

Review

Prevalence of physical inactivity in Saudi Arabia: a brief review

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SUMMARY Major lifestyle changes in recent years in Saudi Arabia may be leading to physical inactivity and a low level of physical fitness. This paper reviews the current literature about physical inactivity in the Saudi Arabian population and discusses its implications for health. Available data from a small number of studies suggests a high prevalence (43.3%–99.5%) of physical inactivity among Saudi children and adults alike. Furthermore, the proportion of Saudi children and adults who are at risk due to inactivity is much higher than for any other coronary heart disease risk factor. It is recommended that a national policy encouraging activity in daily life be established and more studies are carried out to address physical activity patterns with representative samples of the Saudi Arabian population.

Introduction

Until recent times, the physical demands of daily life and work in Saudi Arabia were sufficient to maintain a lean body mass and an appropriate level of physical fitness among the population. However, during the past 25 years, rapid developments in standards of living in the Kingdom of Saudi Arabia and increased mechanization have touched all aspects of people's lives. As a result, great changes in physical activity and eating habits have occurred in our society and low levels of physical activity and sedentary living are becoming increasingly prevalent among the Saudi population [1–9]. Moreover, with massive urbanization and increased reliance on computer and telecommunication technology, further reductions in physical activity are projected for the coming years.

These lifestyle changes that are rapidly occurring in Saudi Arabia (as well as in the

rest of the Gulf Cooperation Council countries) have a considerable impact on the health of society. In fact, such lifestyle transformation is thought to be responsible for the epidemic of non-communicable diseases, and their complications, in this part of the world [1,10–16]. In addition, the World Health Organization (WHO) has recognized physical inactivity as a major threat to worldwide population health [17]. WHO recommended some possible goals and priority actions aimed at promoting active living. Included in these actions is the need to assess the level of physical activity among various segments of the population.

This paper aims to provide a brief overview of the published data about the level of physical activity in the Saudi Arabian population and discuss the implications of physical inactivity on the health of Saudi society.

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Prevalence of physical inactivity among the Saudi Arabian population

A MEDLINE search was made for studies published from 1990 onwards, using the words "physical activity and Saudi Arabia" and "physical inactivity and Saudi Arabia". Seven papers were found, 3 of which were relevant and were included in the review. A manual search of the local medical journals was conducted, which revealed 5 additional papers related to physical inactivity in Saudi Arabia.

That little research has been published on this important public health issue shows that research into the epidemiology of physical activity in Saudi Arabia and neighbouring countries is still in its infancy. No nationally representative population study has been made to describe the patterns of physical activity and energy expenditure of the Saudi people. The available published data on the physical activity profile of Saudi people come from studies largely conducted in urbanized areas and few of these have used large and randomized samples [2–9]. In addition, in some cases, assessment of physical activity was not the primary focus of the study [6,8].

Table 1 presents a summary of physical inactivity prevalence among various segments of the Saudi population [1–9]. Seven out of the 8 reported studies used questionnaires [3–9], while 1 study involving pre-adolescent boys utilized continuous heart rate monitoring [2]. Across all of the studies shown in Table 1, the total rate of inactivity ranged from 43.3% to 99.5%. Only 2 studies included data for both males and females and their findings indicated that females were much less active than males [6,9].

Based on the results of 1 recent study involving adult men living in Riyadh city

and using a fairly large and random sample, there appears to be a curvilinear relationship between inactivity prevalence and age [5]. As shown in Figure 1, the proportion of inactive men was highest during the middle-age years (30–49 years). In the same study, physical inactivity was shown to be higher among the less educated Saudi males [5]. Furthermore, the most important reasons for being physically inactive among Saudi males were time constraints and lack of facilities, as reported by more than 70% of the respondents [5]. In another study [9], the prevalence of physical inactivity in males increased from early adulthood (16–30 years) to reach its peak at a later age (46–60 years).

Overall, what is striking from the findings of these studies is that the prevalence of inactivity among the Saudi population seems to be higher than rates reported in many industrialized countries of Europe and America [18–22]. However, according to the WHO report, 60% of the world population is sedentary or not active enough to gain health benefits [17].

As shown also in Table 1, the percentage of Saudi boys who do not take moderate daily physical activity, i.e. activity that raises the heart rate to above 139 beats per minute (bpm), for 30 minutes or more was reported to be 57.1% [1,2]. Such a level of moderate intensity physical activity has been recommended as a minimum level of physical activity for children and adolescents [18,23–26]. In addition, Saudi boys spend, on average, limited time on activities that raise the heart rate above 159 bpm. This level of vigorous activity is considered necessary for optimal cardiovascular health and fitness in children and adolescents [24–26]. In addition, according to a recent survey conducted on a sample of adolescent boys in Riyadh city, the rate of inactive adolescents (exercising for 1 day or less per

Table 1 Physical activity rates in the Saudi Arabian population

Population	Region [reference]	Assessment method	No. of subjects	Age (years) Mean (SD)	Age (years) Range	Level of physical activity Never active %	Irregular active %	Total inactive ^a %
<i>Children</i>								
Pre-adolescent boys	Riyadh city [1,2]	Continuous heart rate monitoring	92	9.6 (1.5)	7-12	-	-	57.1 ^b
<i>Adolescents</i>								
Adolescent boys	Riyadh city [3]	Questionnaire ^c	894	15.7 (1.8)	12-20	-	-	48.4
<i>Adults</i>								
College men	Riyadh city [4]	Questionnaire	362	21.9 (2.1)	17-30	45.8	32.4	78.2
Adult men	Riyadh city [5]	Questionnaire	1333	41.1 (9.7)	19-68	53.4	27.5	80.9
Primary care patients	Eastern province [6]	Questionnaire	227	41.5 (11.2)		43.3	-	-
Male				32.5 (11.4)		84.7	-	-
Female								
Primary care physicians	Riyadh city [7]		98	42.0 (6.5)	26-60	21.5	55.0	76.5
Andrology and urology patients	Jeddah city [8]	Questionnaire	388	43.2 (12.5)	20-86	82.0	-	-
Lowlanders and highlanders	Asir province [9]	Questionnaire ^d	905					
Male					16-60	27.5	31.9	59.4
Female					16-60	88.6	11.3	99.5

^aTotal represents both never exercise and irregular physical activity.

^bPercentage of boys not taking exercise sufficient to raise heart rate > 139 bpm for at least 30 minutes per day.

^cFrequency of physical activity ≤ 1 time/week.

^dUsing Lipid Research Clinic Questionnaire (inactive means those reporting no strenuous exercise for ≥ 3 times per week). SD = standard deviation.

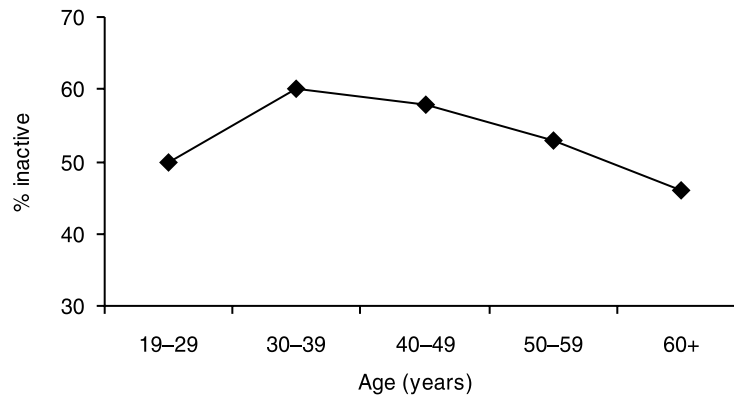


Figure 1 Prevalence of physical inactivity among Saudi Arabian males by age [5]

week) was approximate 50% [3]. The major determinants of physical activity in Saudi children and adolescents appear to be cardiorespiratory fitness, obesity, the quality of the physical education programmes, TV viewing and parental influence [27]. From a comparative point of view, it seems that both levels of moderate (heart rate > 139 bpm) and vigorous (> 159 bpm) physical activity of Saudi boys are considerably lower than those levels reported for children from other countries [19,28,29].

Health implications of physical inactivity in Saudi Arabian society

It is now well recognized that physical inactivity and increased sedentary habits represent a risk factor for a number of chronic diseases including coronary heart disease (CHD) and obesity [30,31]. On the other hand, regular physical activity has been shown to reduce the risk of both cardiovascular disease and all-cause mortality [18,23,30,32]. Furthermore, research on physical activity epidemiology indicates that inactivity appears to be far more im-

portant risk factor than was previously estimated [33,34]. The reason is that there are higher proportions of the population who are inactive and at risk for CHD than those who are at risk for any of the other CHD risk factors [33,34]. Figure 2 illustrates this point using data from a recent physical activity study conducted on Saudi males [5]. The proportion of Saudi adults who are at risk due to inactivity is much higher than those at risk due to any of the other CHD risk factors, including hypertension [13], hypercholesterolaemia [14], obesity [15] and cigarette smoking [35]. Therefore, health promotion strategies aiming at decreasing the proportion of inactive Saudi adults should be a priority public health concern.

The proportion of Saudi boys who are at risk of CHD due to inactivity relative to other risk factors is similar to that of Saudi adults. Figure 3 clearly shows that the percentage of Saudi boys who are physically inactive is twice the rate of those with hyperlipidaemia. Diseases such as CHD and obesity, for which inactivity is a likely risk factor, have their origin in childhood [36,37]. Moreover, CHD risk factors were shown to track from childhood to adult-

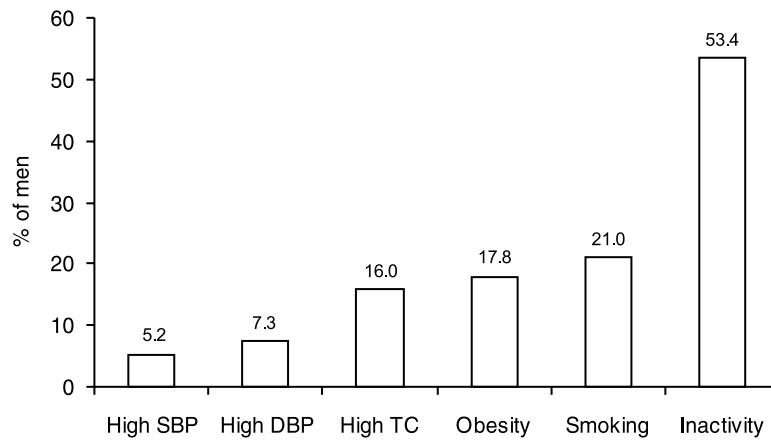


Figure 2 Risk factors for coronary heart disease among Saudi Arabian males: proportions with physical inactivity [5], high systolic (SBP) and high diastolic (DBP) blood pressure [13], high total cholesterol level (TC) [14], obesity [15] and cigarette smoking [35]

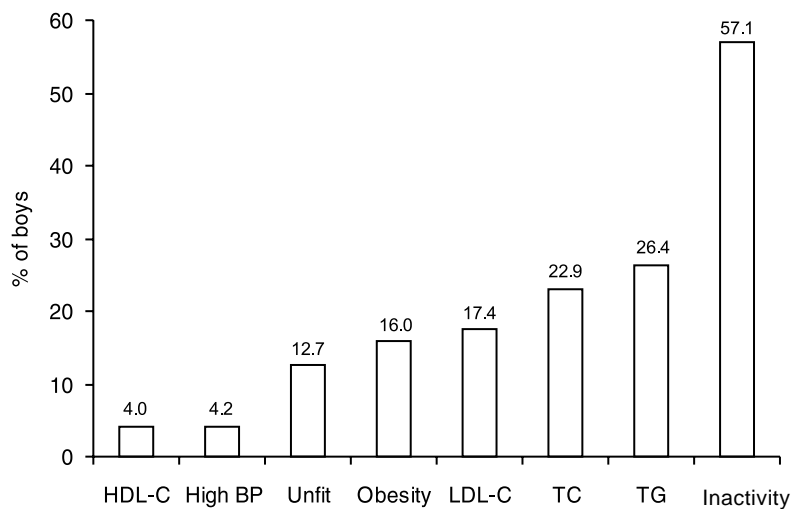


Figure 3 Risk factors for coronary heart disease among Saudi Arabian boys: proportions with physical inactivity [1,2], low high-density lipoprotein cholesterol level (HDL-C), high blood pressure (BP), low cardiorespiratory fitness (unfit), obesity (fat > 25% body mass), high low-density lipoprotein cholesterol level (LDL-C), high total cholesterol level (TC) and high triglycerides level (TG) [10]

hood [38]. Thus, prevention of lifestyle-related disease at an early age is an important public health priority, especially considering the fact that children and adolescents account for more than 50% of the Saudi population. Indeed, a recent statement from the American Heart Association's Council on Cardiovascular Disease in the Young has recommended that physicians should incorporate physical activity counselling into medical practice as a way of promoting physical activity among children and adolescents [39].

Conclusion and Recommendations

From this brief review of the current level of physical activity in Saudi Arabia, it can be concluded that the prevalence of physi-

cal inactivity among Saudi children, adolescents and adults is high. This may be largely the result of the recent dramatic changes in the people's lifestyle. Moreover, the proportion of Saudi children and adults who are at-risk due to inactivity is much higher than for any of the other CHD risk factors. It is recommended, therefore, that a national policy encouraging active living and discouraging inactivity be established. Such an approach has been recommended previously [12,27]. Health care providers have an important role in promoting physical activity and fitness among all Saudi people. Finally, national studies addressing physical activity patterns with representative samples of the Saudi population are urgently needed. Such surveillance will provide invaluable information for public health authorities and policy-makers.

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