

94 - BUILT ENVIRONMENT AND PHYSICAL ACTIVITY LEVEL IN ADULTS AND ELDERLY – A BRIEF REVIEW

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INTRODUCTION

The practice of physical activity at sufficient levels is considered as an important protective factor for mortality (WHO, 2009). However, sufficient levels of physical activity are still not practiced by a large part of the world population, and physical inactivity is considered the greatest public health problem of the 21st century (BLAIR, 2009).

With advancing age, the reduction of the level of physical activity and of the functional capacity begins to reach compromising levels for health in the elderly, resulting in loss of muscular strength of upper and lower limbs, increase of body fat, reduction of flexibility, agility and aerobic resistance (Milanovic et al., 2013).

Several actions and public policies have been adopted as a way to promote greater access to places for the practice of physical activities in the population. Among the main strategies are the diffusion of healthy lifestyles, motivation for people to be physically active and the creation of environments that facilitate people to be physically active where they live, where they carry out their occupational activities and where they have fun (TUSO, 2015).

The leisure environment is the most frequently domain adopted for physical activity practice in the elderly population, which also shows association with social relations and good health conditions (CHANG et al., 2014). Thus, the implantation of sites built for the effective practice of physical activity, such as outdoor gyms, hiking trails and cycle paths in urban environments has been adopted in order to promote greater adherence to the practice of physical activity. (Garin et al., 2014).

The objective of this study was to provide a brief overview of the contribution of the proposals inherent to the environment built for the physical activity level of adults and the elderly, according to the findings of the international literature, as well as to identify motivational factors and barriers for adherence in this population.

METHODS

A search was made for scientific articles that approached the relation or association of the environment constructed with the level of physical activity of adults and the elderly in the Medline database, in the month of October, 2017. In order to carry out this search, the following descriptors were adopted: built environment; outdoor gym; parks; outdoor fitness equipment; fitness zone; physical activity; leisure; engagement.

Were selected observational studies, with a cross-sectional or longitudinal design, that approached the use of built environments for the practice of physical activity, as well as the relationship with sociodemographic or lifestyle variables in adults and elderly. In the present research the temporal cutoff point of the publications was not determined, in order to cover all the information inherent to the theme for the judgment of its inclusion, nevertheless were prioritized more recent studies and of greater scientific relevance.

The scientific articles were selected through the initial analysis of their respective abstracts, followed by reading the full text in case of meeting the inclusion requirements. For further study, an exploratory study was carried out along the bibliographic reference of the studies eligible for reading. After the articles selection, a conceptual organization of the publications was carried out, being classified according to their approaches, applications and definitions, in order to make didactic and concise interpretation of the findings.

PUBLIC POLICIES AND FACILITIES FOR PRACTICE OF PHYSICAL ACTIVITY

It is recommended that the evaluation of the use of parks to practice physical activity take into account the environmental characteristics of the place, its condition of use, accessibility, aesthetics and cleanliness, safety conditions and implemented policies, so that it can be better understood the relationship of park use with physical activity level and also identify potential barriers to the use of this promising means to achieve satisfactory levels of physical activity (BEDIMO-RUNG et al., 2005).

The implementation of policies aimed at the practice of physical activity is approached differently according to each municipality or region. In a study that aimed to identify municipal policies and intentions to implement policies regarding areas of practice of physical activity in public places such as sidewalks, bicycle lanes, greenways and recreational facilities, it was observed that more developed cities presented more policies to promote the practice of physical activity. (LIBRETT et al., 2003).

Adult and elderly individuals who had exercise facilities within a radius of up to 1000 meters from their home had higher levels of physical activity measured by accelerometry, where those who had four or more facilities near their homes spent 5.4 times more minutes engaged in physical activities from moderate to vigorous intensity per day, and presented about 70% more chances to reach sufficient levels of physical activity, when compared with individuals who did not have any facility to practice exercises near their residences (ERIKSSON et al., 2012).

A study that observed 28,585 visitors in public parks for 36 business days and 36 weekend days, found that 71% of the visitors were adults and the elderly, with more men visiting the parks than women (61%) and mainly areas for the practice of sports. It was also observed that more than 60% of the visitors were engaged in physical activities of moderate and vigorous intensity and the free facilities were more frequented than the ones charged, but the facilities charged provided more supervised and organized activities (CHOW et al., 2016).

It was observed that the distance to the nearest park was not significantly related to the use of the park or the level of physical activity practiced in the place. However, the number of parks and park space within a one-mile radius of the apprentices'

residences was associated with their use and level of physical activity at the site. However, these associations varied between sex, age, ethnicity and income, being more commonly used by women, white and aged 60 years and over (KACZYNSKI et al., 2014).

OUTDOOR FITNESS EQUIPMENT

Among public outdoor gymnasium users, was observed a prevalence of 77.7% of sufficiently active individuals and a significant association of health perception with physical activity in leisure, where the higher the perception of health, the greater the prevalence of sufficient physical activity (Da SILVA et al., 2017). In a longitudinal study, an increase in the use of outdoor gyms from 45% to 70% in three years was observed, and a greater number of people with intense physical activity were observed in open-air academies (Del CAMPO et al. 2017).

There are few studies that have evaluated the effectiveness of outdoor gyms in smaller cities. A study conducted in a city of 95,000 inhabitants, directly observed the use of two parks that contained outdoor gyms and four other parks that did not have such facilities, observing a very small utilization rate of these equipment during 100 hours of observations (2, 7%), but that during interview 22.3% of the regulars reported to make monthly use of the facilities. The interviewees also reported the potential of benefit related to the use of equipment and reported that increased advertising, introduction of incentive programs and orientation of the use of equipment, as well as improvement of the condition of use and maintenance of equipment would be important strategies to increase its use by the population (COPELAND et al., 2016).

Another study that observed the use of 10 parks, where five of them contained open-air academies and the other five did not have these facilities, it was observed that park-users who had outdoor gyms were more likely to be observed practicing moderate or vigorous intensity physical activity, in addition to the participation of women and elderly people in parks that had outdoor fitness equipment (PARRA et al., 2010).

Regarding the patterns of outdoor gyms use, it was observed that these equipment attracted considerable use, mainly in the early morning and late afternoon, with the majority of users being women and the elderly. However, most users interacted with less than three of the six available stations in the assessed park, as well as staying for less than 10 minutes in the use of facilities, which may not be sufficient to achieve desirable levels of physical activity, but can have a positive impact on health because of the intensity of the exercises performed (CHOW et al., 2017).

It was observed through a structured interview that the presence of gym equipment was not the main reason for elderly people attending parks, but the majority of the elderly users interviewed reported to perceive the benefits of the use of the open air academies both with respect to physical and psychological health, as well as for social interaction. (CHOW, 2013).

SOCIODEMOGRAPHIC FACTORS AND USE OF THE ENVIRONMENT BUILT FOR PRACTICE OF PHYSICAL ACTIVITY

Although important contributions of the built environment to the promotion of the practice of physical activity in adults and the elderly have been observed, there is still much to investigate about the specific conditions of the population that use each type of environment and the environmental and social difference between regions of the same locality.

It was observed that neighborhood characteristics such as low density, low connectivity of the streets and lack or bad conditions of the sidewalks would be associated with lower levels of physical activity and risk of overweight, but, nevertheless, residents in the central areas present higher levels of obesity and physical inactivity, even living in densely populated areas, with better urban mobility and pavement conditions (LOPEZ; HYNES, 2006). This approach brings us back to the social conditions of the population, which can be confronted with the availability of the built environment and, therefore, a moderating factor for their adherence.

Physical activity promotion policies need to take into account the sociodemographic differences of each locality, in order to promote equity for their access, since commercial facilities related to physical activity such as gymnasiums, sports and recreation clubs, dance schools and public places to practice sports are less likely to be present in low socioeconomic neighborhoods with a higher proportion of non-white population, in addition to being places with less resources available. (POWELL et al., 2006).

Adults and older people living in low-income and ethnic minority communities reported that parks are the most common places they practice, where a frequency of about 2000 people in each park was observed within 7 days. However, two-thirds of these individuals were sedentary when observed, being used more by men and were twice as likely to be vigorously active than women (Cohen et al., 2007). The study also observed that the proximity of the residence was strongly associated with the use of the park and the level of physical activity, as well as its quantity and location are insufficient to serve the local population broadly.

Individual and environmental factors account for about one-third of the variance in physical activity level, perceived barriers and self-efficacy were the most significant factors to achieve adequate levels of physical activity, men of low schooling and unemployed presented twice more likely to present insufficient levels of physical activity and in women this chance was associated with living in non-urbanized environments. These differences should be considered for improving access to facilities for sports and physical activity practice in the population (SERRANO-SANCHEZ et al., 2012).

FINAL CONSIDERATIONS

In conclusion, the present review observes that the built environment has much to contribute to the practice of physical activity at the population level. However, sociodemographic and lifestyle factors are directly related to the adherence to its use for regular practice of physical activity.

With this, public policies need to move beyond offering places for sports and physical activity, providing better access, conservation, orientation and availability of these facilities, especially in lower income communities, composed of non-white populations and still with better safety conditions for practice, which will enable its wide visitation, mainly by women and the elderly.

REFERENCES

- BEDIMO-RUNG, A.L.; MOWEN, A.J.; COHEN, D.A. The Significance of Parks to Physical Activity and Public Health: A Conceptual Model. *American Journal of Preventive Medicine*, v.28, p.159-68, 2005.
- BLAIR, S.N. Physical inactivity: the biggest public health problem of the 21st century *British Journal of Sports Medicine*, v.43, p.1-2, 2009.
- CHANG, P. J.; WRAY, L.; LIN, Y. Social Relationships, Leisure Activity, and Health in Older Adults. *Health psychology : official journal of the Division of Health Psychology, American Psychological Association*, v.33(6), p.516-523, 2014.

- CHOW, B.C.; MCKENZIE, T.L.; SIT, C.H.P. Public Parks in Hong Kong: Characteristics of Physical Activity Areas and Their Users. *International Journal of Environmental Research and Public Health*, v.13, p.639, 2016.
- CHOW, H.; MOWEN, A.J.; WU, G. Who Is Using Outdoor Fitness Equipment and How? The Case of Xihu Park. *International Journal of Environment Research and Public Health*, v.14, p.448, 2017.
- _____. Outdoor fitness equipment in parks: a qualitative study from older adults' perceptions. *BMC Public Health*, v.13, p.1216, 2013.
- COHEN, D.A.; MCKENZIE, T.L.; SEHGAL, A.; et al. Contribution of Public Parks to Physical Activity. *American Journal of Public Health*, v.97, p.509-14, 2007.
- COPELAND, J.L.; CURRIE, C.; WALKER, A.; MASON, E.; WILLOUGHBY, T.; AMSON, A. Fitness Equipment in Public Parks: Frequency of Use and Community Perceptions in a Small Urban Centre. *Journal of Physical Activity & Health*, epub [ahead of print], 2016.
- DA SILVA, M.C.; IEPSSEN, A.M.; CAPUTO, E.L.; et al. Leisure-time physical activity and associated factors in fitness zones. *Revista Brasileira de Cineantropometria e Desempenho Humano*, v.19, p.185-195, 2017.
- DEL CAMPO, C.; TUTTE, V.; BERMUDEZ, G.; PARRA, D.C. Impact on Area Level Physical Activity Following the Implementation of Fitness Zones in Montevideo Uruguay. *Journal of Physical Activity & Health*, epub [ahead of print], 2017.
- ERIKSSON, U.; ARVIDSSON, D.; SUNDQUIST, K. Availability of exercise facilities and physical activity in 2,037 adults: cross-sectional results from the Swedish neighborhood and physical activity (SNAP) study. *BMC Public Health*, v.12, p.607, 2012.
- GARIN, N.; OLAYA, B.; MIRET, M.; et al. Built Environment and Elderly Population Health: A Comprehensive Literature Review. *Clinical Practice and Epidemiology in Mental Health: CP & EMH*, v.10, p.103-115, 2014.
- KACZYNSKI, A.T.; BESENYI, G.M.; WILHELM STANIS, S.A.; et al. Are park proximity and park features related to park use and park-based physical activity among adults? Variations by multiple socio-demographic characteristics. *International Journal of Behavioral Nutrition and Physical Activity*, v.11, p.146, 2014.
- LIBRETT, J.J.; YORE, M.M.; SCHMID, T.L. Local Ordinances That Promote Physical Activity: A Survey of Municipal Policies. *American Journal of Public Health*, v.93, p.1399-1403, 2003.
- LOPEZ, R.P.; HYNES, H.P. Obesity, physical activity, and the urban environment: public health research needs. *Environmental Health: A Global Access Science Source*, v.5, p.25, 2006.
- MILANOVIĆ, Z.; PANTELIĆ, S.; TRAJKOVIĆ, N.; et al. Age-related decrease in physical activity and functional fitness among elderly men and women. *Clinical Interventions in Aging*, v.8, p.549-556, 2013.
- PARRA, D.C.; MCKENZIE, T.L.; RIBEIRO, I.C.; et al. Assessing Physical Activity in Public Parks in Brazil Using Systematic Observation. *American Journal of Public Health*, v.100, p.1420-26, 2010.
- POWELL, L.M.; SLATER, S.; CHALOUPKA, F.J.; HARPER, D. Availability of Physical Activity-Related Facilities and Neighborhood Demographic and Socioeconomic Characteristics: A National Study. *American Journal of Public Health*, v.96, p.1676-80, 2006.
- SERRANO-SANCHEZ, J.A.; LERA-NAVARRO, A.; DORADO-GARCIA C.; GONZALEZ HENRIQUEZ, J.J.; SANCHIS-MOYSI, J. Contribution of Individual and Environmental Factors to Physical Activity Level among Spanish Adults. *PLoS ONE*, v.7, e38693, 2012.
- TUSO, P. Strategies to Increase Physical Activity. *The Permanente Journal*, v.19(4), p.84-88, 2015.
- WHO: Global health risks: mortality and burden of disease attributable to selected major risks. Geneva: World Health Organization; 2009.

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AMBIENTE CONSTRUÍDO E NÍVEL DE ATIVIDADE FÍSICA DE ADULTOS E IDOSOS – UMA BREVE REVISÃO

O ambiente construído é considerado como um importante aspecto motivacional para prática de atividade física da população. O crescimento constante da disponibilidade de academias ao ar livre situadas em locais públicos como parques e praças correspondem a medidas voltadas a elevar os níveis de atividade física. No entanto, além do ambiente construído, características ambientais, sociodemográficas e individuais podem apresentar um efeito moderador entre a disponibilidade de locais públicos para a prática esportiva e atividades físicas, bem como sobre sua efetiva aderência pela população. Políticas públicas necessitam não somente garantir o acesso e disponibilidade para os locais públicos voltados à prática de atividade física, como também considerar as diferentes características de cada local e de cada população, de forma a tornar o uso do ambiente construído realmente efetivo para melhora dos níveis de atividade física da população. A presente revisão objetiva construir um panorama da relação entre o ambiente construído e o nível de atividade física de adultos e idosos, mediados por variáveis sociodemográficas e de estilo de vida.

Palavras-chave: Ambiente construído; Atividade física; Saúde pública; Adultos; Idosos.

BUILT ENVIRONMENT AND PHYSICAL ACTIVITY LEVEL IN ADULTS AND ELDERLY – A BRIEF REVIEW

The built environment is considered as an important motivational aspect for the practice of physical activity of the population. The constant growth of the availability of outdoor fitness centers located in public places such as parks and squares corresponds to measures aimed at raising levels of physical activity. However, in addition to the built environment, environmental, sociodemographic and individual characteristics may present a moderating effect between the availability of public places for sports practice and physical activities, as well as their effective adherence by the population. Public policies need not only to guarantee access and availability to public places geared to the practice of physical activity, but also to consider the different characteristics of each place and each population, in order to make the use of the built environment really effective for improving levels of physical activity of the population. The present review aims at constructing an overview of the relationship between the built environment and the level of physical activity of adults and the elderly, mediated by sociodemographic and lifestyle variables.

Keywords: Built environment; Physical activity; Public health; Adults; Elderly.

AMBIENTE CONSTRUIDO Y NIVEL DE ACTIVIDAD FÍSICA EN ADULTOS Y ANCIANOS - UNA REVISIÓN BREVE
El ambiente construido es considerado como un importante aspecto motivacional para la práctica de la actividad

física de la población. El crecimiento constante de la disponibilidad de gimnasios al aire libre ubicados en lugares públicos como parques y plazas corresponden a medidas dirigidas a elevar los niveles de actividad física. Sin embargo, además del ambiente construido, características ambientales, sociodemográficas e individuales pueden presentar un efecto moderador entre la disponibilidad de locales públicos para la práctica deportiva y actividades físicas, así como sobre su efectiva adherencia por la población. Las políticas públicas no sólo garantizan el acceso y la disponibilidad a los lugares públicos orientados a la práctica de la actividad física, sino también a considerar las diferentes características de cada lugar y de cada población, para hacer que el uso del ambiente construido realmente efectivo para mejorar los niveles de actividad física de la población. La presente revisión objetiva construir un panorama de la relación entre el ambiente construido y el nivel de actividad física de adultos y ancianos, mediados por variables sociodemográficas y de estilo de vida.

Palabras clave: Entorno construido; Actividad física; Salud pública; Adultos; Ancianos.

ENVIRONNEMENT CONSTRUIT ET NIVEAU D'ACTIVITÉ PHYSIQUE DES ADULTES ET DES PERSONNES ÂGÉES - BREVE EXAMEN

L'environnement bâti est considéré comme un important facteur de motivation pour la pratique de l'activité physique de la population. La croissance constante de la disponibilité des gymnases en plein air situés dans des lieux publics tels que les parcs et les places correspond à des mesures visant à augmenter les niveaux d'activité physique. Cependant, en plus de l'environnement bâti, les caractéristiques environnementales, sociodémographiques et individuelles peuvent présenter un effet modérateur entre la disponibilité des lieux publics pour la pratique sportive et les activités physiques, ainsi que leur adhésion effective par la population. Les politiques publiques doivent non seulement garantir l'accès et la disponibilité des lieux publics à la pratique de l'activité physique, mais aussi prendre en compte les différentes caractéristiques de chaque lieu et de chaque population, afin de rendre l'utilisation de l'environnement bâti réellement efficace pour améliorer les niveaux de l'activité physique de la population. La présente revue vise à construire une vue d'ensemble de la relation entre l'environnement bâti et le niveau d'activité physique des adultes et des personnes âgées, via des variables sociodémographiques et de style de vie.

Descripteurs: Environnement bâti; Activité physique; Santé publique; Adultes; Personnes âgées.