence, the government-initiated sporting infrastructure within the HDB-residential districts and the provision of local public green space in Singapore may suggest that its top-down approach has been crucial to delivering a public good and to facilitating the popularization of Singapore's sporting lifestyle. Thus the city's physical activity-supportive built environments and its central planning concept will be outlined and discussed in this article.

Community Sports Complexes

A typical HDB-public housing district in Singapore provides their local residents with a standardized sports complex, which usually contains a track and field stadium, a multi-purpose-built indoor sports hall and an outdoor Olympic-size swimming pool. In recent years other amenities, such as tennis courts, fitness gyms and dance studios, have also been added to the original layout of the sports complexes[27], diversifying the choice of available options for physical activity and exercise. Besides, the HDB-districts have been supplemented with large numbers of complementary small-sized outdoor sporting amenities in an attempt to increase the overall recreational space and to provide HDB-residents with equal accessibility; particularly, soccer fields as well as basketball and badminton courts have been methodically embedded into the high-density, high-rise public housing estates.
Moreover, there are currently 108 mid-sized, multi-functional community clubs[30], which provide predominantly older local residents with additional facilities and organized courses for recreation, fitness and exercise; they regularly comprise of an outdoor basketball court and indoor amenities for table tennis, badminton, dancing and gym workout. Yet despite the provision of these HDB-integrated ball games grounds and government-associated community clubs, the large-sized HDB-sports complex-

es continue to remain the cornerstone of the city's sporting lifestyle evolution. These key government-run sporting facilities are fairly evenly distributed across Singapore **(see illustrated map below)**, revealing the government's aspiration to provide equal accessibility. Overall, there are currently 22 outdoor swimming centres with Olympic-size pools, 16 large-sized stadia, 15 indoor sports halls and 16 indoor gyms[31].

A typical track and field stadium embedded into the HDB-districts

A basketball court integrated into an HDB-public housing estate

Some segments of the present sports complexes, however, appear to be in dire need of an urgent face-lift. Occasionally, they give the impression that no substantial upgrade works have been carried out since the 1980s. Another subject of concern appears to be the supply-demand-mismatch of most public sports facilities. As demonstrated in **Chart 2**, the provision of these facilities has failed to keep pace with the massive urban expansion and population growth. While Singapore's population has risen from 3.5 to 5.5 million since 1995, for instance, only two traditional HDB-sports complexes, in *Jurong West* and *Choa Chu Kang*, have been constructed during the same period of time (to the best of the author's knowledge).

Particularly, the significant increase in population has ultimately resulted in considerably higher nominal utilisation of various HDB-sports facilities. The number of bookings for badminton courts, table-tennis areas and indoor fitness gyms, for instance, has doubled over the past 10 years[32,33]. Also, on weekday evenings the relatively small indoor gym facilities are mostly overcrowded, implying high popularity levels of body workout among young residents (the utilization rate of HDB-indoor gyms in 2015 exceeded 2.5 million)[33]. In short, the increasing demand for various exercise types and physical activities may indicate that the expansion and diversification of the entire sports complex zones may be required.

These publicly-subsidized sports complexes and the open public space remain the main recreational areas of choice for Singapore residents who live in HDB-public housing estates. Clearly, these urban settings for exercise and recreation form the basis of Singapore's sporting and active lifestyle, with 83% of physically active HDB-residents and 60% of residents who live in private condominiums being reported to be regularly utilizing either the available public sports facilities or public space[5]. These figures also include the large numbers of city parks that have become one of the key urban planning features of this 'Planned City' of Singapore.

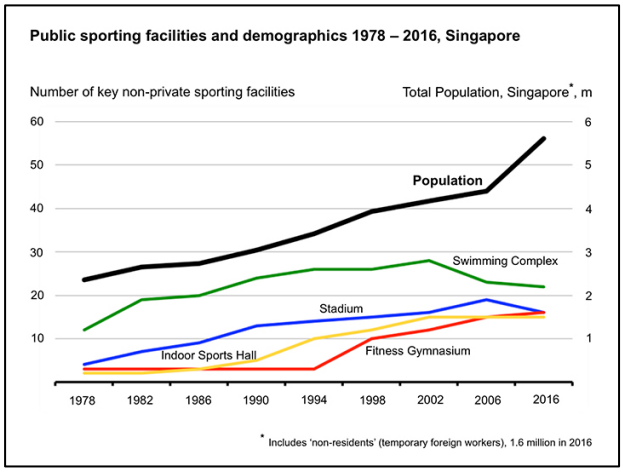


Chart 2. The number of selected non-private sporting facilities and the total population of Singapore from 1978 to 2016[31,34,35].

City Parks

In general, the incorporation of city parks into urban settings has been shown to be positively associated with increased participation in physical activity[37,38]. In Singapore a substantial portion of its urban land area has been allocated to public park development, highlighting the significance of environmental and recreational aspects in the city's long-term planning strategy. At present this tropical city contains 275 small-sized neighbourhood parks and a generously high number of 62 medium- and large-sized regional parks[39]. There is no hyperconcentration of city parks in any particular urban area – that is, the parks are proportionally distributed throughout the city-state, offering various temporary retreat options for local residents who, at least briefly, desire to escape the city's notoriously work-centric lifestyle.

As implied above, the location choice of Singapore's city parks can be likened to the tradition of the British *Garden Cities* urban planning concept. While the smaller HDB-parks are methodically incorporated into public housing estates, the larger city parks regularly serve as segregation zones between the high-density, high-rise HDB-districts. Given the permanent integration of amenities for physical activities into the parks' design, Singapore's large- and medium-sized city parks, in particular, could be regarded as the city's greatest active and sporting lifestyle asset, totalling an area of 3,130 ha[39]. By and large, its large-sized parks contain designated trails for running, cycling and inline skating, which are often linked to other parks via an expansive network of paved trails, the so-called park connectors. Moreover, numerous outdoor fitness stations are installed in various parts of the parks (see the sections on 'Outdoor fitness zones' and 'Park connector network').

Overall, Singapore offers numerous outstanding parks for exercise purposes, differing in size, range of amenities, sun-protective tree coverage and panoramic view[40]. The most impressive city parks, however, appear to be the *East Coast Park*, *Bishan-Ang Mo Kio Park*, *Bedok Reservoir* and the *Bukit Timah Nature Reserve* – by definition, though, the latter is not a city park **(see illustrative map below of the locations of selected city parks)**.

With an area of 242 ha the *East Coast Park* is considered the largest recreational park in Singapore. After being created on reclaimed land in the late 1970s, this city park located along the south-eastern shoreline has ever since functioned as the city's key green space for recreation, exercise and leisure[41]. The park contains a designated 10-km long paved

Modified Google map of Singapore displaying public sports complexes (red-coloured dots) and the key city parks for physical activity, sports and exercise (dark green-coloured areas)[31,36].

trail for avid joggers, walkers, cyclists and inline-skaters, while other free-of-charge sports and exercise amenities include a skateboard area, beach volleyball court, outdoor fitness areas, rental bikes, futsal fields and an indoor mini-golf course. Physically-active park visitors can also utilize the available outdoor shower facilities after their exercising sessions. By offering indoor and outdoor dinning options as well as BBQ facilities, the *East Coast Park* has furthermore established itself as a culinary and social destination during late evening hours. The park's users who do not reside within walking distance to this prime urban green space usually access it by car or bus. As a result of the planned operation of a new *East Coast MRT* train line by 2023[42], more residents will in future be able to conveniently visit this popular city park. This crucial accessibility improvement could perhaps become a catalyst for some overdue structural changes to the park itself, further boosting its reputation as the city's active and sporting lifestyle spot.

Located right in the geographical centre of the island, the *Bishan-Ang Mo Kio Park* is another remarkable city park of 62 ha. This designated parkland area contains numerous paved trails for running and cycling, with the longest trail loop reaching approximately 5.5 km. Moreover, this city park offers outdoor gym areas consisting of a handful of standard-built fitness stations. Other great conveniences of the park are the long-distance trail connectivity to the central districts and the park's proximity to the *Bishan* HDB-sports complex.

Probably the finest gravel trail for recreational running, however, is located in the *Bedok Reservoir* in the eastern districts of Singapore. This city park includes an artificial lake, which is encircled by this 4-km running trail as well as a concrete track for cycling. A small number of outdoor fitness stations are also installed along the routes.

The *Bukit Timah Nature Reserve*, which is located in the north-western part of the city, is one of the few remaining primary rainforest areas in Singapore. With its slightly hilly paved and unpaved trails this large Nature Reserve of 162 ha has over the years emerged as a popular recreational destination for walkers, joggers and mountain-bikers, who also value this park for its leafy, sun-protective topography (for mountain-bike riders an approximately 7-km long designated trail encircles the entire reserve area).

Due to its dense tropical vegetation and its proximity to the large central water catchment area very high humidity levels prevail in this nature reserve at all times, making any type of physical activity more challenging than in built-up areas. Hence, visitors to the *Bukit Timah Nature Reserve* usually experience high levels of perspiration and some individuals may even suffer from breathing difficulties.

***Bishan-Ang Mo Kio* Park is well-connected via the park connectors network.**

***East Coast Park.* The popular 10-km long parkland area is located between the ECP-expressway and the southern seashore.**

Convenient outdoor shower facility in the large *East Coast Park.*

Taken together, Singapore provides their residents with a number of large, exercise-supportive city parks. In order to improve the parks' infrastructure for physically-active visitors, however, some serious thoughts could be given to creating larger numbers of outdoor shower facilities, small security lockers and changing rooms in the central activity areas of all large-sized city parks. On top of this, more age-friendly trails could be constructed in selected parks. For instance, it is recommended to design softer, unpaved trail surfaces suitable for older joggers (such as the formidable gravel trail in the *Bedok Reservoir*), which could in the long run help reduce the cumulative impact of running on hip and knee joints.

Outdoor Fitness Zones

As a result of the government's progressive urban health policy, the systematic provision of free-of-charge, all-weather outdoor stationary fitness facilities has become a standard feature of Singapore's urban settings. These publicly-accessible gym areas are mostly installed in city parks, around sports complexes, at school campuses, along park connectors and within HDB-public housing estates.
The origins of the concept of outdoor gym areas consisting of various outdoor gym equipment and stations can be traced back to the city of Los Angeles, USA, where the most famous beach gym section, the Santa Monica *Muscle Beach*, was created during the early 1930s. After embedding the Swedish and German elements of physical education from the 19th century (most notably, the experimental ideas of Per Henrik Ling and Friedrich Ludwig Jahn), in the early and mid-1970s the outdoor gym concept eventually became popularised across various European metropolitan areas[43,44,45]. Ever since this model of publicly accessible gym stations was introduced in Singapore in the late 1970s, the number of designated outdoor fitness areas within its urban settings has been rising incessantly, reaching 469 in 1994 and 1212 in 2006[35].

The city-wide installation of outdoor gym facilities in public space is a laudable public health policy of Singapore, demonstrating the government's aspiration to ensure equal accessibility to fitness and exercise. In this way, local residents of all ages and of various socio-economic status can, at no cost, enhance their overall physical fitness – that is, strength, flexibility, agility, coordination and endurance (usually, no speed tasks are offered within such outdoor gym zones). In general, the fitness equipment observed in Singapore can be categorized in five types:

- fixed, low-resistance endurance stations
- flexibility- and balance-enhancing stations
- body weight-dependent, strength stations
- resistance-invariable strength machines
- resistance-adjustable strength machines

The outdoor gym zones in Singapore offer a wide range of fitness equipment, varying in design, function and manufacturer. In an attempt to provide adequate and ample fitness tasks to various population groups, the chosen composition of outdoor gym zones displays regular configuration patterns. For instance, body weight-dependent, strength stations – such as dip bars, pull-up bars, sit-up benches or monkey bars – are predominantly located near the track and field stadia as well as the small-sized HDB-outdoor game courts, aiming at younger and sportier residents. Being tailored to the specific needs of older residents, flexibility- and balance-enhancing stations, such as the shoulder flexor, Tai Chi wheel, balancing beam or body twister, on the other hand, are the most common fitness equipment options located within residential areas[46]. Besides, elliptical cross-trainers and sky runners are fairly popular with middle-aged female residents who are particularly keen on improving cardio-vascular functions and reducing body weight. In city parks and along park connectors, by contrast, the configuration of fitness stations appears to be more diverse, targeting population groups of all ages and abilities (for more illustrative examples of outdoor gym equipment in Singapore, see the special Sportify Cities report[47]).

An example of an outdoor fitness zone integrated into an HDB-district

Examples of typical resistance-invariable strength machines

In all, the most common outdoor fitness stations, however, are the resistance-invariable strength machines such as lateral pull down, leg press or seated chest press. Due to the lack of resistance variability functions, the body-weight of users serves as the only available intensity level when executing force-enhancing tasks on these devices; that is, the resistance can not be adjusted to the personal strength levels because of absent load increment options. Although resistance-adjustable strength equipment – i.e., machines with weight stacks, cable machines or hydraulic equipment – are occasionally installed within HDB-residential areas, it has not been established as a standard element of the city-wide outdoor fitness zones concept. A systematic installation of such resistance-adjustable strength equipment, however, would be more cost-intensive as a result of higher product and maintenance costs.

Yet despite being available across Singapore, outdoor fitness zones seem to suffer from a number of structural weaknesses, limiting the full potential of this valuable, health-enhancing urban active lifestyle concept. In future, the utilization of these free-of-charge gym stations could potentially be improved by creating comprehensive outdoor fitness zones that incorporate the aspects of *locality*, *diversity* and *compactness* and *functionality*.
The residential outdoor fitness zones, for instance, are regularly crammed into the densely built, high-rise apartment estates, leaving users of these fitness stations with a rather unpleasant sensation of constant observation. Hence, selecting more suitable locations before installing fitness equipment could be crucial to further boosting utilization rates (*locality* aspect). Given that small areas of fitness stations are frequently scattered across Singapore's streamline them. For instance, by concentrating a

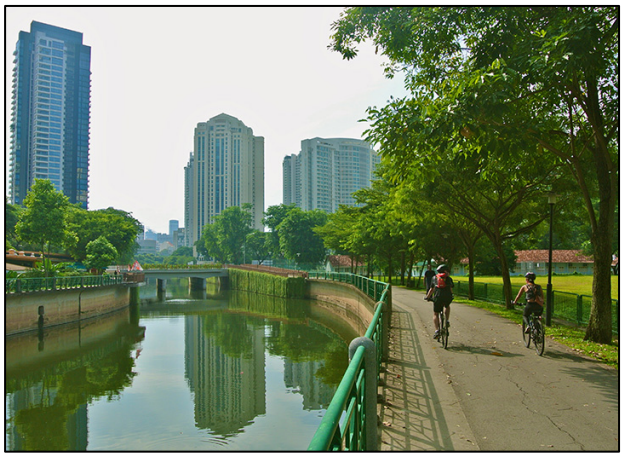
An outdoor fitness zone consisting of body weight-dependent, strength stations

large variety of fitness tasks (*diversity* aspect) and by choosing the most popular fitness equipment in more compact-like gym zones (*compactness* aspect), the utilization times of outdoor fitness areas could possibly be increased. In addition, more emphasis could be put on the overall multifunctionality of outdoor gym areas (*functionality* aspect). This would give users the opportunity to optimize their overall physical fitness effects and choose fitness tasks according to their individual demands, ensuring high-quality returns and the highest efficiency ratings – that is, tasks that deliver the greatest physical and health benefits relative to the individual's invested time.

Overall, the installation of ample fitness equipment in this Southeast Asian city is an impressive, yet barely-discussed public health policy. Having become a fundamental component of Singapore's urban active lifestyle, this concept of outdoor fitness zones certainly deserves to be sustained and promoted. Furthermore, the HDB-district planners should be credited for the beautification of the outdoor gym areas that regularly offer colourful and tree-lined settings.

Park Connectors

The expansive network of paved trails lined with plantings and ornamental trees is another urban health feature that has over the years become a key element of Singapore's active and sporting lifestyle. The so-called park connectors are typically located along water canals and green buffer zones. They serve as convenient recreational zones for joggers, walkers, cyclists and inline-skaters by providing structural links between numerous city parks. The first park connector was constructed in 1992 – the centrally located 5-km long *Kallang* park connector[48]. Presently, there are approximately 70 park connectors, reaching a total length of 303 km of free-of-charge recreational and sporting space[39].
Some of the park connectors display various structural weaknesses, however. For instance, these designated trails regularly consist of physical activity-disruptive urban features and designs, such as traffic lights at road crossings and 'Dismount and Push' bicycle signs along underpasses and overhead bridges[49]. By and large, though, the park connectors and their continuously enhanced functionality can be hailed as a success story. Singapore's urban planners have definitely succeeded in integrating this extensive network of trails into the entire city's layout, proving the government's ambition and determination to allocate impressively large urban areas for recreation and exercise purposes in this land-limited, high-density city. That said, this expansive network of park connectors has so far failed to become a globally acknowledged and recognisable urban health features beyond Singapore's shores.



Park connectors are paved trails that are typically constructed along creeks and water canals

3. Healthy Lifestyle Initiatives

An increasing body of knowledge suggests that physical activity is linked to the reduction of age-related physical and cognitive decline, deceleration or prevention of chronic conditions, improvement of neuropsychological symptoms and the preservation of functional independence[50,51,52,53], thereby enhancing the quality of life of urbanites. Particularly, more strenuous and multifunctional physical activities and exercise modes including aerobic and strengthening exercises – among others – are associated with preserving cardiovascular and musculoskeletal health, neuro-motor control functionality and cognitive plasticity, resulting in the preservation of functional physical fitness and wellbeing, increase in health benefits and risk reduction of gait-related falls[54,55,56,57,58,59,60,61]. In other words, the accessibility and provision of such lifelong, multifunctional physical activities and exercise types that improve muscle strength, endurance, motor skills, mobility and balance seems to be a vital urban health strategy.

While in 1992 merely 8% of Singapore residents participated in physical and sporting activities at least three times a week, the proportion had skyrocketed to 26% by 2015[5,6]. As outlined above, the provision of adequate built environments and publicly accessible urban features plays a significant role in pursuing active and sporting lifestyle in urban settings. In Singapore, after all, 70% of physically-active residents prefer to utilize the available open public space or government-subsidized public facilities for exercise and sports[6]. For residents living in the HDB-public housing estates, this utilisation rate reaches 83%. And when asked for the reasons of non-participation in physical activity, only 3% of residents stated the inaccessibility of facilities as a physical activity impediment[5]. This appears to be compelling evidence for the usefulness of the existing infrastructure, facilities and public space for physical activity and exercise across Singapore.

That said, no direct relationship between Singapore's active lifestyle-enabling built environments and health benefits has yet been established, as it is difficult to disentangle all factors that contribute to better physical and mental health among Singaporeans. It is reasonable to suggest, however, that the city's land-use planning and the greater physical activity participation levels among Singapore residents may have helped to stabilize or even reduce the prevalence of some of the key cardiovascular risk factors over the years. In general, at least, providing active lifestyle-enabling built environments is believed to be associated with augmented physical activity participation levels[10,12,13,14,15] and reduced risk of chronic medical conditions[8,9].

To be clear, the rising physical activity participation levels among Singapore residents can be attributed to a range of public health initiatives, promotions and courses that has been organized as part of the National Healthy Lifestyle Programme. That is, the provision of active lifestyle-supportive built environments represents merely one component of the long-term, comprehensive National Healthy Lifestyle Programme that was initiated by the Singapore government back in 1992[62]. By producing awareness campaigns of the potentially positive effects of physical activity on preventing and decelerating numerous chronic medical conditions, for instance, the government has been making laudable efforts to educate its society about the personal health benefits of lifelong active and sporting lifestyle.

Despite limited knowledge of the interrelatedness of various health-enhancing factors, however, the available survey data may imply that Singapore residents perceive the accessibility of facilities and green space for sports and exercise as a critical factor for greater physical activity participation and potentially positive health outcomes. Physically-active residents, for instance, demonstrate a slightly higher number of health issues, such as hypertension or diabetes, compared to non-active residents, indicating that medical health concerns are among the key motivators for regular physical activity in Singapore[5]. Since physical activity participation has commonly been associated with prevention and reduction of chronic medical conditions, specifying it as the key motivator for pursuing active and sporting lifestyle indicates that the subject of health improvement and maintenance through physical activity participation has reached public awareness among Singapore residents. Evidently, this implies that the provision of adequate and sufficient urban features for physical activity, sports and exercise plays a critical role in active and sporting lifestyle promotion.

4. A Prospective Sporting Lifestyle Hub?

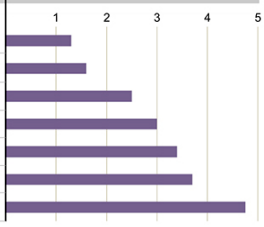
This article outlines the key physical activity-enabling built environments in the large, densely populated city of Singapore. This tropical city appears to have found the right balance between transforming its space-limited urban landscape into a high-density city and incorporating sporting facilities and recreational amenities for public use into its constantly evolving urban settings.

Most notably, in Singapore the utilization of non-private sporting and recreational services is either free-of-charge or fairly reasonably priced. Small-sized outdoor games courts and outdoor fitness stations, which are typically incorporated into the HDB-public housing estates, can be used for free, for instance. Entry to all city parks is free, too. And the popular stadium running tracks at the HDB-sports complexes can also be used at no extra cost. In contrast, moderate charges apply to all the other government-subsidized facilities and amenities for physical activity and exercise. Yet the individual entry and utilisation costs for the existing sports facilities are, for the most part, affordable for local residents – with swimming being the cheapest exercise option **(see Chart 3)**. (Particularly, given that the unemployment rate is at merely 3.0% and the median gross monthly income among full-time em-

ployed residents reaches S$ 3,792[63], most prices could be considered to be fairly acceptable). For elderly, on the other hand, the prices are typically reduced by 40 to 60% – depending on the activity[46].

Costs for utilization of non-private sporting facilities in Singapore

Sporting Activities *(time of usage)*	Price*, S$ (per entry/court/ field/table)	Adjusted Price*, S$ (per person)
Swimming *(unlimited)*	1.30	
Table Tennis *(1 hour)*	3.20	
Fitness Gym *(unlimited)*	2.50	
Squash *(1 hour)*	6.00	
Soccer # *(2 hours)*	37.00	
Badminton *(1 hour)*	7.40	
Tennis *(1 hour)*	9.50	



* Prices only apply to Singapore citizens and Singapore Permanent Residents
\# Large soccer field for a team of 11 players

Chart 3. Prices during peak hours for the utilization of publicly-subsidised sporting facilities in Singapore (in S$)[36].

As for the prospects of urban sporting lifestyle in Singapore, the government's central planning approach to allocating sporting facilities and recreational amenities for public use is worth improving even further. Yet this would require a long-term strategy outlining a coherent and consistent vision of what its future sports and exercise policies should look like. Apart from the above-mentioned suggestions, other modifications to the existing urban features could also be considered.

For instance, a handful of large-size city parks could be selected and transformed into *Sporting Lifestyle Parks* by concentrating various smaller outdoor sports grounds and exercise facilities in designated sections of those nominated parks. In doing so, the integrated sporting lifestyle zones would give the somewhat monostructural city parks more of a multi-functional character, thereby potentially increasing the number of sporty visitors to the parks. After all, adequate selection and greater diversity of exercise facilities within park areas is linked to greater utilization levels among physically-active residents and greater physical activity levels[10,64,65]. By incorporating local, tropical elements into its tropical-style park design, such as beach-volleyball, outdoor table-tennis or beach soccer, for instance, Singapore's large parks could potentially become unique identifiers of the city's sporting lifestyle initiative (*locality* aspect).

For such vision to succeed, however, the Singapore government would have to demonstrate political ambition by setting out a defining, long-term strategy for the city's evolving sporting lifestyle trend. Given the complexity of such a task, it would require a more concentrated collaboration among the various statutory boards of the Singapore Government – e.g., the Housing and Development Board, Health Promotion Board, National Park Board, Singapore Sports Council, Public Transport Council, Land Transport Authority, Singapore Land Authority and Urban Redevelopment Authority.

In all, Singapore has the potential to become the world's laboratory and point of reference for sporting lifestyle in high-density urban settings. Its maturing urban sporting culture could potentially inspire other cities to incorporate the most suitable elements into their own unique urban landscape. And given that this island of more than 5.5 million inhabitants has been positioning and promoting itself as a credible expert on contemporary high-rise city living and compact city[66], the inclusion of its own evolving urban sporting lifestyle trend into its high-density model appears to be an excellent opportunity for Singapore to integrate this societal aspect into its city liveability concept[46] and to globally emerge as one of the prime urban sporting lifestyle hubs among the top-tier world cities[67]. After all, in the booming era of personal investment in physical health and fitness, promoting its evolving urban sporting culture is certainly an intriguing idea that could create yet another huge untapped potential for Singapore's identity and its city branding.

A running event around the scenic Marina Bay. Singapore could incorporate its numerous running events into its potential urban sporting lifestyle city branding[68]

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