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Physical Activity, Health and Sustainable Development-Perspectives on the Role of Green Areas

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Abstract

A model of external and internal factors of importance for the decision of being physically active is presented. Thereafter, different aspects of this model are illuminated from a perspective of sustainable development. At last indices of the role that green areas can play in this context are given. The examples are taken from population studies in Sweden. It is concluded that green areas and elements appear to stimulate to physical activity and/or are highly valued arenas for physical activity within the Swedish population. Furthermore, in environmental and economical terms they appear to comply with a sustainable development. However, these matters need to be illuminated in depth in future multidisciplinary research projects.

Introduction

A relationship between health and physical activity has long been anticipated, and in our times the scientific knowledge about it is quite substantial. At the same time physical inactivity is widespread within the population in many countries and affects public health negatively. The obesity epidemics and the rising incidence of type II diabetes are two new components in this development. It is natural that this evokes a search for solutions.

For a long time a dominating viewpoint has been that the problem of physical inactivity can be cured if we just get some more knowledge about how healthy physical activity is, inform the public about this knowledge and give some advice about how to be active. However, today there is a growing awareness of that this individually oriented approach has difficulties in achieving success.

A major line of development in this respect is to in theory and research practice view man in his/her environmental context and to try to understand to what extent

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environmental settings – e.g. green spaces – are of importance for the decision of being physically active or inactive. This perspective will be illuminated using a model (Figure 1) depicting factors of possible importance for being physical active and the type of activity that in such case is carried out.

Which are then these different factors? Examples of external factors acting on the individual are the physical environment, weather, time demand, access, costs and social norms. Examples of internal factors are age, sex, ethnicity, physical capacity, knowledge, motives, motivation and private economy. Both external and internal factors can either stimulate, be neutral or inhibit the individual from being physically active. The complex mix of these factors, which most often act in different directions, are integrated in the individual and result in physical activity or not.

The physical environment as an external factor encompasses all dimensions coupled to spaces used for physical activity. Thus, it includes e.g. play grounds, soccer fields, golf courses, gymnasiums, swimming pools, pavements, streets, parks and forests. To these different arenas for physical activity are coupled different attraction levels for different individuals. There are good reasons to state that these attractions levels are to quite a great extent social constructions, and differ between sexes, ages and ethnic groups. The same applies for different forms of physical activity.

The dominating perspective on the issues of physical activity and physical environment is that anything goes in achieving a higher level of physical activity within the population. A new and alternative perspective is that these issues need to be analysed and discussed within the perspective of sustainable development (Schantz 2002a,b).

**Does sustainable development affect perspectives on physical activity?**

The need of sustainable development (SD) was formulated by the UN World Commission on Development and Environment in 1987 as a consequence of the burden by primarily the western countries on the ecosphere. SD has been defined as “meeting the needs of the present without compromising the ability of future generations
to meet their own needs” (UN World Commission on Development and Environment 1987). It involves social, economical and ecological factors that integrated can result in SD. Almost all nations have signed the Rio-declaration from 1992 and have thereby committed themselves to implement a changeover to SD in their respective nation.

Adding the perspective of SD has the consequence that we need to include social, economic and ecological considerations when analysing the different components in the model depicted above. The current standpoint is that SD, for ecological reasons, demands reducing the utilisation of resources, e.g. energy and raw materials, to on the average 10% of the present levels within 1-2 generations, i.e. 25-50 years (Forskningsrådsmännen & Kungl. Ingenjörsvetenskapsakademien 1998). Thus, resource utilisation is a critical factor when evaluating physical environment and physical activities from a perspective of SD.

In viewing physical activity and health from a population perspective, also economic dimensions need to be taken into account. This is so in terms of the potential economic effects of physical activity on health, productivity and injuries. Furthermore, environmental effects may be coupled to the physical activity. One example of that is the modality of transport used to come to the place where one is physically active. Indeed the distance to different forms of arenas for physical activity shall be short so as to facilitate walking and bicycling to them in order to minimize the ecological burden. Likewise, the physical environment used for the physical activity need to be illuminated from the perspective of cost in terms of establishment, administration and maintenance. Individuals, organisations, enterprises and/or the society can in principle take these costs. But at which conditions will it affect greater proportions of the population? Ecological effects coupled to external factors for physical activity due to e.g. energy and other forms of resource utilisation need also to be taken into consideration.

If cost-benefit analyses are applied on physical activity in this greater context it is possible that certain physical activities and the conditions associated with them can result in economically positive results whereas others can add up to a negative balance.

Analyses of these matters are of particular interest in the urban setting. This is so since more than half of the global population is living in cities, and the fact that the urbanisation process will continue globally.

Man as a biological entity is part of the ecosphere and the laws ruling it. Indeed from this perspective physical inactivity can be viewed as an ecological disorder. When attempting to understand how to stimulate to physical activity it is therefore of value to have some idea about the extent of physical activity associated with different health effects. It is beyond the scope of this text to further that matter, but to just indicate that to obtain optimal reductions in e.g. the risk of obtaining type II diabetes and all-cause mortality, the amount of physical activity per week needed corresponds to about 3000 kcal/week in men (Paffenberger et al. 1986, Helmrich et al 1991). We have therefore good reasons to view these matters from a perspective of
how to stimulate to large quantities of physical activity.

Is there a role for green areas/elements?

Let us first illuminate this in terms of whether the green area has a direct potential to stimulate to physical activity. If that is the case, than it is of interest to know whether the levels of physical activity would be greater with green areas than if they did not exist.

These matters are sparsely studied. Accumulation of different types of indications can therefore be of value. Here, I will therefore present four different indices of that at least within the Swedish population green areas appear to have the potential of being an external factor that may stimulate to physical activity. These indices come from investigations dealing with: 1) whether or not people in are interested in being physically active outdoors, 2) what kind of leisure activities that are perceived as good for your health, 3) what kind of physical activities are preferred and executed. 4) what kind of public arenas for leisure activities are preferred when paid for by taxpayers.

The findings, all from different populations studies, are that 62 % of the population agree with the statement that "I would like to be out in nature for physical exercise and keeping my body fit" (Uddenberg 1995). When different leisure activities were rated in relation to perceived importance for health, "nature-based physical activities" and "being together with friends, family and relatives" received the highest scores (Norling 1995). Promenades, walking and jogging are the forms of physical activity that most Swedes execute (e.g. SOU 1997:188) and the most preferred physical activities are bicycling, long promenades and forest visits (Engström et al. 1993). Indeed green areas are suitable for these forms of physical activities. Finally, first priority among urban populations with regard to municipal usage of taxes for leisure activities/conditions are "nature and lakes”, second priority is ”green areas for walking and parks” (Olsson 1991). More indices illuminating these matters will be presented at the conference.

The results do indicate that green areas are highly valued within at least the Swedish population. But they do not tell us anything about whether green areas will make us more physically active than without them. However, and I think this is of clear importance to stress, being physically active under first or close to first choice conditions is indeed a welfare value.

It is difficult at this early point of analyses to see any indication which not speaks in favour of green areas. One hesitation, though, is related to the new ethnic minorities in Sweden. Preliminary findings from studies of youth groups from Bosnia-Herzegovina, Turkey, Iraq, Iran and Chili indicate that green elements as external factor are less attractive (Lundvall, unpublished results).

Furthermore, to better understand which forms of arenas for physical activity that are preferred we need to simultaneously compare preferences for different physical environments in the same investigation. Indeed this would be of value to investigate in different European settings and cultures.
What about nature as an external factor in relation to sustainable development? Well first let us point to its ecosystem services such as air cleansing and better microclimate, as well as the fact that it is basically dependent on solar energy. The 24 hour access for the public, all year round, without any directs costs for an individual represent other features of clear potential social value. Other values can be connected to biological diversity. Finally the costs for society in terms of maintenance appear to be rather low (Kardell & Lindhagen 1995). Thus, once a piece of land is purchased and set aside as a park or nature reserve, many services appear to be at hand to a low economic input.

Thus, we can conclude that green areas and elements appear to have a clearly favourable profile as external factors in stimulating and/or being highly valued arenas for physical activity within the Swedish population. Furthermore, in environmental and economical terms they appear to comply with a sustainable development. However, these matters need to be illuminated in depth in future multidisciplinary research projects.

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