CHAPTER 3

PHYSICAL ACTIVITY
AND CHRONIC DISEASES OF LIFESTYLE IN SOUTH AFRICA

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PROLOGUE (*excerpted in part, from the Oxford Health Alliance Annual Report, 2005*):
Over the past 20 years, physical activity has become widely recognised as a "key" health behaviour, associated with reduced all-cause morbidity and mortality, as well as chronic diseases of lifestyle (CDL). The associated health benefits of physical activity accrue in a dose-dependent manner, and early adaptations in the transition from sedentary living to becoming moderately active, seem to have the greatest effect on risk reduction for CDL in men and women (Figs. 1 and 2).[1,2]

Generally, the health benefits of physical activity increase with increasing frequency, duration, and intensity of exercise. Data from longitudinal cohort studies suggest that physical inactivity is associated with at least a 1.5 - 2-fold higher risk of most CDL, such as ischaemic heart disease, type 2 diabetes, and hypertension. Furthermore, studies corroborate the existing public health recommendation suggesting that 30 minutes of accumulated, moderate-to-vigorous physical activity on most days, offers protection from these chronic diseases. The associated risk of inactivity is similar in magnitude to many other well-known risk factors, such as overweight, smoking, hyperlipidaemia, and low fruit and vegetable intake (see Fig. 2).[3]

In some countries, the direct health-care costs attributable to physical inactivity are more than 2.5% of the annual health-care budget. Moreover, as physical activity "protects" from an early age, these are likely to be underestimates of the attributable impact of inactivity on health-care expenditure. From a public health perspective, these effects are sufficiently large, and robust, and have been demonstrated in a variety of populations and contexts, to similar effect. Furthermore, because the prevalence of inactivity is generally higher than most other behavioural risk factors, the potential impact of population-based intervention may be great.

However, this potential has not been realised because of the paucity of evidence concerning the effectiveness of population-based or community-based strategies for physical activity intervention. This is particularly relevant to developing countries, which are not "protected" from the burden of inactivity, but reflect a paradoxical situation in which poverty co-exists with a high prevalence of obesity; and urbanisation is associated with decreased levels of daily physical activity. Furthermore, usual methods of surveillance, capturing leisure time activity, is often insufficient in these settings, where occupational activity and activity associated with transport may actually be inversely associated with recreation.

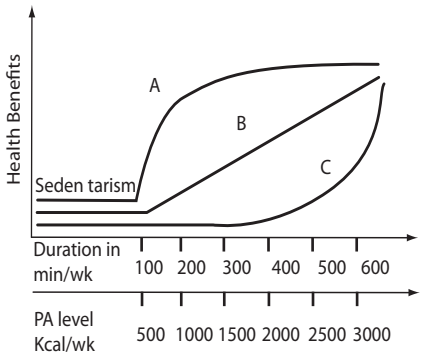

Figure 1: Theoretical dose-response effect for the health benefits of physical activity[1]

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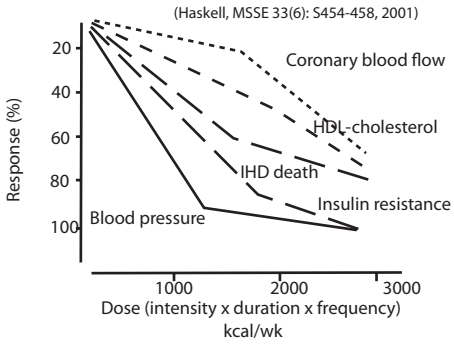

Figure 2: Theoretical dose-response of physical activity for health-related benefits[2]

Specific public health milestones have been identified which highlight the growing recognition of physical inactivity or sedentary living as a major risk factor for CDL. One such milestone is the 1995 US Surgeon General's report on the existing evidence-base concerning physical activity and health, positioning inactivity as a national public health challenge.[4] More recently, in May 2004, the World Health Assembly approved the World Health Organization (WHO) Global Strategy on Diet, Physical Activity and Health.[5] This strategy serves to establish physical activity promotion on the national health policy agendas of member states, specifically for the prevention and control of CDL. In conjunction with these policy initiatives, there has been an emergence of global surveillance of risk factors, including physical activity, thereby providing the impetus for both a global and national course of action.

Ten-year retrospective review of research priorities for physical activity in health in South Africa: 1995-present

Specific data concerning the national prevalence of physical activity or inactivity were notably absent from the chapter on exercise in the 1995 MRC Technical Report on CDL in South Africa.[6] Moreover, little or no data were present linking physical activity and/or inactivity to health outcomes in any South African population. However, in the intervening period, South African researchers and policy makers have begun to characterise the scope of the problem. In 1995, we highlighted the research priorities concerning physical activity and health in South Africa. These included:

1. identifying habitual physical activity patterns of various communities;
2. identifying factors that influence physical activity behaviour in various communities;
3. determining the benefits of physical activity for prevention of CDL in specific target groups, including the health insurance sector;
4. determining cost-effectiveness of physical activity; and
5. co-ordinating efforts to promote physical activity in different communities.

This report will address these areas of research priority, where data are available, and highlight new areas needed for research and advocacy, based firstly on the existing epidemiological, behavioural data available, and secondly, on the current national and global health policy environment.

Scope of the problem of inactivity in South Africa: prevalence of inactivity:

Levels of activity in children and youth:

In terms of activity levels in children and youth, there are self-reported data available from the National Youth Risk Behaviour Survey.[7] Table 3.1 presents these data, which suggest that more than one-third of children surveyed participate in insufficient or no moderate-to-vigorous activity weekly. Additionally, more than 25% of the youth surveyed reported watching more than 3 hours of television per day.[7] This emerging formative evidence warrants concerted public health focus, and very likely inter-sectoral strategies, so that primordial prevention can be implemented, particularly in children and youth.

Table 3.1. Percentage of 13 - 19-year-olds who participated in insufficient or no physical activity (n=10 100)

	Males	Females	All
Black	34.4	42.4	37.5
Mixed Ancestry	36.8	56.8	45.6
White	28.2	37	29.4
Indian	40.8	36	33
RSA	34.4	43	37.5

Source: Youth Risk Behaviour Survey, 2002

Levels of physical activity in adults:

Preliminary data on the patterns and prevalence of physical activity among black men and women living in the Cape Peninsula were presented by Sparling *et al*.[8] Most of the participants were employed in occupations requiring minimal physical activity (57%), and one quarter had occupations requiring moderate amounts of exercise (25%).[8] More than half of the total sample that was interviewed participated in physical activity outside of working hours (58.5%). When comparing the different age strata, the least active groups were those between the ages of 25-34 years compared to those who were 35-44 years and 45-64 years (54% vs. 61%).[8] Those aged between 45-64 years participated predominately in light intensity activities (58%) and only a small proportion engaged in strenuous physical activity (2.8%). Conversely, the younger subjects participated in more strenuous activities than light intensity activities.[8]

A subsequent study was conducted in the North West Province in an urban and rural community.[9] More than half of the subjects participating in this study were not sufficiently active as only 29% and 28% were classified as either inactive or moderately active. Furthermore, the men and urban dwellers were significantly more physically active than the women and those living in rural areas.[9]

Similar results were obtained from a peri-urban community of mixed ancestry (coloured) men and women. The Stanford 7-Day recall questionnaire was used to quantify habitual physical activity in a random population-based sample aged 15 years and older.[10] Approximately half of the total sample (49.7%) did not participate in 150 minutes or more of physical activity per week, which is the minimum recommendation required for achieving a health benefit. The prevalence of inactivity increased with increasing age, where 40% of those younger than 35 years where insufficiently active compared to 66% and 76% of those aged between 55 and 64 years and older than 64 years, respectively.[10]

More recently, in 2003, the International Physical Activity Questionnaire (IPAQ) was administered, as part of the World Health Survey, to a representative sample of South Africans (Table 3.2). The South African data were collected between December 2002 and May 2003, and included samples from urban and rural communities (n=2014). This survey found that less than one third of South Africans met the American College of Sports Medicine and Centers for Disease Control recommendation for health-enhancing physical activity (to accumulate 30 minutes of moderate activity on most, but preferably all days of the week), and that nearly half were reportedly inactive (46%).[11]

Table 3.2. Prevalence (95% CI) of physical inactivity in a representative sample of adult South Africans (World Health Survey 2003; World Health Organization)[11]

	Men	Women	All
Inactive (< 600 MET min/wk)	43 (38; 49)	49 (43; 54)	46 (42; 51)
Minimally Active (≥ 600 MET min/wk)	20 (16; 23)	27 (23; 30)	24 (21; 27)
Sufficiently Active (HEPA)	37 (32; 42)	25 (20; 29)	30 (26; 34)

HEPA (Health enhancing physical activity; ≥ 7 days of any combination of moderate and vigorous activity, ≥ 3000 MET min/wk)

The IPAQ is an interviewer-administered or self-administered questionnaire that was developed to compare physical activity patterns across different countries among adults 18-65 years old.[12] There are two versions of the questionnaire, the long IPAQ and the short IPAQ, and each of these had two versions in which participants either reported their "usual weekly" or "past week" physical activity patterns. Only activities lasting longer than 10 minutes are recorded. The short IPAQ contains information on time spent in moderate and vigorous activities and walking, including usual walking pace. Additionally, the total number of hours spent sitting during a week and weekend day are recorded. The long IPAQ is a more comprehensive tool containing information on weekly activities in household and yard-work activities, occupational activity, transport, leisure time physical activity and sedentary behaviour. Participants from 14 countries answered both the long and short IPAQ twice, 3-7 days apart, to assess its reliability.[12]

The results from this study underscore the low levels of physical activity in our nation. In addition, it supports the findings of other national studies,[7,9,13] which highlight women as a particularly vulnerable group for low levels of habitual physical activity. A more recent and comprehensive survey was completed in 2003-2004 on a sample of more than 10 000 adults using the Global Physical Activity Questionnaire (GPAQ), however, these data are not yet available. The IPAQ[12] has been validated for use in the South Africa population, and the GPAQ is currently undergoing validation (Tshabangu, unpublished data).

Levels of physical activity in older adults:

Prevalence of available physical activity data are largely derived from regional, cross-sectional risk factor surveys, and suggest that persons over age 55 have the lowest levels of self-reported moderate and vigorous physical activity. In a recent follow-up study of older South African adults from historically disadvantaged backgrounds, the Yale Physical Activity Survey for Older Adults (YPAS) was used to describe patterns of weekly activity spent in housework, gardening, and yard work, care-giving, exercise, and recreation.[14] Results from this study suggest that these South African seniors spent an average of 2583 kcal/wk (± 3027 kcal/wk) in physical activity, 65% less than that reported in a sample of North Americans of the same age.[15] These data suggest that in South Africa, physical activity levels decrease with increasing age. This has also been well documented in other developed countries.[16-19]

Evidence for physical inactivity as a risk factor for CDL within South African populations

Physical activity and health outcomes in older adults:

CDL in South Africa account for nearly 40% of adult deaths, and the majority of South Africans have at least one modifiable risk factor for chronic disease.[20] More specifically, conditions such as hypertension and diabetes in older South African adults are very common. For example, prevalence of hypertension (≥160/95 mmHg or under treatment) in black South Africans (> 65 years) living in urban and peri-urban communities has been found to be greater than 43% in men and more than 66% in women.[21] Similarly, older adults of mixed racial ancestry from the Western Cape region have a reported prevalence of hypertension of 66.7% (95% CI: 57.3 - 76.1) in men and 76.5% (95% CI: 68.3 - 84.7) in women.[14] Moreover, those individuals with hypertension are generally poorly controlled.[21]

Although the role of physical activity in the prevention and attenuation of CDL is widely recognised, even in older adults, there are little data on the prevalence of physically active lifestyles in older adults in sub-Saharan Africa. Few studies have also attempted to link physical activity to health outcomes or morbidity in this population.

In two separate South African studies in older adults from peri-urban communities,[14,22] current levels of physical activity were dissociated from various indicators of morbidity, such as blood pressure (BP), waist circumference, and body mass index (BMI), as well as prevalence of hypertension, diabetes and hypercholesterolaemia. This may be explained, in part, by a "healthy survivor" effect. On the other hand, moderate lifetime occupational physical activity levels recalled for the ages from 14-49 years using a historical activity questionnaire, were significantly and inversely associated with current systolic blood pressure, $r = -0.24$, $p < 0.05$.[22]

Although the burden of disease in relation to hypertension is well characterised, the burden attributed to low bone mineral density (BMD), osteopaenia and osteoporosis, has not been described in South Africa. However, we have recently demonstrated that occupational-related physical activity between ages 14 and 21 years in men, and 22 and 34 years in women is "protective" against low BMD, in particular, in older women from a working-class community in the Western Cape, whereas current levels of total weekly physical activity were not associated with BMD in this population.[23]

We only found a significant correlation between current recreational physical activity and estimated BMD and T-score for the women.[23] We considered the possibility that these recreationally active women were "self-selected", as they may have had higher energy expenditure levels in the previous age epochs. The high intra-class correlation coefficients obtained when tracking physical activity in household, occupational and leisure domains, demonstrates that those who were active in epoch one (14-21 years) were more likely to be active throughout life.[23]

These findings were further corroborated by a study of 152 older men (n=47) and women (n=105) from the West Coast (Western Cape) who had spent their lives working in the fishing industry. In this sample, more than 50% of men and women had apparent low BMD or osteopaenia. However, recalled occupational levels of physical activity between the ages of 14 and 21 years for men, and between the ages of 22 and 34 years for women, were found to be positively associated with BMD measured by calcaneal ultrasound ($r = 0.35$, $p < 0.04$ for men, and $r = 0.24$, $p < 0.04$ for women). Thus, current BMD was weakly, but significantly associated with occupational physical activity during the years of peak bone mass accretion, which may have protected these individuals from bone loss later in life.[24]

Although these studies have provided some evidence for the relationship between physical activity levels and potential morbidity experienced by older adults in cross-sectional, regional surveys, there are few published data from intervention trials, which have specifically attempted to increase levels of physical activity in older South African adults, in a controlled setting. In one recent example of a community-based intervention study, the effectiveness of a 20-week, low-intensity community-based exercise programme on both functional ability and health was investigated in older adults in the Cape Peninsula.[25] Three community centres were selected: two were randomly allocated to the same 20-week, twice-weekly exercise programme (EX; n=54) and a third to relaxation classes (control/CTL; n=21). All the participants were sedentary at baseline.[25]

Dynamic balance, measured by the time taken to walk 10 m with the tandem gait, improved significantly in the exercise group (64 ± 28 seconds at baseline to 43 ± 15 seconds at 20 weeks ($p < 0.001$). In addition, a significant increase in lower body strength, as measured by the number of sit-to-stand repetitions in 10s was observed in the exercise group ($p < 0.001$). No significant changes occurred in these measures in the CTL group. In a sub-sample of subjects who were hypertensive at the outset, exercise intervention was associated with a significant decrease in systolic BP (n=26; 146 mmHg to 140 mmHg; $p=0.005$) with no changes in the CTL group. Variables unaffected by exercise training were upper body strength, body composition and fat distribution, 20 m walk, cardiovascular endurance and time spent in recreational activities.

Therefore, a 20-week community-based, low-intensity exercise programme improves dynamic balance and lower body strength in community dwelling older adults and improves BP in hypertensive subjects. The activities of daily living (ADL) score, which has been linked to functional ability did not change significantly in this study population, and is largely because most of the participants had a high functional status at baseline. This model has been replicated in the form of a community-based, peer-led intervention programme called "Live It Up" currently being administered through senior clubs in the Western Cape. However, there is clearly a need for more research, in particular, evaluating the long-term effectiveness and sustainability of such programmes, as well as morbidity and mortality outcomes.

Physical activity and health outcomes in adults:

As has been previously mentioned, South Africa is a country undergoing rapid epidemiological transition, with a dual burden of infectious disease and CDL. For example, results from the 1998 Demographic and Health Survey suggest that overweight and obesity affect more than 55% of South African women.[26] This high prevalence of overweight and obesity among South African women, particularly from the indigenous (black) population groups has important health consequences, as it is associated with increased risk for CDL. The relationship between BMI and physical activity was investigated in 530 black women living in the North West Province as part of the 'Transition and health during urbanisation of South Africans (THUSA) study.[27] Physical activity was quantified using a Physical Activity Index (PAI) based on the Baecke questionnaire. Kruger *et al*.[27] reported that physical activity was significantly and inversely associated with BMI ($r= -0.14$; $p=0.001$) and waist circumference ($r= - 0.15$; $p < 0.00001$). Furthermore, the women who were in the highest tertile for physical activity were 62% less likely to be obese compared to those who were the least active (OR = 0.38; 95% CI: 0.22 - 0.66). Similarly, the women in the second tertile for physical activity had approximately half the risk of obesity when compared to those who were least active (OR = 0.52; 95% CI: 0.31 - 0.86). These findings therefore underscore the importance of the role of physical activity in the prevention of obesity and overweight in women. This is particularly important since

54% of the women participating in the study were classified as either overweight (BMI >24.9 and <30) or obese (BMI >29.9).[27]

In a more recent study, the same research group investigated the relationship between the prevalence of physical activity and risk factors for ischaemic heart disease (IHD) in men and women from urban and rural communities.[9] The risk factors for IHD that were measured in this study included BMI, BP, total serum cholesterol, triglycerides and fasting blood glucose and insulin. The only variable related to a reduced risk of IHD that was significantly associated with increased levels of physical activity was fasting insulin among the men. The most active men had higher systolic and diastolic BP results than the least active men (mean systolic BP 129 ± 1.57 mmHg versus 125 ± 2.18 mmHg and mean diastolic BP 78 ± 0.95 mmHg and 73 ± 1.32 mmHg). For the women, triglyceride concentration and fasting serum glucose were significantly and inversely associated with increased levels of physical activity.[9] Conversely, while high-density lipoprotein (HDL) cholesterol was directly associated with physical activity levels.[9]

More importantly, lower levels of physical activity were significantly associated with IHD risk factors for both the men and women who were overweight.[9] The men who were least active and who were overweight (BMI >25) had significantly higher total cholesterol, low-density lipoprotein (LDL) cholesterol, LDL:HDL ratio and fasting insulin levels than those who were moderately active and overweight. Similarly, the overweight and physically active women had significantly lower LDL cholesterol, LDL:HDL ratio and fasting insulin than the overweight women who were inactive.

In another cross-sectional survey conducted in a peri-urban community in the Western Cape, physical activity was "protective" against risk for type 2 diabetes. Those persons in the lowest quartile for physical activity energy expenditure had an odds ratio of 1.75 (95% CI: 1.07 - 2.86) for type 2 diabetes.[10] In a re-analysis of the same study, physical activity levels, along with a self-reported history of angina, patient awareness concerning hypertension and diabetes status, height, weight and waist circumference, contributed significantly to a global cardiovascular disease risk score.[13]

Finally, in a recent multi-country case-control study (INTERHEART) in which more than 15 000 acute myocardial infarction cases were compared to control subjects, in 52 countries, including South Africa, physical activity was again protective (OR of 0.86, 95% CI: 0.76 - 0.97).[28] The risk or preventable death attributable to inactivity (less than 4 hr/week of moderate or strenuous activity) was 12.2%.

Taken together, these studies provide substantive evidence for the putative protective role of physical activity against CDL, even in communities and populations undergoing the epidemiological transition. What is lacking are data from randomised controlled trials, or specific, prospective studies, characterising the effective dose-response and culture-specific activities required to prevent early morbidity and mortality actively.

Children and young adults:

While there is limited published data available concerning physical activity and adverse health sequelae in South African children, three recent studies provide sufficient evidence to "make the case" for primary prevention in this "at risk" group. Firstly, physical activity levels and opportunities for physical activity opportunities distribute differentially across socio-economic strata. For example, in the Birth-to-Twenty cohort, children from more affluent homes reported higher levels of physical activity, less television viewing time, and had a higher lean mass than their more disadvantaged counterparts.[29] These results suggest that those children from less affluent homes may ultimately be more likely to become obese later in life.[29,30]

Furthermore, there is indirect evidence that a "poor start" or early life stunting is associated with greater risk for obesity in schoolgirls, aged 10-15 years, from the North West province. Stunted girls were less physically active than their non-stunted counterparts were, however, even after adjusting for activity levels, these girls had greater subcutaneous fat deposition, and higher waist circumferences.[31]

Over and above these associations, physical activity levels have been positively linked with bone mineral density in black and white pre-adolescent South African schoolgirls,[32] and more recently, in 9-year-old white school children.[33]

However, little data are available concerning secular trends of physical activity, particularly those linked to obesity in South African schoolchildren. Moreover, no published studies are thus far available which specifically address the determinants and barriers to physical activity in this vulnerable group.

Public health and inter-sectoral initiatives aimed at increasing participation in physical activity

The Ministry of Health has initiated a consultative process to develop a series of guidelines for the prevention or management of CDL (separate guidelines are available for the prevention and management of diabetes, hypertension, hyperlipidaemia, and overweight). The directorate has also recognised the need to encourage physical activity, in particular, among older adults and initiated guidelines for promoting "active" ageing (1999). More recently, in November 2004, the Directorate of Health Promotions, within the Department of Health, launched an inter-sectoral strategy aimed at the Promotion of Healthy Lifestyles and change from risky behaviour, particularly among the youth. This forms part of the plan for comprehensive health care in South Africa, and is one of the strategic priorities for the period 2004 - 2009.

There are also initiatives within both the Ministry of Sport (Sport and Recreation South Africa) and the Ministry of Education, which provide a policy and programme framework that support the strategic priorities for health care. Sport and Recreation South Africa is responsible for devising and implementing sport and recreation policy, specifically targeting increased mass participation, as well as sports development. This mandate is reflected in the theme of the ministerial White Paper on Sport and Recreation in South Africa, which is "getting the nation to play".

Sport and Recreation South Africa has identified various levels of programme development, as a means of addressing this mandate. These include building multi-purpose sporting facilities in rural areas and socio-economically disadvantaged townships in urban settings to increase participation. In addition, the ministry has launched a programme of "Indigenous Games" as a means to capitalise on the cultural diversity of South Africa, by training leaders at a provincial level.

Siyadlala is a national project of Sport and Recreation South Africa, which is aimed at facilitating mass participation in sport and recreation activities, especially in disadvantaged communities in high crime areas and government priority nodal areas. The Siyadlala programme, launched in 2004, has actively employed 39 instructors to coordinate the introduction of new sporting codes to previously disadvantaged areas in some 400 "hubs". Thus far, none of these initiatives has received formal evaluation.

In 2002, combined talks were held between the Ministry of Education and that of Sport and Recreation to determine the way forward for sport at schools. In principle, it was decided that the Department of Education would be responsible for school sport and physical education under the umbrella of the "life-skills orientation" programme. This programme is implemented at a provincial level, according to regional priorities and needs. More recently, in March 2005, the Ministers of Sport and Recreation and Education signed a cooperative agreement for the coordination and management of school sport, with an emphasis on structured programmes of extramural sports at each school.

However, two recent initiatives that began in the non-governmental sector have enjoyed support and constructive input from the Department of Health, in particular, as well as the Department of Education and other stakeholders. These include the promotion of the Global Move for Health concept and the development of and adoption of a National Youth Charter for Participation in Sport and Physical Activity.

The original Move for Health day was initiated in response to the highly successful implementation of "Agita Mundo" in Brazil.[34] The Agita Mundo programme was formed in response to the high prevalence of chronic diseases of lifestyle among Brazilian men and women. Agita Mundo means, "Move for Health", and the main aim of this campaign is to educate individuals on the health and fitness benefits of exercise and to promote the implementation of physical activity programmes. This programme, which started in Sao Paulo, spread to the rest of Brazil, and then to the rest of the Americas, has subsequently been recognised as a model to promote mass participation in physical activity programmes.

Consequently, the World Health Assembly mandated its member states, of which South Africa is one, to celebrate "Move for Health" annually. The core message of "Move for Health" is to encourage individuals to accumulate 30 minutes of moderate physical activity on most days (at least 5) of the week.

The South African campaign has been named, "Vuka South Africa – Move for your Health", which means "Wake up South Africa, move for your health". The National Department of Health, together with its partners (National Departments of Education and Sport and Recreation South Africa; private companies, tertiary institutions and non-governmental organisations) launched

the Vuka South Africa – Move for your Health campaign in May 2005. Since its inception, there have been numerous planning meetings, culminating in a stakeholders' workshop that was held in September 2005. This workshop has served as a platform for the future implementation of the Move for Health programme, together with the monitoring and evaluation of the campaign.

Similarly, the development of a Charter for Physical Activity, Sport, Play and Well-Being for all Children and Youth in South Africa, the Youth Fitness and Wellness Charter, was initiated in October 2004. In developing the Charter, the UCT/MRC Research Unit for Exercise Science and Sports Medicine (ESSM) sourced similar such documents, which had been introduced internationally. These documents took into consideration existing documents that provide physical activity guidelines for adults, adolescents and youth in Australia, the Australian Charter for Physical Activity and Sport for Children and Youth, as well as the Charter for Physical Education and Sport, developed by UNESCO, the European Manifesto on Young People and Sport, the European Sports Charter and the consensus statement on organised sports for children published by the International Sports Medicine Federation (FIMS) in 1997.

Over the past century, mechanisation and urbanisation have greatly reduced both the necessity for physical activity at work and the opportunities for leisure time exercise. Many studies have established that this reduction in physical activity contributes to CDL, such as diabetes, heart disease and certain types of cancer, and risk factors, such as obesity and hypertension. In addition, while South Africa's past has distorted the importance of sport and recreation and denied millions the right to a healthier lifestyle, it is now clear that sport and mass participation in free play and physical activity are integral components of a national priority for reconstructing a unified country, developing a healthier society, and improving sporting excellence. The Youth Wellness and Fitness Charter seeks to address these issues at a multi-sectoral level.

Professor Kader Asmal, MP and chairperson of the Portfolio Committee on Defence, has agreed to become the official patron of the Charter and support the initiative in the way forward. This development opens the platform for direct national government intervention and associated policy decisions.

The focus of this campaign is on national and local government, working together with parents, sporting organisations, non-government and non-profit organisations, clubs, higher education institutions, schools, faith-based organisations, the youth sector, the private sector and other key role players. Through this campaign, communities and opportunities are created for all children to become physically active and to establish a lifelong commitment to an active and healthy lifestyle.

The campaign does not aim to introduce new interventions and programmes, but rather serves to educate schools about physical activity, nutrition and wellness, facilitate those interventions that are already in place, and to provide a support base for improving and enhancing school intervention programmes and those of private service providers.

The implementation strategy will be launched in parallel phases that will target the following groups and issues:

1. Policy (National Departments of Health, Education and Sport and Recreation).
2. Schools and education.
3. Parents, care-givers and the family unit.
4. Communities.
5. Health services.
6. Evaluation and research.

Current research priorities and advocacy for physical activity and health promotion

While there has been substantial research progress in the intervening ten years between the first published South African MRC Technical Report concerning physical activity and chronic diseases, there remain many important areas of research that have not been established. In the near future, we will confidently be able to report national adult physical activity prevalence data, using validated questionnaires, based on the WHO STEP-wise surveillance methodology. In addition, we have prevalence of inactivity in adolescents from the Youth Risk Behaviour Survey. However, we still lack data on determinants and barriers to participation in physical activity, and physical activity linked in a prospective manner to health outcomes, morbidity, and mortality. Moreover, there are no examples, at present of studies investigating the cost-effectiveness of physical activity or burden of disease models, which model the attributable burden associated with inactivity.

We have few examples of process evaluation, and even fewer of programme evaluation of community-based programmes, or public health initiatives, designed to increase mass participation in physical activity, or specifically to target vulnerable groups. There is also lack of measurement of physical activity and wellness interventions arising in other governmental sectors such as

education, and within the private sector such as the health insurance industry. These measurements are important in contextualising these initiatives in terms of potential health impact.

Finally, almost no studies exist in which the effectiveness of interventions for physical activity has been measured. Again, all of the aforementioned studies and data derived make up the essential ingredients needed for "making the case for physical activity" and the advocacy that follows.

EPILOGUE

South Africa forms part of the global community, and as such, government has embraced the WHO's Global Strategy on Diet and Physical Activity for Health. There is commitment to a Healthy Lifestyles strategy, and several public health initiatives under this strategy, including Vuka South Africa-Move for your Health, and the Youth Charter for Fitness and Wellness. Evaluation of these and other programmes and initiatives, ongoing surveillance of physical activity and other risk factors, and intervention studies, focused on targeted, vulnerable, or high-risk groups, are needed, to continue to address this important risk factor for CDL.

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