

# EXECUTIVE SUMMARY

---

## Objectives

The purpose of the report is to provide a descriptive account of levels and patterns of sport and leisure-time activity in Ireland today, viewed from a health perspective, and to draw implications for policy on the promotion of sport and physical exercise for public health purposes. The report focuses on the adult population. Subsequent reports, based on a survey of sport among students in primary and post-primary schools that is currently underway, will examine sport and physical activity among young people. These reports are part of a programme of research on sport and physical activity carried out the by the Sports Research Centre in the Economic and Social Research Institute (ESRI). The Sports Research Centre is a joint initiative of the ESRI and the Irish Sports Council that was established in 2003.

---

## Data Sources

This report is based on the Survey of Sport and Physical Exercise which was carried out by the Survey Unit of the ESRI in July-September 2003. This survey collected data from a nationally representative sample of 3,080 individuals aged 18 years and over using face-to-face interviews.

---

## Context

International research has shown that physical inactivity is a major contributor to poor health and premature mortality in the populations of developed countries. Research has also shown that substantial health benefits can be gained not only from intense aerobic exercise but also from light physical activity engaged in as part of the normal routines of daily living (walking, gardening, climbing stairs, etc.). Widely accepted international standards recommend that people should aim to achieve an accumulated 30 minutes of moderate activity for five or more days per week as the minimum basis for good health.

---

## International Levels and Trends in Physical Activity

The World Health Organisation estimates that, worldwide, more than 60 per cent of adults do not engage in the minimum recommended levels, and that this is increasingly becoming the case in poor counties as well as rich ones. A significant minority of adults – of the order of 20-25 per cent – are completely inactive. Trends over time are more difficult to establish as relevant data are generally not available. Such evidence as exists suggests that over the past 30 years or so, in some countries at least, participation in sport and

leisure-time activity may have gone up while occupation-related activity (including walking to work) has gone down.

---

### **Role of Sports Promotion**

The promotion of sports as a matter of public policy has a role to play in raising the level of physical activity in populations. However, the impact of bodies specifically set up to achieve that purpose may be modest in view both of the many other public sector bodies which have an impact on sport and physical activity (the education system, health service, urban planning, etc.) and the large and varied commercial interests which are involved in sport. Furthermore, while there have been many policy initiatives in this area in many countries, methods of intervention that have been proven to work well have not yet been found. Where positive results from intervention have emerged, those effects have tended to be either small or short lived, or both.

---

### **Participation Among Adults in Ireland**

The survey reported on here found that about 22 per cent of adults in Ireland were completely inactive in sport or recreational walking. The balance of 78 per cent engaged in physical activity to some degree, but only about 40 per cent of all adults took part regularly enough and with enough intensity of effort to approximate to the minimum standards of physical activity recommended by the World Health Organisation. Participation varied strongly by gender and age: men participated more than women and the young more than the old. It also varied by social class, in that higher socio-economic groups had higher levels of participation, particularly in regard to activities other than walking.

Recreational walking is by far the most popular form of leisure-time physical activity – about 60 per cent of adults had taken a walk in the four weeks prior to the survey. Women engage in walking more than men. However, much walking entails little intensity of effort or is engaged too irregularly to contribute a great deal to the minimum recommended levels of physical activity. About 25 per cent of adults walked often enough and vigorously enough to meet those standards.

Apart from walking and hiking, 43 per cent of adults had taken part in some sport in the twelve months prior to the survey, and about half of these participated regularly and intensively enough to attain the minimum recommended standards of physical activity. Men are more likely to participate in sport than women. Age is also a major influence. This is so particularly in regard to participation in sport at moderate to high levels of effort which drops steadily after age 30.

These levels and patterns of participation are broadly in line with those found in other countries.

The most popular sports that people take part in are golf, soccer, swimming and GAA games for men, and swimming and aerobics for women. Age patterns of participation differ between sports. Swimmers are evenly spread across the age-groups, golfers are

concentrated among those in middle and older years, while soccer and GAA players are concentrated among those aged under 30 years.

---

### Reasons for Non- Participation

The major reasons that people give for non-participation in sport have to do with the lack of interest, willingness or time on their part. Lack of sports facilities or other impediments arising on the supply side of the sports system hardly feature at all in people's conscious reasons for not participating. One should not thereby conclude that supply side problems play no role in determining participation, since they may have considerable background or conditioning effects (e.g. it might enter people's minds to take up swimming only when a good swimming pool becomes available in their area, or the lack of footpaths or cycleway on roads may deter them from walking or cycling). Nevertheless, for most sports, one can conclude that supply side factors do not amount to a major direct impediment which, if addressed, would be likely to have an immediate impact in raising participation rates.

---

### Participation and the Life Course

There are important life course dimensions to people's participation in sports. These dimensions vary by gender – men are more likely to participate when younger and to continue participating in mid-life and old age. They also vary by birth cohort, especially among women – older women are more likely to have never participated than either men of the same age or women in younger cohorts. Younger women are just as likely as younger men to have had at least some participation in sport at some point in their lives, but they are also more likely to drop out of sport in their twenties and thirties.

The most important aspect of life course patterns of participation in sport is the degree of change which occurs as people age. For the most part, people start out with high intensity team games in their teenage years. As they grow into mature adulthood they either give up sport altogether or move to sports which are less physically demanding and less team based. The kind of transition which occurs when people move away from the sports of their youth is thus of critical consequence for overall levels of participation, since a common outcome of that transition is that people give up sport altogether.

These findings suggest that non-participation in sport in adult life is not necessarily due to the failure to introduce younger people to sport. Non-participation in later life occurs even among those who were active in sport when they were younger. The *kinds* of sports people play in their earlier years, which are mainly intensive, team-based sports such as GAA games, may be unsuitable to people in later life, either because people are less fit or because it becomes less feasible for them to take part in team-based activities.

---

### Participation and Ability in Sports

While people's sense of their own ability in sports has some influence on the likelihood that they will persist with sport, that influence is small. Most people who drop out of a particular sport think that they were of at least average ability in that sport and only about one in ten think that they were below average ability. Those who persist with sport rate their ability slightly higher than those who drop out, but the difference is small. Lack of confidence in their sporting ability may thus have some influence on people's tendency not to participate, but it cannot be considered a major influence.

---

### Sports and Health

Those who participate in sports are healthier on average, even within age groups, than those who do not. This is true for both physical and mental health. Even those who participate with limited regularity and/or with only light effort still gain some physical and mental health benefit.

The relationship between sports participation and health grows stronger as people age. The nature of the relationship is also likely to change as people grow older: among younger people, inactivity is likely to be more a cause than a consequence of poorer health, but as people age, inactivity can become both cause and consequence – lack of exercise worsens health but deteriorating health and physical fitness as people age also deters them from taking exercise.

Lifestyle habits such as smoking and drinking are also linked to sports participation. Those who participate regularly are less likely to smoke and this effect is stronger among those who participate more, or who use higher levels of effort. However, the differences associated with highly regular and intensive participation are not as pronounced as one might expect. Of those who participated with 'substantial' or 'extreme' effort (who amounted to 26 per cent of men and 17 per cent of women), about a quarter smoked and of these around one-third were smoking 20 or more cigarettes a day.

While sports participation is associated with lower cigarette smoking, it is associated with higher consumption of alcohol. This effect is especially present among women who participate in sport and even more so among women who participate in team sports. These effects are also more pronounced among younger adults, especially among those aged under 25 years. This indicates that the lifestyle effects of sports are not entirely positive, since high levels of alcohol consumption are known to be related to higher levels of mental illness and depression, but also to other social and relational problems as well as higher risks of particular cancers and stroke.

---

### Policy Implications

The main implications for policy arising from the present study are as follows:

1. Sports promotion has a role to play in promoting physical activity in the adult population as a means to improving public health but that role has its limits. The need in Ireland in this

regard is similar to that in other countries, in that there is a considerable incidence of physical inactivity in the adult population and of physical activity that is only barely worthwhile from a health point of view. However, it is difficult to encourage people to take more exercise and for many currently inactive people, sports, apart from recreational walking, would not be the first or most appealing thing they would think of in that regard. Furthermore, sport and other physical activity is already promoted by a range of public and private bodies and is only one among a range of objectives typically pursued by bodies that are specifically concerned with sport. **The Irish Sports Council is typical in this regard, in that the resources at its disposal are small relative to the total resources devoted to sport in Ireland and its remit encompasses a range of objectives beyond the goal of raising physical activity levels in the population (including, for example, support for elite competitors). Therefore, only modest effects should be expected from its work as far as public health is concerned and those effects should not be expected to be easy to detect.**

2. The particular value of dedicated sports promotion from a health point of view is likely to be tied to its ability to identify niches where it has a comparative advantage. These niches are not readily evident and have to be sought out through trial and error, research on local conditions, and learning from experience elsewhere. Niche activities could consist of types of promotional initiatives which are not already provided by other bodies, target groups who are inadequately provided for by existing services, and the provision of information and understanding about the role of sport in people's lives and the way its positive impact on health can be maximised.
3. The niche potential for the promotion of sport and physical activity becomes evident when we consider the factors associated with low levels of physical activity. By far the strongest of these are age and gender – physical inactivity becomes more common as people age (particularly after age 40 or so) and is more prevalent among women than men. Socio-economic position also has an effect, though not to the same degree as age or gender. **Since the greatest public health gains are achieved by generating even modest activity levels among those who are completely sedentary, the Irish Sports Council could best serve the physical activity and public health dimensions of its remit by focusing more attention on older people and women, and to a certain extent also, on those in lower socio-economic positions.** (Other dimensions of the Council's remit, such as those relating to support for elite sports people, would point to different priorities. It is beyond the brief of the present report

to consider how resources should be allocated between these different priorities.)

4. While policy on the promotion of sport and physical activity is often rightly concerned about young people and with associated issues such as sport in schools, it should be remembered that there are some 2.5 million adults in Ireland who have passed out of the education system and who also need to be kept in mind in framing sports policy. Of these, 1.5 million are aged over 40 years, and since it is from this point in the life-cycle onwards that sedentarism becomes especially common, there is a particular need to direct attention at the the over-40s in devising means to raise physical activity levels in the population.
5. A focus on sports promotion among people aged over 40 years, especially women in that age group, has implications for the kinds of sports which should receive support. The traditional dominant sports such as football and soccer are likely to have little appeal for these target groups and are unlikely to be an effective means of encouraging people out of sedentarism. For older people, walking, golf, swimming and aerobics are the most common activities and may be easier to promote among the inactive than team-based or contact sports. They warrant greater attention from the Irish Sports Council on that account. More generally, in deciding on supports for particular sports from a physical activity and public health point of view, the Irish Sports Council should assess the likely appeal of the sports in question to currently inactive segments of the population and should proactively identify and cultivate those sports with the greatest potential in this regard. This might mean that activities which have a limited profile at present, such as recreational cycling, might be given greater attention in the future.
6. People fail to participate in sport primarily because they lack interest and willingness to do so. Lack of sports facilities as conventionally understood or other impediments arising on the supply side of the sports system do not amount to a major direct impediment which, if addressed, would be likely to have an immediate impact in raising participation rates. **As a general rule, policy initiatives which focus on the provision of sports facilities would be unlikely to have a major impact on raising levels of sports participation in the population.**

However, there may be exceptions to this rule – for example, it is possible (though by no means certain) that wider provision of swimming pools might encourage more people to swim. It is also possible that people would walk and cycle more if there were more safe and attractive footpaths and

cycle paths on which they could do so. This highlights the importance of physical planning and design in providing a supportive context for physical activity. These issues arise as much in the countryside as in urban areas: Irish country roads typically have no footpaths or cycle paths, fields are increasingly closed off to walkers, and provision of public parks and walkways is limited. **As far as physical infrastructure is concerned, therefore, the most important deficiencies may arise not in connection with sports facilities as usually understood but with aspects of the general physical environment which discourage both the idea and the practice of physical activity.**

7. As an instance of the need to improve understanding of the social role of sport and the way it fits into peoples lives, we can point to the life-course aspects of sports which the present study has highlighted. **There is a limited degree of continuity between the sports people play as teenagers or in their early twenties and what they do in later life. This has to be kept in mind in designing policies directed at raising levels of sports participation in the population.** Such policies have to be age-specific – what might be effective among those in their twenties might not work among those in their thirties or forties, much less among those at older ages. Success in raising participation rates among young people, while important in itself, will not necessarily guarantee high levels of participation when those same people reach mid-life or old age. Furthermore, for young people, there may be some benefit in adjusting the *kind* of sports participation that is encouraged during their teenage years or early twenties, with a view to exposing them to activities they are more likely to persist with in later life (as is provided for in the new Physical Education curriculum for Junior Cycle published in 2003). This is not to downplay the value of the kinds of sports that to date have been most common among young people in schools, which are dominated by high-intensity team sports such as GAA games. It is to recognise that such sports will become less appealing and less feasible for people as they enter mature adulthood.

**Thus, the challenge to sustain participation in sports and physical activity arises at every stage of the life-course, it is a different challenge at each stage, and at each stage should look forward to the transition to next stage as well as addressing the needs of the present.** The knowledge base needed to guide policy in responding to this complexity and diversity of challenge is now only beginning to be developed and would be worth considerable investment to enhance in the future.

8. **Lack of confidence in their sporting ability may have a deterrent effect on sports participation among some people but this syndrome is not widespread.** Efforts to enhance people's sense of self-efficacy in sport, therefore, may have some role in encouraging and sustaining participation, but that role is likely to be small and does not warrant being treated as a major objective of policy.
  
9. **While sports participation is generally beneficial for people's health, it can have one lifestyle consequence which has attracted little attention in health promotion research: its tendency to give rise to higher levels of alcohol consumption.** This tendency is present particularly among younger adults. Sports promotion policy should be concerned about the association between certain kinds of sports and alcohol consumption and should seek to develop means to weaken or break that connection.



# 1. INTRODUCTION

---

## 1.1 Objectives

The levels of affluence which are found in the developed world today have had a generally positive effect on people's health. Good nutrition, high levels of sanitation, good quality housing and widespread access to modern medical services have massively improved people's overall physical well-being and increased their resistance to degenerative as well as infectious diseases. The consequences are evident in the huge gains both in overall life expectancy and in disability-free life expectancy which have occurred over the past century and which show every sign of continuing into the future (Fogel, 2004).

However, certain aspects of modern lifestyles have had less benign effects on health. As incomes have risen, it has become more possible for people to smoke tobacco, drink too much alcohol, eat too much food, particularly too much fatty foods, take too little physical exercise, and put on too much weight. These behaviours are bad for health and their prevalence has helped keep death rates from 'lifestyle diseases' at levels which otherwise could have been avoided. Negative aspects of today's lifestyles have not been strong enough to halt the general advance in health, but they have slowed it down and have become a target of intervention on that account.

This report focuses on one of these lifestyle factors – physical activity and inactivity. It is based on a broad-ranging survey of sport and physical activity in Ireland carried out in 2003 (see below). This survey dealt not only with participation in sport and physical exercise but also with social and economic aspects of sport such as membership of sports clubs, volunteering for sports, attendances at sporting fixtures, and expenditure on sports goods and activities.

From this broad range of topics, the present report focuses on those relating to participation in sports and physical activity. **The purpose of the report is to provide a descriptive account of levels and patterns of sport and leisure-time physical activity among adults in Ireland today, viewed from a health perspective, and thereby to draw implications for policy on the promotion of sport and physical exercise for public health purposes.** The report, and the survey on which it is based, is part of a programme of research on sport and physical activity being carried out by the Sports Research Centre in the ESRI. The Sports Research Centre is a joint initiative of the ESRI and Irish Sports Council that was established in 2003. Subsequent reports in this programme will examine sport and physical activity among young people using data

on a survey of sport in primary and post-primary schools that is currently underway.

The specific aims of this report are as follows:

1. outline briefly the main findings of international research on:
  - the importance of leisure-time physical activity for health;
  - levels and trends in such activity in developed countries;
  - the role of sports promotion in addressing inactivity;
2. describe levels and patterns of sports participation among adults in Ireland;
3. identify those who are most likely to have low levels of participation and possible reasons for low participation;
4. outline the physical and psychological health profiles of those with differing levels of participation;
5. draw implications for sports promotion policy.

---

## 1.2 Policy Context

This study takes place in a context where policy on promoting physical exercise as a means to improving public health in Ireland is relatively new and is in need of both good information and effective methods of intervention. Physical activity first became a formal concern of Irish health policy in the national health promotion strategy, *Making the Healthier Choice the Easier Choice*, which was published in 1995 (Department of Health and Children, Health Promotion Unit 1995). This strategy set ambitious targets – an increase of 30 per cent by the year 2000 in the proportion of the adult population engaged in light physical activity at least five days per week and an increase of 20 per cent in the proportion of the adult population engaged in more intensive exercise at least three times per week. However, as we shall see further in Chapter 2 below, targets such as these are difficult to achieve. By the year 2000, there was little indication that there had been much change in public behaviour in the required direction (Department of Health and Children, 2000, p. 72). The Health Boards set up a Physical Activity Group to co-ordinate their work in this area in 1995 and they subsequently undertook some promotional work (Physical Activity Group, 1997; 2001).

The Irish Sports Council was set up in 1999. The promotion of physical activity for health purposes was an important part of its brief (Irish Sports Council, no date p. 10). It has launched a number of initiatives in this area, most importantly the setting up of Local Sports Partnerships in eight pilot sites in 2001, with a view to achieving full national coverage by 2005 (see [www.irishsportsCouncil.ie/lsp.asp](http://www.irishsportsCouncil.ie/lsp.asp)).

There has also been some innovation in regard to physical education in schools. While Irish schools have a long tradition of activity in a range of sports, the education system has been criticised for the lack of a coherent, comprehensive approach to physical

education (Mac Donncha, 2002). However, the field has been under review by the National Council for Curriculum and Assessment, and a new Physical Education curriculum for Junior Cycle was published in 2003 (Department of Education and Science, 2003).

With all these innovations in policy, there was a growing recognition that patterns of physical activity and the factors likely to affect them were insufficiently understood and needed a stronger information base. It is against this background that the present study was undertaken.

### 1.3 Data

The report is based on the **Survey of Sport and Physical Exercise** which was carried out by the Survey Unit of the ESRI in July-September 2003. This survey was based on a national random sample drawn from the electoral registers and was conducted by means of face-to-face in-home interviews. The achieved sample size was 3,080 individuals, which represented a response rate of 67 per cent on the originally selected sample. The population from which this sample was drawn amounts to 2,888,000 people.

**Table 1.1: The Adult Sample Profile on Age and Sex Conforms Closely to Census 2002 Population Profile**

Age	Sports Survey Adult Sample		Census 2002	
		Per cent		Per cent
18-24 years		15.3		18.0
25-29 years		7.9		9.7
30-39 years		17.6		19.3
40-49 years		17.9		17.6
50-65 years		24.7		20.5
65+ years		16.5		14.8
Total		100		100
<b>Gender</b>				
Male		48.9		49.1
Female		51.1		50.9

The sample has been re-weighted by age, sex, and region to achieve exact conformity with Census 2002.

### 1.4 Scope of Study

In this study, attention is focused on *leisure-time sport and physical activity*. There is no reference to physical activity arising from work (such as cycling or walking to work or physical exertion engaged in as part of one's job). This limitation is common in international research in this field, since comprehensive survey-based measures of physical activity which span both leisure time and the working day are difficult to design and field (US Department of Health and Social Services, 1996, pp. 29-32). In addition, the primary remit of the survey on which the report is based was to study sport rather than health lifestyles or occupational activity – it was not a health or working conditions survey. It therefore restricted its interest in physical activities to those which could be encompassed within an inclusive definition of sport.

There is no widely agreed, hard-and-fast definition of sport and many *ad hoc* decisions about what to include and what to exclude under the term have to be made. In the present instance, following the practice adopted in many similar surveys in other countries, walking for leisure purposes is included, but certain other kinds of leisure-time physical activity, such as dancing or gardening, are not, even though the latter can be important sources of exercise for some people. The focus on physical activity rules out sedentary past-times such as chess or card playing which might be considered as sports in other contexts.

A dedicated survey on recreational walking was recently carried out by the ESRI for the National Waymarked Advisory Committee of the Irish Sports Council (Curtis and Williams, 2003). As that survey provided a detailed account of walking, the present survey confined itself to a limited number of items on walking and devoted most of its attention to other activities. Data from the survey on walking are drawn on to supplement the present data on walking as appropriate at various points in the present report.

---

## 1.5 Validity of Measures

The data used in this report are based on self-reports of physical activity by respondents in a large-scale sample survey. This is the most widely used method of measuring physical activity levels in large populations. Compared to other possible methods, such as direct monitoring using behavioural observation or mechanical measurement devices, it is not too costly, is easy to administer and is generally acceptable to respondents.

However, physical activity levels, like all health-related behaviours, are difficult to measure validly using survey techniques. Self-reports of activity levels are liable to various distortions, such as those arising from inaccurate recall and exaggeration. The degree of distortion either in any particular survey or in self-reports in general is difficult to establish, since there are no external sources of evidence that might provide less error-prone bases for comparison.

A particular concern arises from the restriction of the scope of survey measures to *leisure* activities (as is the usual practice in surveys of the present kind, as mentioned earlier). This restriction may lead to some understatement of the levels of physical activity in the population. According to census data, for example, 6 per cent of the adult population in Ireland walk to work, and the vast majority of these walk more than a mile each way (Central Statistics Office, 2004: Table 60A). This is a substantial form of activity that is defined as outside the scope of the present survey. However, this is not to say that there is a corresponding underestimate of the proportion of the population who are physically active. Many of those in the present survey sample who walk to work may report that as an activity for the purposes of the survey. A proportion may also undertake sufficient additional activity that they would be counted in the survey as physically active anyway, whether or not they included their walk to work. One also has to keep in mind that ‘worthy’ behaviours such as being physically active tend to be somewhat

over-reported in surveys. As a result, underestimates which arise from excluding walking to work may be counterbalanced by overestimates resulting from over-reporting. In general, therefore, it is unlikely that the focus on leisure-related activity in the present survey leads to substantial understatement of the levels of physical activity in the population.

Despite the questions which might justifiably be raised about the validity of survey-based measures of physical activity of the present kind, they have nevertheless proved effective as predictors of various kinds of illness (see Chapter 2 below). The strong and consistent correlations that have been found between various kinds of self-reports of physical activity and subsequent morbidity and mortality rates have proved to be the strongest validators of the measures. Thus, as the US Surgeon General's review of methods in this area concluded, "although measurement of physical activity by currently available methods may be far from ideal, it has provided a means to investigate and demonstrate important health benefits of physical activity" (US Department of Health and Human Services, 1996, p. 36).

# 2. THE INTERNATIONAL RESEARCH CONTEXT

---

## 2.1 Introduction

This chapter provides a brief summary of the state of knowledge in international research on three issues:

1. the contribution of physical activity to health;
2. trends and levels in physical activity;
3. the role of sports promotion in raising the level of physical activity in adult populations.

---

## 2.2 Contribution of Physical Activity to Health

### THE HEALTH BENEFITS OF PHYSICAL EXERCISE

Recognition of the health benefits of physical exercise dates back to classical times and has regularly been a subject of health advice literature down through the centuries. However, it was not until the second half of the twentieth century that systematic evidence began to accumulate on the precise benefits for health of different kinds of physical activity.

The consensus now is that the health costs of physical inactivity and the health benefits of even modest levels of activity are great. According to the WHO Regional Office for Europe, “**eliminating physical inactivity would result in 15-39 per cent less coronary heart disease, 33 per cent less stroke, 12 per cent less hypertension, 12-15 per cent less diabetes, 22-33 per cent less colon cancer, 5-12 per cent less breast cancer and 18 per cent less osteoporotic fractures**” (WHO Europe, 2002, p. 79). The same WHO report also refers to the results of Finnish research which showed that the most active men spent 36 per cent fewer days in hospital and the most active women 23 per cent fewer days in hospital compared to the least active people.

A landmark review of knowledge on physical activity and health by the US Surgeon General in 1996 concluded that regular physical activity reduced overall mortality rates among both older and younger adults and had positive effects in lowering the incidence of cardiovascular disease, especially coronary heart disease; colon cancer; non-insulin-dependent diabetes; osteoarthritis; osteoporosis; the risk of falling among older people; and obesity. Physical activity also promoted mental health and psychological well being, particularly in regard to depression, anxiety and mood. Certain adverse effects from physical activity could also arise, as in the case of osteoarthritis among competitive athletes later in life (US

Department of Health and Human Services, 1996, pp.81-150). There has also been some evidence from European research that some forms of sports participation may be associated with unhealthy lifestyle behaviours, such as heavy consumption of alcohol linked to the social side of sport (Watten, 1995). Nevertheless, the net effect of physical activity has been found to be undoubtedly positive.

The World Health Organisation has documented the rapidly rising incidence of lifestyle diseases in the developing as well as the developed world and has identified the interacting effects of diet and physical inactivity as the major contributory factors to those diseases (WHO 2002; 2003). Poor countries thus have a double burden of health risks: they have not yet escaped the ravages of infectious diseases and have at the same time become increasingly prone to the lifestyle diseases which formerly were associated solely with richer countries (WHO, 2002).

### HOW MUCH PHYSICAL ACTIVITY IS NEEDED?

While there is now a general consensus that physical activity has strong positive health effects and physical inactivity is a major contributor to ill-health, there is less certainty on the minimum amount or the type of physical activity needed to produce health benefits. In the 1960s and 1970s, the main focus was on the level of vigorous exercise needed to develop basic physical fitness. An influential set of guidelines issued by the American College of Sports Medicine in 1978 had recommended that as a minimum basis for fitness people should take part in 20 minutes of intense exercise three times a week (that is, exercise that was vigorous enough to work up a sweat) (ACSM, 1978). These guidelines implied that people should engage regularly in fitness-oriented aerobically intensive exercise in order to safeguard their health.

Subsequently, however, researchers and fitness practitioners began to question whether these guidelines were of much relevance to large segments of the adult population in developed countries. Population studies showed that totally sedentary lifestyles were commonplace and that the activity levels recommended by the American College of Sports Medicine were well beyond what many adults were willing to undertake. American research suggested that over 60 per cent of adults were not physically active on a regular basis and 25 per cent took no exercise at all (US Department of Health and Human Services, 1996). Similar levels of inactivity were found in many countries around the world (WHO, 2003). The possibility arose that guidelines emphasising the need for vigorous exercise might set the bar too high and discourage people from engaging in *any* physical activity for health purposes.

Evidence also began to suggest that physical activity which was at too low a level to improve *fitness* (e.g. to increase the capacity of muscles and the blood to absorb oxygen) could nevertheless have beneficial effects on *health* (i.e., to reduce the risk of degenerative disease). For example, a small amount of energy expended as a result of physical activity, while of little significance from a fitness point of

view, appeared to lower cardiovascular mortality and to reduce the incidence of Type 2 diabetes and hypertension (Hardman, 1999). In particular, the conclusion was reached that it was more important for public health to reduce the numbers of those who were totally inactive than to increase the numbers who were seriously fit (Blair *et al.*, 2001).

### **THE ACCUMULATION APPROACH**

Research along these lines gave rise to the notion that the accumulation of small bouts of physical activity could have similar health benefits to single continuous bouts if the energy expenditure was similar (e.g. three bouts of 10 minutes could be as good as one bout of 30 minutes). **This led to a new emphasis on the accumulation of physical exercise through the normal activities of daily living rather than on aerobically intensive exercises engaged in specifically for fitness purposes** (Hardman, 1999). This approach broadened the scope of possible health-beneficial physical activity beyond dedicated aerobic exercise to behaviours such as walking to work, climbing stairs and working in the garden (Boreham *et al.*, 2000). Paffenbarger *et al.* (1993), for example, took 20 flights of stairs per week as an activity threshold and found that men who climbed less than this threshold were at 23 per cent greater risk of premature death than men who climbed more than the threshold. Arising from such findings, a new concept of *health-enhancing physical activity* which embraced such daily behaviours was developed and promoted by the World Health Organisation (WHO Europe, 2002, p. 79).

Taking account of this new thinking, the American College of Sports Medicine issued a revised set of guidelines in 1990 (ACSM, 1990) and these formed the basis for a new international standard. The central recommendation of the new guidelines was the “accumulation of at least 30 minutes of moderate intensity physical activity on most, preferably all, days of the week”. These guidelines were not meant to replace the more demanding guidelines of 1978 but to complement them for the large numbers of people for whom the 1978 guidelines were too ambitious. It was felt that the widespread adoption of the new guidelines in the adult population could have enormous health benefits since the health effects of physical activity was greatest for those who moved from being sedentary to low or moderate levels of activity (Bouchard, 2001).

### **THE INTERNATIONAL STANDARD**

The recommendation for an accumulated 30 minutes of moderate intensity activity for five or more days per week is now the most widely accepted international standard for minimum levels of physical activity for health (see, e.g. WHO, 2003) This is not to say that levels of physical activity below this minimum are of no benefit. Researchers now agree that any activity is better than none, and the health benefit increases as the level of activity rises from low to vigorous (US Department of Health and Human Services, 1996,



p. 146). The purpose of the recommended minimum of 30 minutes moderate activity is to set a target that large numbers of people can reasonably aim to attain and that is likely to produce real benefits for health. Activity can be increased beyond that minimum by increasing intensity, duration or frequency of the exercises undertaken. However, above 60 minutes of vigorous activity per day, further health benefits are likely to be limited (British Heart Foundation (BHF) National Centre for Physical Activity and Health 2004).

Many authorities also advise that people engage in minimum levels of ‘resistance training’, that is, exercise designed to strengthen muscle and bones. For example, the British Heart Foundation’s National Centre for Physical Activity and Health, 2004, in addition to its primary recommendation for at least 30 minutes of moderate physical activity for at least 5 days per week, makes a secondary recommendation that *twice a week people should undertake physical activity that promotes strength and flexibility* (BHF National Centre for Physical Activity and Health, 2004, p. 7).

---

## 2.3 Levels and Trends in Physical Activity

### LIMITED DATA

**Data on physical activity levels are poor in most countries and rely mainly on *ad hoc* surveys that provide little by way of information on trends over time.** Harmonised cross-country data are also rare. However, cross-sectional data have begun to accumulate rapidly over the past decade, both in the developed and the developing world (WHO, 2002). While these data sources vary a great deal in quality and reliability and in the concepts and measures they use, they have begun to enable researchers to sketch in the broad picture of physical activity levels around the globe.

### TRENDS

According to the WHO in Europe, Finland is one of the few countries to have instituted regular monitoring of physical activity levels in the population sufficiently long ago (in 1978) to have produced a lengthy time series. The Finnish data suggest that participation in a minimum level of weekly leisure-time activity (defined as ‘physical exercise in leisure-time at least twice a week’) increased over 20 years, from about 40 per cent to 60 per cent among both men and women (KTL–National Public Health Institute, 2002, pp. 143-146). On the other hand, occupation-related activity, such as cycling or walking to work, decreased steadily. In 1978, 30 per cent of Finnish men and 36 per cent of Finnish women said they spent at least 15 minutes daily walking or cycling to work. By 2002, those proportions had fallen to 22 per cent of men and 30 per cent of women. Reviewing these data, the conclusion drawn by the WHO was that, in Finland, “people exercise more but are physically less active” (WHO Europe, 2002: p. 79).

In the United States, the US Surgeon General’s report noted that “few national data are available on consistently measured trends in

physical activity” (US Department of Health and Human Services, 1996, p. 186). Stevens (1987) reviewed available indirect evidence and concluded that activity levels had risen in the United States during the 1960s, 1970s and early 1980s. However, there has been little indication of movement in activity levels either up or down since the mid-1980s (US Department of Health and Human Services, 1996).

### CURRENT LEVELS

Whatever about trends over time, there is widespread agreement that inadequate levels of physical inactivity are now present among the majority of the population in many countries. **The WHO estimates that “world wide, more than 60 per cent of adults do not engage in sufficient levels of physical activity which are beneficial to their health”** (WHO, 2003, p. 2). In the US, it has been estimated that 60 per cent of the adult population in the US fall below the ACSM’s recommended minimum standard of physical activity (at least 30 minutes of moderate activities five or more days per week), while 25 per cent take part in no leisure-time physical activity at all (US Department of Health and Human Services, 1996, p. 200). In Europe, a pan-EU survey cited by the WHO Regional Office for Europe, used a different threshold – at least 3.5 hours per week of leisure-time physical activity – to quantify inactivity levels. It found that in the EU on average 41 per cent of the adult population were completely inactive, though this average European figure concealed wide cross-country differences in activity rates.

Apart from high overall levels of inadequate activity around the globe, research has also pointed to certain common patterns of inactivity. Inactivity is more common among women, among the old, among lower socio-economic groups and among the disabled (WHO, 2003). The decrease in inactivity begins in adolescence and continues throughout the adult years. According to the WHO, decreasing physical activity and physical education programmes in schools is an alarming trend worldwide (WHO, 2003).

---

## 2.4 The Role of Sports Promotion

Sport is an important arena of physical activity and is the main means by which many people get their physical exercise. Therefore sports promotion by public bodies can play a role in raising general levels of physical activity in the population. In considering what that role might be, three background factors have to be kept in mind.

1. **Public bodies which promote sport typically have a broad remit which can include many objectives besides raising the level of physical activity in the population.** A common objective, for example, is to raise performance among elite sports people and gain success in international competition. In addition, social, economic and cultural objectives may sometimes be included (see, for example, the draft sports strategy for Wales which includes objectives for employment and economic output in sport, cultural activities associated with

sport, and winning trophies in international sports competition, as well as raising activity levels in the general population – Welsh Assembly Government, 2003). Particular promotional activities may be directed at a number of these objectives at the same time. This complicates the task of measuring the level of effort devoted to raising physical activity in the population or of determining which promotional activities have an impact. For example, help given by a national sports body to an athlete who goes on to win a medal in the Olympics may do a great deal to promote that particular sport among young people, but the impact is difficult to measure or to compare with the effect of direct supports for the general population such as capital grants for community sports facilities.

2. **The promotion of sport and physical activity is a multi-sectoral responsibility, and the range of public agencies involved may be such that sports promotion bodies play only a part in the overall effort.** This is illustrated in the WHO's guidelines on national action plans on the promotion of physical activity for health (WHO, 2003, pp. 8-9). These guidelines refer to the health sector, the education and cultural sectors, the media, urban planning, transport agencies, local government, and financial and economic planning bodies as the sectors likely to have an influence on the level of sport and physical activity in the population. This diversity of public bodies with a role in sport makes it difficult to measure the overall level of public support for sport, to assess the outcomes of that support, or to attribute particular measured outcomes to one sector or type of sports promotion activity over another.
3. Private sector sports promotion for commercial reasons is a major business in modern societies and total expenditure in this area is likely to dwarf the amounts spent by public sports promotion bodies. The types of promotional activity undertaken by the private sector are very diverse. Examples include the promotion of professional sport to audiences of spectators, merchandising of sports goods, sponsorship of amateur and professional sporting activities, and the provision of sports facilities on a commercial basis (e.g. gyms, swimming pools, golf courses, etc.). In many cases, the boundary between public and private sports promotion in these areas is blurred, since private sports businesses sometimes receive large public subsidies. In the United States, for example, although public support for community and voluntary sports is limited, professional sports are often massively assisted by cities, particularly in the form of subventions for the construction and servicing of sports stadia (Baade, 2003). Private owners and investors in sport vary in the degree to which they are oriented to the profit motive – sometimes prestige, identity and group loyalty are more important motives (Sloane, 1977; Zimbalist, 2003). Whatever the motivation, the impact of physical activity levels in the population could be large. In some cases, that

impact is inherently difficult to assess. For example, the televising of high-profile professional soccer games – a major element of the entertainment industry in many parts of the world – might encourage some people to play soccer, but it might promote inactivity among others by giving them more reason to watch television. In other cases, the impact of private sports promotion is direct, large and positive (as in the case of commercial gyms and fitness centres or private golf courses which meet a general market demand for sports participation). In any event, the size and influence of the commercial sports and physical activity sector are likely to be so great as to dwarf the activities of public sports promotion bodies and to make it difficult to isolate the effects of public sports promotion programmes.

In sum, **the activities of public sports bodies should be seen as only one of a wide range of influences which are directly concerned with raising physical activity levels in the population in modern societies.** The promotion of physical activity among the public is likely to be only part of the remit of such bodies, other public bodies are likely to have a large role in the area, and the entire public effort in sports promotion could well be heavily outweighed by private sports-related businesses operating on market principles.

**This has two implications for assessing the possible role of public sports promotion on physical activity among the public: first, that role is likely to be relatively small in the overall scheme of things, and second, its impact is likely to be difficult to separate out from the impact of other active agencies with any degree of certainty.**

## WHAT WORKS?

Over the past four decades, many national governments have instituted policies and programmes to increase physical activity levels in the population with a view to improving public health. **Despite the volume of activity, however, the armoury of interventions that have been proven to be effective is still extremely limited, both in their number and in the impact they seem capable of achieving.**

The lack of success in identifying effective forms of intervention arises in part because of a lack of reliable evaluation evidence, both in regard to physical activity and health promotion more generally. Evaluations in these areas are few in number and many of those that are undertaken are too short-term or insufficiently control for confounding factors to produce reliable results (Goodstadt *et al.*, 2001, pp. 521-522). The meagreness of evaluation results in turn reflects “the inherent difficulty of evaluating complex interventions that involve multi-level, multi-strategy interventions, have an extended time frame and have poor control over implementation of the initiative” (*ibid.* p. 522). The limited scope and funding for evaluation research in many initiatives is also a problem.

A more serious difficulty is that even though initiatives that are well-designed and properly evaluated can be shown to have a positive effect, that effect seems to be limited. The US Surgeon General's review of interventions to promote physical activity among adults in the United States and Canada concluded that many interventions had little or no effect, while among those that succeeded in raising physical activity among their target groups, "the effects have tended to be small, in the range 10-15 per cent, and short-lived" (US Department of Health and Human Services, 1996, p. 234).

High profile national campaigns have at best had mixed success. The 'Active Australia' campaign launched in 1997, for example, succeeded during its first three years in raising people's awareness of the benefits of physical activity for health and made more people feel they ought to take more physical exercise in the future. However, actual activity levels in the adult population fell over the same period. Between 1997 and 2000, the proportion of adults who achieved the minimum level of exercise (a total of 150 minutes per week spread over five sessions) declined from 51 per cent to 46 per cent, while the proportion who were completely sedentary rose from 13.4 per cent to 15.3 per cent (Bauman *et al.*, 2001, pp. 5-6).

Finnish public health programmes are often pointed to as world leaders in the field. Mention has already been made of the rise in the minimum levels of physical activity in the Finnish adult population from around 40 per cent in 1978 to over 60 per cent in 2002 (KTL-National Institute of Public Health, 2002).

The meagre results of physical activity promotion programmes have led practitioners to characterise research and experimentation in this and related areas of health promotion as "an emerging field" where comprehensive, effective strategies are still being sought (Rootman *et al.*, 2001).

## THE ROLE OF SPORT

Although participation in sport is often thought of as an integral part of overall patterns of health-enhancing physical activity, the perspective of sports bodies and sports enthusiasts on this issue often differs from that of public health agencies. Foster (2001, p. 16) points out that sports bodies may see the promotion of non-team-based and everyday lifestyle activities as a distraction from sports skills, coaching and elite performance, as a competitor for the same limited pool of national and local resources, and as a goal that lies outside their experience and expertise. Therefore, they may have some reluctance to become involved in interventions dealing with the full range of health-enhancing physical activity. Their particular contribution in that context has to be carefully thought out and structured.

Furthermore, the forms of sport that are most relevant from a health promotion point of view are those which are relatively non-organised and informal such as walking, swimming and aerobics. These are the kinds of activities most likely to entice the main target

group from a health promotion point of view – the completely sedentary population – into at least minimum levels of physical activity. Foster asserts that the sedentary population is likely to be resistant to recommendations on exercise that mention sport. His advice is “Don’t tell them about sports but instead emphasise moderate physical activity” (Foster, 2001, p. 44).

Despite these limitations in the role of sport in raising the level of physical activity in the population, there are also important strengths in what it has to offer. The most important is the association between sport and fun: sport typically offers forms of physical activity that are appealing in their own right as well as being good for us.

---

## 2.5 Summary

The key points emerging from the brief review of the international research literature presented in this chapter can be summarised as follows:

1. Regular physical activity can have a wide range of health benefits and physical inactivity is a serious risk factor for poor health.
2. The most widely recommended minimum level of physical activity for health is an accumulated 30 minutes of moderate exercise on five days per week or more. The greatest health benefit is achieved by making the transition from complete inactivity to regular, moderate activity. Additional benefits can be gained by engaging in more vigorous, more frequent, or longer durations of activity.
3. The majority of the adult population in highly developed societies – of the order of 60 per cent – do not engage in the minimum level of activity recommended for health. A significant minority – of the order of 20-25 per cent – are completely inactive.
4. Sports promotion by public bodies has a role to play in raising the level of physical activity in populations. However, that role may be relatively modest, since effective methods of intervention in this area have proved difficult to devise and since actions to promote sport both by public bodies outside the immediate sports arena and by large commercial interests involved in sport may often be more extensive than those emerging from public sports bodies.

# 3. PARTICIPATION IN SPORTS AND PHYSICAL EXERCISE

---

## 3.1 Introduction

In this chapter we provide an overview of levels of participation in sport and physical activity in Ireland. We examine patterns of participation by gender, age and social class, distinguish between walking and other activities as forms of participation, make some brief comparisons with international levels of participation, and provide some detail on participation in individual sports.

---

## 3.2 Three Measures

Three types of measures of physical activity are used. These are as follows:

1. *Participation* measures: these establish whether respondents engaged in leisure-time physical activity. A *broad participation measure* established whether they participated at any time over the past twelve months. A *recent participation measure* was applied only to walking or hiking for leisure purposes and asked respondents if they had engaged in the activity at any time over the previous four weeks.
2. *Regularity* measures: these measures focused on those who did participate and asked respondents about two aspects of regularity – first, whether or not they had participated twelve times or more over the past twelve months and second, with reference to the peak two months of their participation, how many times per week or month they had participated.
3. *Intensity* measures: those who participated regularly were asked how vigorous their activity was, using a standard self-rated effort scale.<sup>1</sup>

Of these three measures, the first is particularly important as it provides an indication of the level of sedentarism in the population, that is, of complete inactivity. Versions of this measure have been

<sup>1</sup> The scale is as follows: no effort – no increase in breathing; light effort – mild increase in breathing; moderate effort – noticeable increase in breathing; hard effort – heavy breathing, difficulty talking in full sentences; extremely hard effort – gasping for breath, not able to talk at all.

widely used in international research, though the reference period on which the measure is based may vary from a week to a year (see Baumann *et al.*, 2002 for a version similar to that used here). As we saw in the previous chapter, the transition from sedentarism to even low of levels of activity has special significance from a health point of view. It is therefore useful to focus in some detail on the inactive/active dichotomy and for this reason much of the analysis presented in this chapter is based on the broad participation measure.

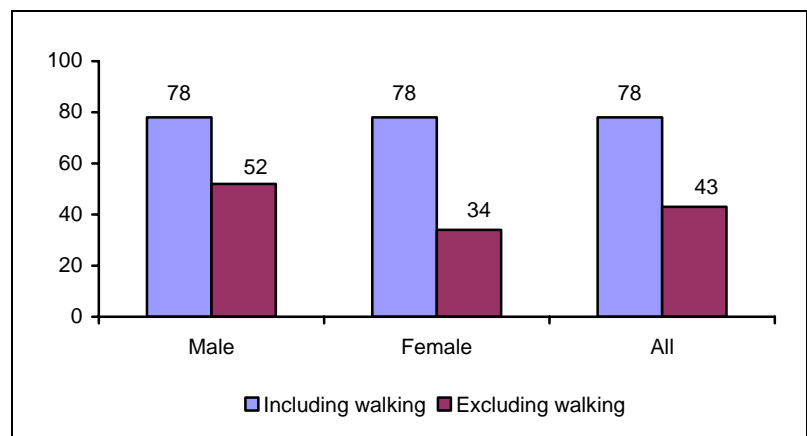
The other two measures – regularity and intensity – supplement the broad participation measure and give an indication of the degree to which those who are active reach the minimum levels of activity which have been recommended as a desirable standard for people to aim for (see Chapter 2 above).

### 3.3 Overall Participation

According to the broad participation measure, 78 per cent of adults had been active in sport or physical exercise on at least one occasion in the previous twelve months. **This means that 22 per cent of adults were completely sedentary:** they had undertaken no exercise in the previous twelve months, not even on one occasion. These levels of overall activity and inactivity differed little by gender.

Excluding walking, 43 per cent participated in other sporting/exercise activities. Participation in these areas of activity is strongly differentiated by gender in that men are more likely to participate (52 per cent) than women (34 per cent). The corollary implied by this finding is that walking is much more a female (44 per cent) than a male (26 per cent) activity.

**Figure 3.1: Broad Participation Rates by Gender**



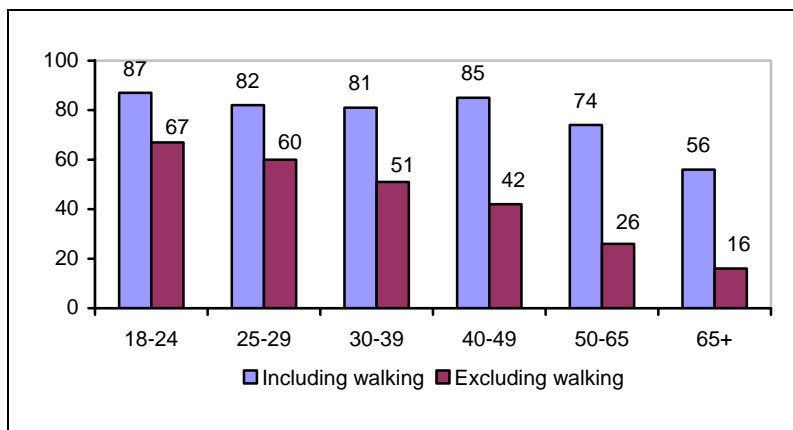
#### AGE

When walking is included, participation remains high until middle-age but drops off sharply at older ages. Among over-65s, almost half have taken no exercise in the past twelve months, compared to one-fifth or less among all ages under 50 years.



When walking is excluded, the decline in participation with age is even sharper, falling from 67 per cent among 18-24 year olds to 16 per cent among those aged over 65 years.

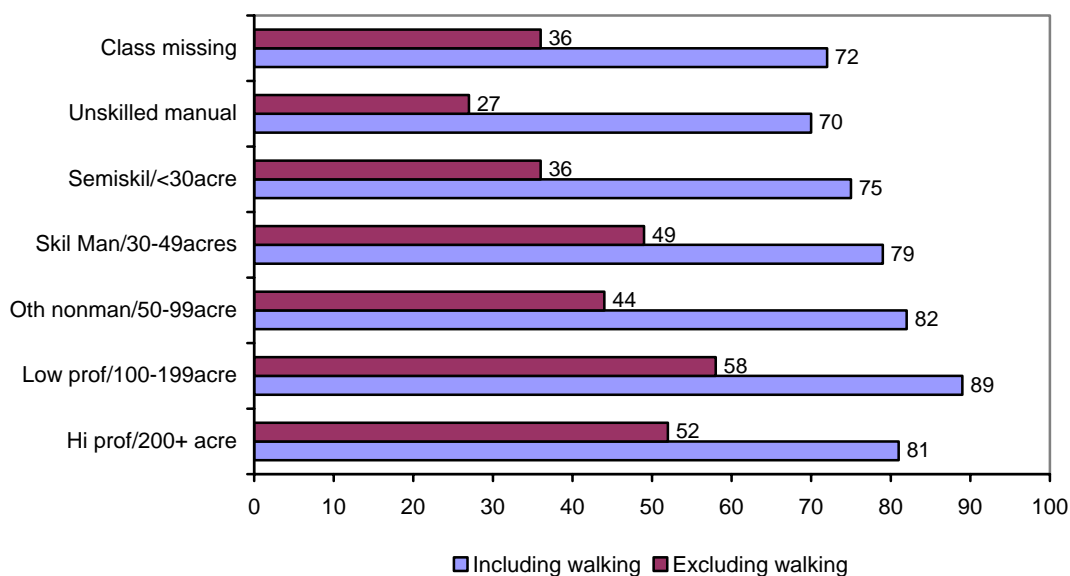
**Figure 3.2: Broad Participation Rates by Age**



### SOCIAL CLASS

Overall participation (i.e. including walking) differs only slightly by social class but participation in activities other than walking is more sharply differentiated by social class. The participation rate in the professional classes (52-58 per cent) is double that of the unskilled manual class (27 per cent).

**Figure 3.3: Broad Participation Rates by Social Class**



(Note: farmers distributed across social class categories according to farm size)

**3.4  
Walking and  
Hiking**

Walking and hiking are by far the most important forms of leisure-time physical activity. Of adults 69 per cent have walked/hiked 2+ miles on at least one occasion in the prior twelve months and 60 per cent have done so in the prior four weeks. However, the intensity of effort involved in walking is often low: almost one third say that a typical walk entails no effort, with no increase in breathing rate, and a further 30 per cent say that it entails only light effort.

As already mentioned, a separate dedicated survey on recreational walking – the Recreational Walking Survey (RWS) – was recently carried out by the ESRI (Curtis and Williams, 2003) and for that reason the present survey did not investigate patterns of walking in detail. It is worth quoting the data on regularity of walking from the RWS here as this is a further important aspect of walking from a health point of view. Table 2.1 provides a breakdown of the level of regularity of participation in short walks (less than one hour’s duration). Of the 64 per cent of respondents in the RWS who said that they participated in short walks, about six out of ten said that they did so two to three times per week or less often. As was outlined in Chapter 2 above, international standards now set as a minimum target for people to aim for that light activities such as walking should be carried out at least five days per week for at least 30 minutes per day. This is not to say that less regular activity of this kind has no value but that it falls short of what most people could reasonably be expected to attain. Here we find that **only about one in four of all respondents were walking regularly enough to attain those minimum standards.** Thus, although walking is the most widespread form of physical activity among adults, much of it is carried out too irregularly or at too low a level of intensity to contribute a great benefit to health.

**Table 3.1: Participation in Short Walks (less than 1 hour), Classified by Gender**

	Male	Female	Total
	Per cent		
Adult Participation	59	68	64
<b>Frequency of Participation</b>			
Every day	19	19	19
4-6 times/week	14	20	17
2-3 times/week	37	44	41
Once per week	20	11	15
Less often than once per week	10	5	7

**3.5  
Sport**

Apart from walking and hiking, 43 per cent of adults participated at least once in the previous twelve months in sports such as such as indoor or field games, water sports, gym based activities and other outdoor pursuits (Table 3.2). This 43 per cent consisted of 10 per

cent who were occasional participants, in that they participated less than once a month on average over the previous twelve months, and 33 per cent who participated more often. The latter 33 per cent in turn contained 28 per cent who participated at least once a week and 20 per cent who expended moderate to extremely hard effort in an average participation session. **The latter figure of 20 per cent could be considered as an estimate of the proportion of the adult population who participate in sport regularly and intensively enough to get significant health benefit from it.**

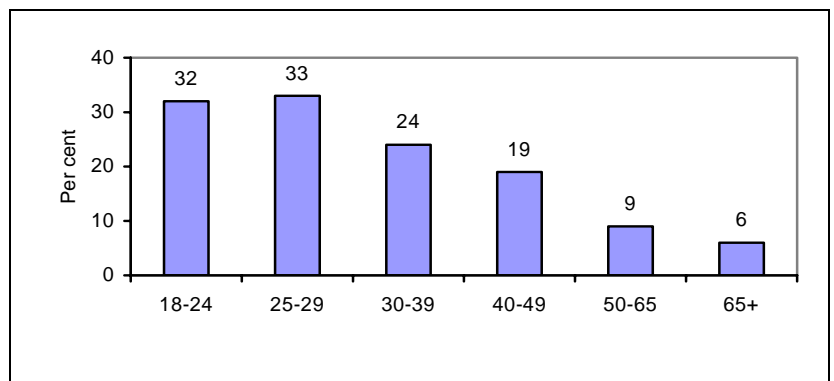
These participation levels are differentiated by gender. Of women 67 per cent did not participate in sport at all, compared to 48 per cent of men. At the other end of the activity spectrum, only 16 per cent of women expended moderate to extremely hard effort in sporting activity, compared to 24 per cent of men.

We have already seen that broad participation levels in sport are also differentiated by age: overall participation drops from 67 per cent among those aged 18-24 to 16 per cent among those aged 65 years and over (see Figure 3.2 above). If we focus here on more health-relevant participation – that is, regular participation with at least moderate effort – we find a similarly steep fall-off with age but at a much lower level in each age-group (Figure 2.4). This more demanding form of participation is practised by only 32-33 per cent of the youngest age-groups (aged under 30 years) and this declines to 6 per cent among those aged over 65 years.

**Table 3.2: Level of Participation in Sport by Gender**

	Male	Female	All
	Per cent		
Did not participate in sport at all	48	67	57
Participated occasionally (less than twelve times in past year)	11	8	10
Participated regularly (twelve or more times in past year)	41	25	33
<i>Of which:</i> participated at least once per week (% of total sample)	35	21	28
<i>Of which:</i> expended moderate to extremely hard effort (% of total sample)	<b>24</b>	<b>16</b>	<b>20</b>

**Figure 3.4: Regular Participation in Sport with Moderate to Hard Levels of Effort by Age**



---

### 3.6 Meeting the Minimum Standards

How many adults in Ireland meet the widely accepted international minimum standards of physical activity for health reviewed in the previous chapter? These standards require moderate activity for at least 30 minutes per day for at least five days of the week. According to the data we have just outlined, about 25 per cent of adults meet this standard through recreational walking and 20 per cent meet it through participation in sport. There is a certain amount of overlap between these two groups since some people both walk and play sport. In the present instance, 8 per cent of adults fall into this overlap category. Taking the two groups together, and adjusting for so as not to double-count, we would estimate that **something less than 40 per cent of the adult population in Ireland meet the minimum recommended activity levels.** This estimate must be regarded as a rough approximation, since our measures of activity do not exactly reflect those implicit in the minimum standards. Nevertheless, they are likely to be adequate to provide a broadly reliable picture.

---

### 3.7 Comparison with International Participation Rates

The brief review of international evidence in the previous chapter concluded that the majority of the adult population in highly developed societies – of the order of 60 per cent – do not engage in the minimum level of activity recommended for health. A significant minority – of the order of 20-25 per cent – are completely inactive. From what we have seen in this chapter, it would appear that the adult population in Ireland conform more or less to this general pattern. Taking recreational sport and walking, something less than 40 per cent of Irish adults attain the minimum level, meaning that over 60 per cent do not, while 22 per cent are completely inactive.

However, our review also found that standardised conceptual and methodological approaches capable of measuring physical activity in a comparable way across time and place have not yet become widespread. Therefore, the statistical basis for international comparisons remains uncertain. For numerous reasons, it is difficult to make international comparisons. Some surveys include walking and hiking with their definition of sport while others do not, or they vary in other ways in their boundary definitions. Surveys also differ in their methods, particularly in key aspects of their sampling frame (such as their age thresholds). These differences can have substantial effects on estimates of physical activity levels.

Keeping these cautions in mind, Table 3.3 presents a range of estimates of levels of participation in sport drawn from a number of counties and survey sources. If walking is included as an activity, Ireland would seem to be in the upper portion of the range of activity levels found in the countries covered, while if walking is excluded, Ireland's position is closer to the middle of the range. While firm conclusions cannot be drawn from these comparisons, they are sufficient to suggest that there is nothing exceptional about levels of activity or inactivity found in Ireland.

**Table 3.3: International Participation Rates for Rough Comparison (definitions vary)**

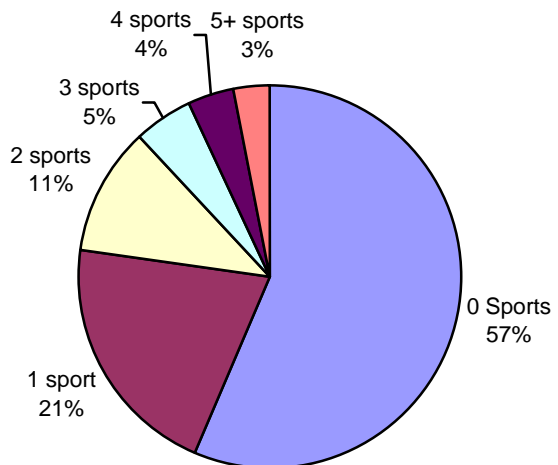
Country	Description	Year	Male Per cent	Female Per cent	Total Per cent
<b>Ireland</b>	<b>Adults 18+</b>	<b>2003</b>	<b>78</b>	<b>78</b>	<b>78</b>
Ireland	Adults 16-75	1994	77	71	74
US	Adults 18+	1994	73	69	72
England	Adults 17+	1996	71	58	64
Scotland	Adults 16+	2001	69	60	64
Wales	Adults 15+	2000/1	63	51	57
N. Ireland	Adults 16+	1991/92	65	50	57
Australia	Adults 18+	1999/0	59	51	55
<b>Ireland</b>	<b>Adults 18+, excl. walk</b>	<b>2003</b>	<b>52</b>	<b>34</b>	<b>43</b>
Scotland	Adults 16+, excl. walk	2001	59	46	52
England	Adults 17+, excl. walk	1996	54	38	46
Wales	Adults 15+, excl. walk	2000/1	44	31	37
Canada	Adults 15+, excl. walk	1998	43	26	34

Sources: Ireland 2003: this volume; Ireland 1994: Health Promotion Unit/Department of Health, 1996; US: US Department of Health and Human Services, 1996: 188; England: Sport England 1999: 1-2; Wales: Sports Council for Wales/Cyngor Chwaraeon Cymru, 2002: 6; Northern Ireland: Sports Council for Northern Ireland, 1994: 27; Australia: [www.abs.gov.au/ausstats](http://www.abs.gov.au/ausstats) (Participation in Sport and Physical Activities, Australia, 1999-2000); Canada: Statistics Canada, 2000: 12.

### 3.8 Participation Rates in Individual Activities

When looking at the sports (other than walking) that people take part in, we need to note first that some people are active in more than one sport (Figure 3.5). Of the 43 per cent who take part in some sport, over half play at least two, and in some cases, three, four or more sports. Thus, as a counterpoint to those who are inactive in any sport or recreational walking (which, as we saw above, amounts to about 22 per cent of adults), there is a similar percentage who are active in two or more sports.

**Figure 3.5: Number of Sports/Activities Participated In**



Tables 3.4 and 3.5 show that swimming, golf and aerobics/fitness are the top participation activities. Soccer is the most popular team sport. GAA football and hurling come sixth and eleventh. The popularity of activities differs by gender. Golf and soccer are the most popular male activities, while swimming and aerobics are most popular among women. There is also a strong age profile in the popularity of particular sports (Figure 3.6). Swimming is relatively evenly spread across major age groups, though with a slight tilting towards older ages. Golf, by contrast, is strongly weighted towards the middle aged, especially those aged over 50 years, while soccer and GAA sports fall off very sharply over the same age range. These associations between age and particular kinds of sport are an important feature and have implications that we will explore further below.

**Table 3.4: Participation Rates for the 15 Most Popular Activities (Excluding Walking)**

Rank	Activity	Male Per cent	Female Per cent	Total Per cent
1	Swimming	12	17	15
2	Golf	17	3	10
3	Aerobics/Keep fit	5	10	8
4	Soccer	13	2	7
5	Cycling for leisure	6	3	5
6	GAA football	8	<1	4
7	Billiards/Snooker	6	<1	4
8	Pitch & Putt	4	2	3
9	Tennis	3	3	3
10	Jogging	3	2	3
11	GAA hurling	5	<1	3
12	Fishing	4	<1	2
13	Soccer 5-a-side	4	<1	2
14	Weight Lifting	4	1	2
15	Ten pin bowling	2	2	2

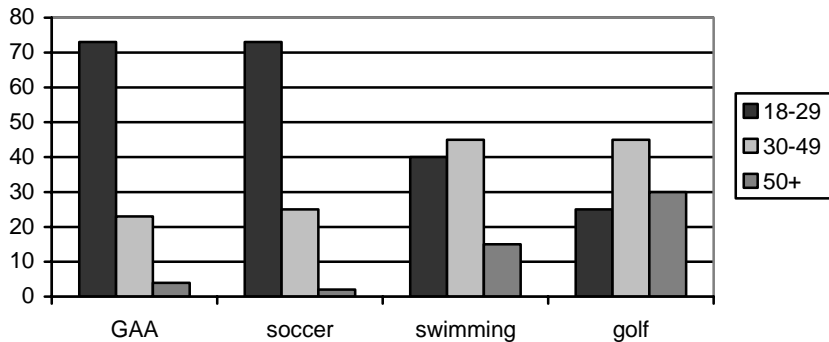
**Table 3.5: Top 10 Most Popular Activities Among Males and Females (Excluding Walking/Hiking)**

Rank	Males	Participation rate Per cent	Females	Participation rate Per cent
1	Golf	17	Swimming	17
2	Soccer	13	Aerobics/Keep fit	10
3	Swimming	12	Cycling for leisure	3
4	GAA football	8	Golf	3
5	Billiards/Snooker	6	Tennis	3
6	Cycling for leisure	6	Jogging	2
7	GAA hurling	5	Basketball	2
8	Aerobics/keep fit	5	Pitch & putt	2
9	Soccer 5-a-side	4	Ladies football	2
10	Fishing	4	Ten pin bowling	2

The age patterns of participation differs markedly across different sports, as is indicated by Figure 3.6 which compares the age distributions of those who play four major sports – GAA, soccer, swimming and golf. GAA and soccer are similar in that their players are overwhelmingly younger – over 70 per cent are aged under 30 years. Swimming is more evenly balanced between those aged under

30 years and those aged 30-49 years but few partake after age 50. Golf emerges as distinctive in that a substantial proportion of those who play (30 per cent) are aged over 50 years. It is the only one of the four sports in Figure 3.6 in which participants aged over 50 years outnumber those aged under 30 years. This unusual age-weighting in golf is an important feature as far as promotion of physical activity levels among older people is concerned, and we will consider it further below with reference to life course patterns in sports participation.

**Figure 3.6: Distribution of Players of Selected Sports by Age**



### 3.9 Conclusions

The present survey shows that about 22 per cent of adults in Ireland are completely inactive in sport or recreational walking. The balance of 78 per cent are engaged in physical activity to some degree, but only about 40 per cent took part regularly enough and with enough intensity of effort to approximate to the minimum standards of physical activity recommended by the World Health Organisation. The strongest influences on participation are gender and age: men participate more than women and the young more than the old. Age is particularly important in regard to participation in sport at moderate to hard levels of effort: this drops steadily after age 30 and falls to very low levels by old age. Social class also has an influence, in that higher socio-economic groups had higher levels of participation.

Recreational walking is by far the most popular form of leisure-time physical activity, especially among women. However, much walking entails little intensity of effort or is engaged too irregularly to contribute a great deal to the minimum recommended levels of physical activity. About 25 per cent of people walked often enough and vigorously enough to meet those standards.

Apart from walking and hiking, 43 per cent of adults had taken part in some sport in the twelve months prior to the survey, and about half of these participated regularly and intensively enough to attain the minimum recommended standards of physical activity. The most popular sports that people take part in are golf, soccer, swimming and GAA games for men, and swimming and aerobics for women. Age patterns of participation differ between sports. GAA

and soccer players are concentrated among those aged under 30 years, swimmers are more evenly spread across the younger and middle age-groups, while golf is unusual in having a substantial proportion of players aged over 50 years.



# 4. NON-PARTICIPATION

We have seen in the last chapter that, excluding walking and hiking, 57 per cent of adults did not participate in any sport or physical activity in the previous twelve months. This chapter focuses on the factors affecting participation and non-participation. It looks at both stated reasons for non-participation and at routes into non-participation over the life-course of adults. This information gives an indication of the influences and motivations involved. The objective is to try to identify barriers to participation and contributors to non-participation which could become the focus of policy efforts to raise activity levels in the population.

---

## 4.1 Why No Participation?

Those who did not participate in any sport were asked what were the reasons for their non-participation. Lack of interest was the main reason given, especially among women. Physical inability was also common among men but was less important among women. Lack of time was the third main reason given for non-participation among both men and women.

The significant thing about these reasons is they relate to the personality and circumstances of individuals rather than to local sports provision. Only around 1 per cent of non-participants gave reasons associated with sports provision such as the lack of local sports facilities, the cost of participation or the lack of sports clubs as the main reason for non-participation.

**Table 4.1: Reasons for Non-Participation by Gender**

	Male	Female	Total
Non-Participation Rate – %	48	66	57
<b>Reasons for non-participation</b>	<b>%</b>	<b>%</b>	<b>%</b>
No interest	37	49	44
Physically unable	36	22	27
Too busy/No time	23	23	23
No local facilities	1	1	1
Too expensive	1	1	1
Lack of quality clubs	<1	<1	<1
Fear for personal safety	<1	<1	<1
Friends don't take part	1	1	1
Not fit/healthy enough	1	1	1
Other	1	2	2

**This is an important finding since it suggests that the main reasons for non-participation in sport lie on the demand side rather than the supply side of the sports system – they have to do with the absence of a desire or willingness to participate rather than the lack of facilities or opportunities to do so.** One should not overstate the significance of these stated reasons for non-participation as they may well be conditioned by the current levels of sports facilities and activities – people might be stimulated to become more active in sport if local sports provision were increased or became more attractive. Nevertheless, one can conclude that current levels of non-participation do not reflect high levels of pent-up demand which is frustrated by inadequate levels or excessive cost of local provision. Given this absence of unsatisfied demand, it would be unlikely that increased provision of sports facilities on its own would have a major positive impact on sports participation.

Reasons for non-participation differed by age: lack of interest and lack of time were the main reasons among younger age-groups, while physical inability was most important among the elderly.

**Table 4.2: Reasons for Non-Participation by Age**

	18-24 yrs	25-29 yrs	30-39 yrs	40-49 yrs	50-65 yrs	65+ yrs
Non-Participation Rate – %	33	41	50	59	75	84
<b>Reasons for non-participation</b>	%	%	%	%	%	%
No interest	51	47	48	47	44	34
Physically unable	9	9	8	19	31	59
Too busy/No time	32	33	38	28	19	3
Other	8	10	6	6	6	4

There were no real differences in reasons for non-participation between urban and rural areas.

**Table 4.3: Reasons for Non-Participation by Urban-Rural Location**

	City	Town	Village	Rural
Non-Participation Rate %	50	58	58	62
<b>Non-participants reasons for non-participation</b>	%	%	%	%
No interest	43	45	44	44
Physically unable	26	26	27	29
Too busy/No time	25	23	23	21
Other	5	7	6	6

## 4.2 Routes into Non- Participation

In addition to the reasons respondents themselves give for their non-participation, we can get some insight into the factors affecting non-participation by looking at previous sporting history and movements into and out of participation in sport over the life-course of the individual.

Respondents were asked a number of questions about their personal history of participation in sport. The opening question in this sequence was whether they had participated in a previous sport or physical exercise which they had since given up. Follow-up questions asked about the ages at which they had started and stopped playing the previous sport, their perception of their own level of ability in it, and the reasons they had given it up.

Taking the opening question on participation in a previous sport first, we can combine it with information on respondents' current participation and classify responses between those who still participate (i.e. those who had given up the previous sport in order to switch to another one) and those who do not now participate (i.e. who had dropped out of sport altogether).

**Table 4.4: Current and Previous Participation in Sports**

Previous participation in sport?	Current participation in sport?		All
	No	Yes Per cent	
No	37	42	39
Yes	63	58	61
	100	100	100

The results shows that almost two-thirds (63 per cent) of those who do not now participate did so at some time in the past and so can be classed as drop-outs from sport. The other third of non-participants had never participated. Among those who participate now, it is also notable that there has been a high incidence of switching between sports: 42 per cent of current participants formerly played a different sport as their main activity.

**These findings indicate that sports participation at one stage in life may have only limited bearing on participation at a later stage in life, since drop-out from sports and switching between sports is common.**

In order to explore people's history of sports participation further, we can group the people classified in Table 4.4 into four categories of personal sports history:

- those who never participated,
- those who formerly played but dropped out,
- those who switched from a previous main sport to their present one,
- and those who still play the same main sport they have always played.

Looking at gender patterns of personal sports history as classified in this way (Table 4.5), we find that the incidence of drop-out is

similar between men and women (35 and 38 per cent). However, women are more likely than men to have never participated (29 per cent versus 13 per cent), while men are more likely both to have switched between sports (30 per cent) and to be still playing the same sport they started with (22 per cent).

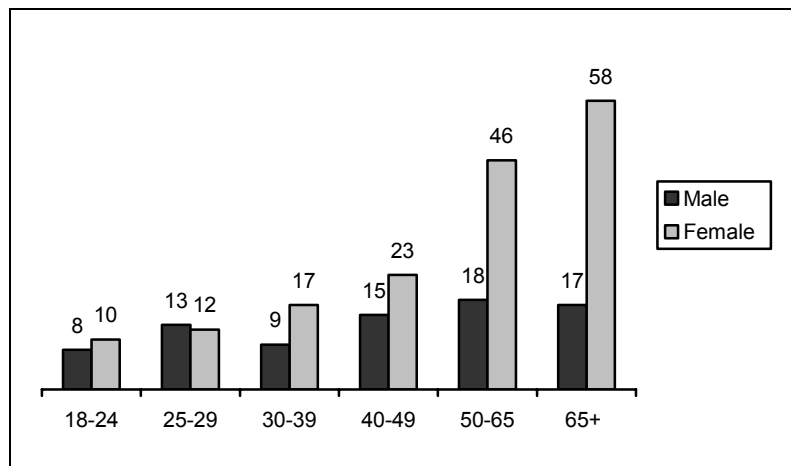
**Table 4.5: Personal Sports History by Gender**

	Male	Female	All
	%		
Never participated	13	29	21
Dropped out	35	38	36
Switched sports	30	19	25
Always played same sport	22	14	18
	100	100	100

### 4.3 Personal Sports History by Age and Gender

There are revealing age and gender patterns in the four categories of personal sports history. Turning first to those who have never participated, we find that, among men, the proportion in this category rises slightly but steadily with age: 8 per cent of 18-24 year olds have never participated compared to about twice that proportion (17-18 per cent) among those aged 50 years and over (Figure 4.1). This would suggest that older men today had lower levels of participation in sport in their youth than do the present generation of young people.

**Figure 4.1: Percentages Who Have Never Participated in Sports by Age and Gender**



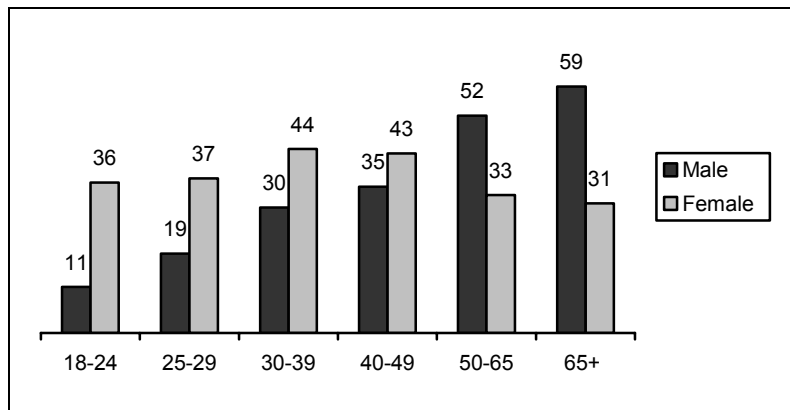
A much stronger version of the same pattern can be seen among women: life-time non-participation is much higher among older women (58 per cent of those aged 65 years and over had never participated) than among younger women (10 per cent of 18-24 year olds had never participated). This implies that when the present

generation of older women were in their youth, sports participation was very much a man's game: the majority of women did not take part. Today, younger women have attained equality with men insofar as having had at least some participation in sport is concerned. Taking both males and females together, **these patterns imply that the base for sports promotion in the adult population is better now than it was in the past since at least some degree of participation in sport is more common among the young adults of today than it was in the past.**

However, this optimistic picture has to be qualified when we take account of patterns of drop-out from sport across age-bands. Here we begin to get some indication of the degree to which early participation in sport provides a basis for continued participation in later life – or fails to do so.

Among males, the proportion who have dropped out from sport is at a reasonably low level among young adults (11 per cent at ages 18-24 years) and it increases step by step through the age range until it reaches 59 per cent among those aged 65 years and over (Figure 4.2).

**Figure 4.2: Drop-out from Sport by Age and Gender**  
(% who formerly participated but no longer do so)

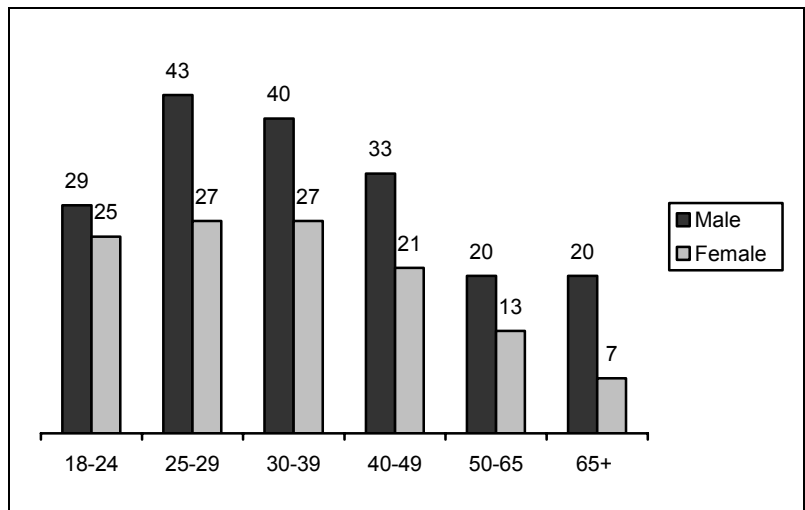


Drop-out patterns are different for women, in that the incidence of drop-out already reaches quite high levels by the time they are in their twenties and thirties (over one-third have dropped out of sports in these ages) and changes little with increasing age. We have just seen that younger women have had some form of involvement in sports activities more or less to the same degree as younger men. Here, however, we see that younger women are less likely to persist with sport during their twenties and thirties than are younger men. Lack of persistence also emerges among men but it does so reasonably slowly over the age-range rather than as a sudden abandonment while they are still in their twenties and thirties. **These drop-out patterns mean that sports participation in early life may have less of a carry-over effect into participation in later**

life than is often assumed. For women in particular, the carry-over effect is particularly weak in their twenties and thirties.

Even if people persist with sport, they may not persist with the sport they started out with. Figure 4.3 shows the degree to which men and women in different age-groups have switched out of the sport they started out with and taken up their present sport in its place. This shows that such switching is common, particularly among men in their twenties and thirties (for example, 43 per cent of men aged 25-29 years have switched sports). We saw in the previous chapter that participation in high-intensity sports such as soccer and the various GAA games drops off with age while participation in more sedate sports such as golf rises with age. This is the pattern that is reflected here. **While switching from one sport to another is less negative in its consequences for health than dropping out of sport altogether, the extent to which it occurs is a further indication that the sport one starts out with in life may have a weaker relationship with sports participation in later life than one might expect.**

**Figure 4.3: Switching from Previous to Present Sport**  
(% who changed from previous main sport to current one)



#### 4.4 Ages of Starting and Stopping

Among those who give up the sport they originally participated in, whether to abandon sport altogether or take up a new one, there are consistent patterns in the ages at which the transition into and out of the sport take place. Generally speaking, people take up their first sport in their early teens and, if they subsequently move out of it, they do so in their early twenties (Table 4.6). Males start a year or two earlier than females and stop or switch to another sport a year or two later but in the larger scheme of things these differences in starting and stopping ages between men and women are small.

**Table 4.6: Mean Age of Starting and Stopping Participation in First Sporting Activity Among Those who Later Drop-out or Switch to Another Sport**

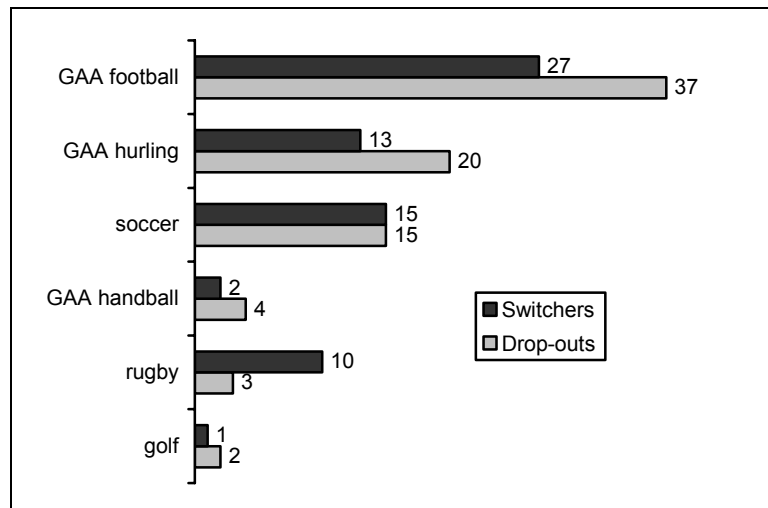
	Drop-outs		Switchers	
	Mean age started	Mean age stopped	Mean age started	Mean age switched
Male	12	25	11	23
Female	14	23	14	22
Total	13	24	12	23

These age patterns mean that the transition from adolescence or early twenties to mature adulthood quite often involves a change in sports behaviour, either in the direction of abandoning sport altogether (as happens especially among women) or as a change to a different form of sports participation (as is more common among men).

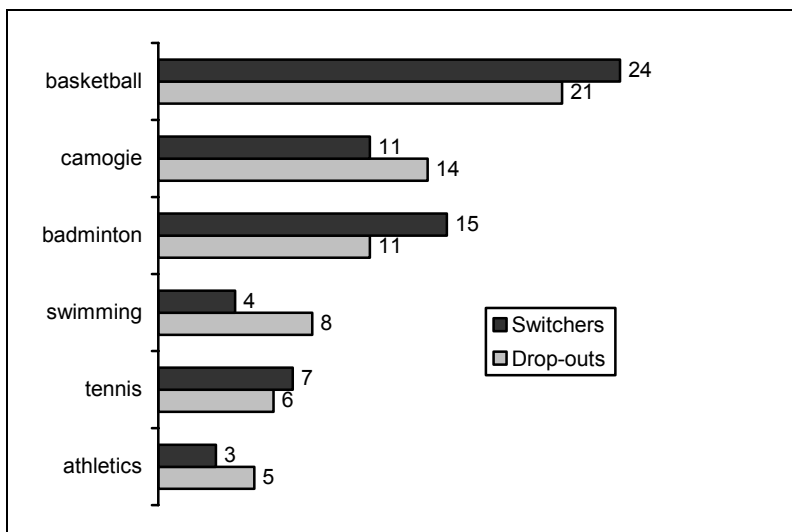
## 4.5 What Sports Do People Give Up?

We can get a further perspective on routes into non-participation in sport by looking at the sports which people tend to abandon as they grow older. This is shown in Figures 4.4 and 4.5. These graphs show the top five sports which men and women respectively have given up either because they switched to a different sport or because they dropped out of sport altogether.

**Figure 4.4: Males: Top Six Sports that Switchers and Drop-outs have Given Up**  
(% of those who switch and drop-out who have given up each sport)



**Figure 4.5: Females: Top Six Sports that Drop-outs and Switchers have Given Up**  
 (% of those who switch and drop-out who have given up each sport)



For men, the striking pattern here is the dominance of GAA games among the sports they have given up. Initial participation in GAA football and hurling together account for 57 per cent of the males who have subsequently dropped out and 40 per cent of the males who have switched sports. GAA handball adds a further small amount to these percentages. Age-breakdowns not shown here indicate that the dominance of the GAA games among the sports men have given up is found in all age-bands. The position of the GAA in this area is likely to reflect the extensive presence of GAA sports in the schools. This presence creates a large pool of people who have played GAA games at some point in their lives and from which a high level of exit is therefore inevitable.

After GAA games, soccer followed by rugby are among the sports that men have given up. Rugby is unusual in that those who have given it up are more likely to have switched to another sport than to have abandoned sport altogether.

It is notable among men that very few people have given up golf, even though, as we saw in Chapter 3, golf is the main current form of sports participation among men. This is consistent with the view that golf is a sport that men move into as they get older rather than one they move out of as they leave their youth and fitness behind.

Among women, basketball is the main sport that both switchers and drop-outs have given up. Again, this probably reflects the degree to which girls' schools rely on basketball as a sports activity for their students. The GAA in the form of camogie also has a presence among the top six sports that females give up.

Comparing the top sports that men and women give up as outlined here with the top sports that men and women currently play



as set out in Chapter 3 above, we see that there is a considerable mismatch between the two. The two top current participation sports identified in Chapter 3 – swimming and golf for men, swimming and aerobics for women – hardly appear here among the sports people give up. Thus many people move into the sports they currently play at a mature stage in life and they move out of the sports they played when younger. **This is further evidence of a considerable disjuncture between people’s pattern of sports participation in their youth and what they do when they grow older.** This disjuncture is caused partly by dropping out, as people give up on sport altogether. But even among those who continue to participate, a great deal of adjustment is evident as people change the sports they play in order to adapt to the changing circumstances of their lives.

We can infer some of the reasons people change their sporting behaviour simply by taking account of the differences between the sports they start out with and the ones they eventually move into. **For the most part, people start out with high intensity team games in their teenage years, and as they grow into mature adulthood they either give up sport altogether or move to sports which are less physically demanding and less team-based.** It would appear that two dynamics are at work here. One is the physical dynamic associated with growing older and losing fitness and the consequent greater reluctance to take part in high intensity sports. A second dynamic is the social one associated with moving out of the organisational context of the school or university to that of work and family. In the school or university, a high level of collective structuring of activities is possible as large groups of young people are brought together in the same location with a shared timetable. In the world of work and family, timetables and daily routines are more diverse, multiple commitments are more common, and the basis for team sport is weakened.

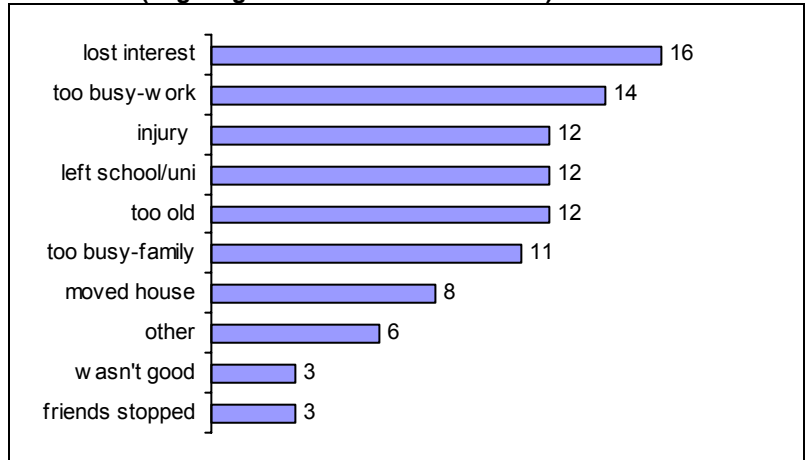
---

#### 4.6 Reasons for Dropping Out

While we can make a reasonable guess at some of the factors that cause people to give up the sports they played earlier in life from the patterns of exit from those sports we have just been looking at, we can also take account of the reasons they themselves express for giving up. Among men, the pattern we saw earlier in connection with current non-participation in sport was that the main reasons they cite for non-participation have to do with their own circumstances rather than the level of sports provision in their areas. This pattern is present also in the reasons men cite for giving up their initial sports activity. Among the ten most commonly cited reasons, lack of interest and being too busy at work come out on top (Figure 4.6). Health-related reasons also feature to some degree: injury is cited by 12 per cent of male drop-outs as a reason for giving up their initial sport, and age and declining physical ability are mentioned by a further 12 per cent. Issues having to do with the supply side of

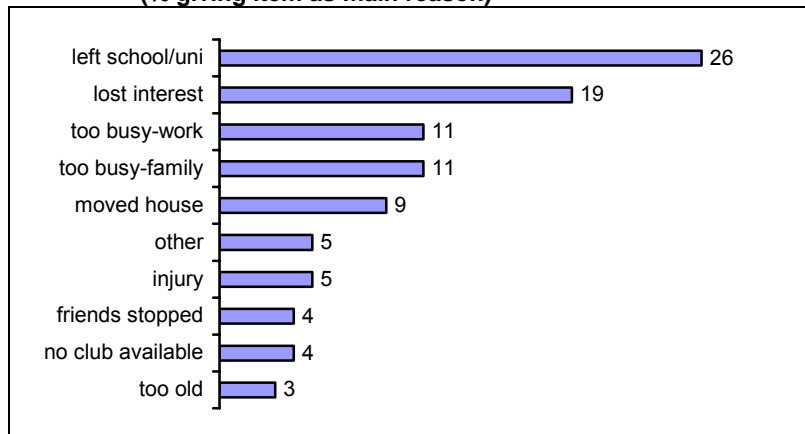
sport, such as the cost of participating or the availability of local facilities, do not feature among the top ten reasons.

**Figure 4.6: Male Drop-outs: Top Ten Reasons for Dropping Out of Sport**  
(% giving each item as main reason)



Among women, leaving school or university is the most commonly cited reason for giving up sport (26 per cent) (Figure 4.7). This adds to the impression that giving up sport occurs as part of the transition out of adolescence for many young women. A further 19 per cent cite lack of interest as the main reason. Women are less likely than men to cite health or disability factors associated with injury or old age as a reason for dropping out of sport. **In general, for women as much as for men, dropping out of sport occurs overwhelmingly because of lack of will or interest to continue participating rather than because of supply side factors in the sports system such as lack of club facilities.**

**Figure 4.7: Female Drop-outs: Top Ten Reasons for Dropping Out of Sport**  
(% giving item as main reason)



## 4.7 Sports Ability and Persistence with Sport

Multi-variate analysis not reported here indicates that people's perception of their own level of ability in sport is a factor which is linked to their persistence with sport: those with higher ability are more likely to be still participating. However, while the influence of this factor is statistically significant, it could not be considered to be a major determinant. Table 4.7 shows that those who now participate in the same sport they started with are slightly more likely to rate themselves as of 'above average' ability than those who dropped out (27 per cent versus 24 per cent in the case of men, 19 per cent versus 16 per cent in the case of women). **Yet, what is striking here is the high level of self-rated ability among those who have dropped out.** The majority of the latter think of themselves as being of average ability in the sport they formerly played in, and only around one in ten think of themselves as of 'below average' or 'very much below average' ability.

In fact, there is a remarkably high level of positive feeling about their sporting ability among all three categories of males and females presented in Table 4.7. Generally, only 7-11 per cent rate themselves as having 'below average' ability and only 1-3 per cent rate themselves as having ability that is 'very much below average'. **Thus one cannot say that lack of belief in their own ability is a major contributor to people's tendency to drop-out of sport.**

**Table 4.7: Ability Level in Sport and Personal Sports History**

	Males			Females		
	Dropped-out of sport	Switched sports	Always played same sport	Dropped-out of sport	Switched sports	Always played same sport
Above average	24	24	27	16	19	19
Average	67	65	60	73	69	65
Below average	7	9	10	9	10	11
Very much below average	2	1	1	2	1	3
Don't know/n.a.	0	1	2	0	1	3
Total		100	100	100	100	100

In the present survey, the question on self-rated ability in sport was not put to those who had never participated, mainly on the basis that many such people might think the question made no sense in their case. In any event, it may be plausible to think that those who *never* participated in sport would think of themselves as having little sporting ability. It is with this group that low self-perceived ability in sports may have a negative influence on non-participation. By taking those who have never participated into account, therefore, we might find that self-rated ability has a somewhat stronger effect on participation in sport than has just been suggested. At the same time, however, among younger adults, as we saw earlier, only around one in ten have never participated so the effect of including them in the picture is not going to be very large.

---

## 4.8 Conclusions and Policy Implications

The previous chapter showed that participation and non-participation in sport was strongly influenced by a number of socio-demographic factors, of which age, gender and social class were the most important. This chapter has focused on non-participation more closely. It has examined respondents stated reasons for non-participation and has analysed routes into non-participation over the life-course.

Three main findings have emerged from the chapter and each of these have certain implications for policy.

The first finding is that the major reasons given for non-participation in sport by those who do not take part have to do with the lack of interest and willingness on their part. Lack of sports facilities or other impediments arising on the supply side of the sports system hardly feature at all in people's conscious reasons for not participating. One should not thereby conclude that supply side problems play no role in determining participation, since they may have considerable background or conditioning effect. But one can conclude that supply side factors do not amount to a major direct impediment which, if addressed, would be likely to have an immediate impact in raising participation rates.

**The implication for policy arising from this finding is that policy initiatives which focus on the supply side of the sports system, for example, by aiming to improve the availability of sports facilities or reducing the cost of playing sport, could have some impact on raising levels of sports participation in the population, but that effect would be likely to be modest and indirect rather than sizeable and direct.**

The second main finding of the chapter is that there are important life course dimensions to people's participation in sports. These dimensions vary by gender – men are more likely to participate when younger and to continue participating in mid-life and old age. They also vary by cohort, especially among women – older women are more likely to have never participated than either men of the same age or women in younger cohorts. Younger women are just as likely as younger men to have had at least some participation in sport at some point in their lives, but they are also more likely to drop-out of sport in their twenties and thirties.

Generally, though, the most important aspect of life course patterns of participation in sport is the degree of change which occurs as people move through their life course. For the most part, people start out with high intensity team games in their teenage years, and as they grow into mature adulthood they either give up sport altogether or move to sports which are less physically demanding and less team-based.

The limited degree of continuity between the sports people play as teenagers or in their early twenties and what they do in later life has to be kept in mind in designing policies directed at raising levels of sports participation in the population. Such policies have to be age-specific – what might be effective among those in their twenties

might not work among those in their thirties or forties, much less among those at older ages. Success in raising participation rates among young people, while important in itself, will not necessarily guarantee high levels of participation when those same people reach mid-life or old age. Furthermore, for young people, there may be some benefit in adjusting the *kind* of sports participation that is encouraged during their teenage years or early twenties, with a view to exposing them to activities they are more likely to persist with in later life. This is not to downplay the value of the kinds of sports that to date have been most common among young people in schools, which are dominated by high-intensity team sports such as GAA games. It is to recognise that such sports will become less appealing and less feasible for people as they enter mature adulthood.

The kind of transition which occurs when people move away from the sports of their youth is thus of critical consequence for overall levels of participation, since a common outcome of that transition is that people give up sport altogether. Policy should be conscious that transitions in sports behaviour are an inevitable part of the life-course and for each stage of the life-course should be as concerned with people's preparedness for the next transition as with the activities they are carrying out now.

Thus, the challenge to sustain participation in sports and physical activity arises at every stage of the life-course, is a different challenge at each stage, and at each stage should look forward to the transition to next stage as well as addressing the needs of the present.

The third main finding of the chapter is that while people's sense of their own ability in sport has some influence on the likelihood that they will persist with sport, that influence is surprisingly small. Most people who drop-out of a particular sport think that they were of at least average ability in that sport and only about one in ten think that they were below average ability. Those who persist with sport rate their ability slightly higher than those who drop-out, but the difference is small and cannot be considered a major influence on the tendency to persist. **Efforts to enhance people's sense of self-efficacy in sport, therefore, may have some role to play in encouraging and sustaining participation, but that role is likely to be small and does not warrant being treated as a major objective of policy in this area.**

# 5. PHYSICAL ACTIVITY, HEALTH AND LIFESTYLES

---

## 5.1 Introduction

As we saw in Chapter 2, there is now a wide consensus from health research that a lack of physical exercise is linked to higher levels of ill health and early mortality. In this chapter we examine the findings from the Survey of Sport and Physical Exercise on the relationship between participation in exercise and sport and the health status of individuals. Our main question is whether those who do more sport and exercise are healthier. Although our present data give a clear answer to this question, the implications are not always evident since the direction of the causal effect is often unclear. People may be healthier because they are more active in sport but they may also be more active due to their good health. Furthermore, the direction of the causal effect may vary with age, since health problems may become more significant as a cause of non-participation as people get older and may be more likely to be a consequence (or at least partly a consequence) of non-participation at younger ages. This is an issue we will discuss further later in the chapter.

A secondary question addressed in the chapter is the relationship between sport and health life-styles, particularly regarding smoking and alcohol consumption. This a less widely researched aspect of the health consequences of physical activity. Although *a priori* we may imagine that those who participate in sport do so as part of a generally more healthy lifestyle and so may be less likely to smoke and drink, this is by no means certain. Indeed, some evidence has suggested that those who take part in sport may actually be more likely to drink larger quantities of alcohol because of the social side associated with sport (Watten, 1995).

---

## 5.2 Measuring Health

A large international literature has emerged on how best to ask people about their health in social surveys (Bowling, 1989). The Survey on Sport and Physical Exercise adopted two measures of health, one summary measure and a second, more complex measure constructed from twelve individual questions. The summary measure is one of 'self-assessed health' (SAH) which simply asks respondents – 'in general, would you say your health is...' and offers them five

response options ranging from ‘excellent’ to ‘poor’ via ‘very good’, ‘good’ and ‘fair’. This is a simple question that asks people to make a snap judgement about their own health, but it has been shown to be a useful proxy measure for morbidity. Technically it has a high degree of construct validity and test-retest reliability (Streiner and Norman, 1995), as well as having strong correlations with more extensive measures such as the SF-36 (Brazier *et al.*, 1992).

Our second health measure is the one we draw on more extensively. It is a more complex measure called the Short Form 12 (SF-12) which, as the name suggests, consists of 12 questions covering both physical and mental health. It produces two scales, or component scores, one a measure of physical health and a second a measure of mental health (Ware *et al.*, 1995). The SF-12 is an extremely well validated and tested measure that has been used in a number of countries (Layte, 2001; Jenkinson and Layte, 1997). It has been shown to be a useful measure of population health. The measure is not meant to draw a distinction between the healthy and the ill but is based on the notion that health status is a continuum ranging from the extremes of ill health on the one side to very good health on the other. The ‘component scores’ from the SF-12, which are labelled the Mental Component Score (MCS) and Physical Component Score (PCS) try to reflect this continuum. They measure health on a scale from 0 to 100 where 100 equals perfect health, but the average is set to a score of 50 with a standard deviation of 10. This means that there is no particular threshold that can be used as an indicator below which the person is seen to be in ‘ill health’. Rather, the measure is sensitive to subtle differences in health across the population and thus should differentiate between groups well.

Before we begin the analysis of the impact of participation in sport on health, it would first be useful to examine how the SF-12 and self-assessed health measures differ across the population. As already stated the scales are constructed to have a mean of 50 and standard deviation of 10, but they should vary systematically between groups that we would expect to have worse health. For example, older people are more likely to have a chronic health condition and so we would expect that older age groups would have a lower score on these scales than younger groups. This is confirmed in Table 5.1 which shows the average Physical Component Score (PCS) and Mental Component Score (MCS) in different age groups.

**Table 5.1: Mean Physical Component Score and Mental Component Score by Age**

	PCS	MCS
18-24 years	53.38	51.38
25-34 years	53.11	50.62
35-44 years	52.07	49.90
45-54 years	50.22	49.51
55-64 years	48.45	49.62
65+ years	40.32	48.56
Eta <sup>2</sup>	0.191***	0.008***

Key: \*\*\*=P<0.001; \*\*=P<0.01; \*=P<0.05.

Whereas those in the youngest age group have an average score of 53.4 on the physical health scale and 51.4 on the mental, those aged 65+ have average scores of 40.3 and 48.5 with the score decreasing steadily as age increases.<sup>2</sup>

We can see a similar pattern if we examine the distribution of the SAH measure of health by age in Table 5.2. The good news in Table 5.2 is that almost 61 per cent of the population aged over 17 years see their health as excellent or very good and a further 25 per cent see it as at least good. However, as in Table 5.1, as we move up the age range we observe that the proportion reporting excellent health decreases from over 42 per cent to under 13 per cent whereas the proportion reporting fair or poor health increases from 6.6 per cent to almost 40 per cent. These results show that health status varies systematically across the age range in a manner we would expect from prior experience.

**Table 5.2: Self-Assessed Health by Age (%)**

	Excellent	Very Good	Good	Fair	Poor	Total
18-24 years	42.5	32.4	18.5	5.7	0.9	100
25-34 years	32.5	41.5	21.0	5.1	0.0	100
35-44 years	31.2	37.7	24.1	5.4	1.6	100
45-54 years	22.6	35.1	27.8	12.3	2.1	100
55-64 years	19.1	27.9	34.3	15.7	2.9	100
65+ years	12.8	18.9	29.3	31.2	7.8	100
All	27.7	33.0	25.2	11.8	2.4	100
$\chi^2=476.31$ , $df=20$ , $Sig=***$						

Key: \*\*\*= $P<0.001$ ; \*\*= $P<0.01$ ; \*= $P<0.05$ .

In the introduction to this chapter we suggested that health varies between those in different social classes and we can see this in Table 5.3 which gives average PCS12 and MCS12 scores for each social class plus the proportion reporting 'less than good' SAH.

**Table 5.3: Physical Component Score and Mental Component Score from the SF-12 by Social Class**

	PCS	MCS	% 'Less than Good'
Hi Prof/Managerial, Prop & Farmers 200+ Acres	51.48	50.83	8.8
Lo Prof/Managerial, Prop & Farmers 100-199 Acres	50.98	50.99	11.0
Other Non-Manual, Farmers 50-99 Acres	50.51	49.85	11.7
Skilled Manual, farmers 30-49 Acres	50.96	50.70	11.6
Semi-Skilled Manual, Farmers <30 Acres	48.93	49.29	17.7
Unskilled Manual	47.04	48.48	25.3
Eta <sup>2</sup> or Wald Test & Significance	0.018***	0.007**	52.35***

Key: \*\*\*= $P<0.001$ ; \*\*= $P<0.01$ ; \*= $P<0.05$ .

<sup>2</sup> It is not immediately obvious how meaningful the differences between age groups is in Table 5.1, but using the 'effect size' method advocated by Kazis *et al.* (1989), there is no meaningful difference between the youngest age group and those under 45 years, but small, moderate and large differences for the groups thereafter on the PCS. On the MCS there are only small and moderate differences for these groups.



Table 5.3 shows a clear pattern with those lower down the class scale having lower levels of health using both measures. Tests show that this pattern remains true for those in the semi-skilled and unskilled manual groups relative to the higher professional/managerial groups even if we control for age and sex. Similarly, we tested the relationship between highest educational qualification obtained and found that those with Leaving Certificate or more had better health, compared to those with no Leaving Certificate. Again, this pattern is consistent across age and sex. This shows that the relationship between class and health is very robust and is true for both men and women and also across different age groups, although the size of the differential increases with age (not shown).

Lastly in this section it is worth confirming the validity of the SF-12 scores by showing the relationship between these measures and the self-assessed question. Table 5.4 gives the average Physical and Mental Health Component Scores for each level of the SAH measure. Table 5.4 shows that we see systematic decreases in the level of the PCS and MCS scores as the self-assessed level of health decreases. Whereas those who say that they have excellent health score 55.5 on the PCS-12 and almost 54 on the MCS-12, the scores drop to 48.7 and 48.8 respectively for those with 'good' health and down to 22.6 and 33.2 for those with poor health.

**Table 5.4: Physical and Mental Component Scores by Self Assessed Health**

	PCS	MCS
Excellent	55.5	53.9
Very Good	53.2	50.9
Good	48.7	48.8
Fair	35.9	43.7
Poor	22.6	33.2
Eta <sup>2</sup>	0.517***	0.156***

Key: \*\*\*=P<0.001; \*\*=P<0.01; \*=P<0.05.

### 5.3 Exercise, Sport and Health

Our primary interest in this chapter is the relationship between participation in sport or exercise and health. As we saw earlier, physical inactivity has been identified as a major contributor to a number of causes of illness and death, often in combination with other factors such as dietary fat, smoking and drinking. This would suggest that we should see a clear relationship between participation in sport and health status.

However true this may be, we cannot jump straight to the conclusion that better health is a consequence of higher levels of activity, since the causal relationships involved are likely to be complex and to be different at different stages in life. This has already been suggested in earlier chapters when we looked at the reasons people themselves give for non-participation in sport. Among younger non-participants in sport, physical health problems were rarely mentioned as a reason for not participating, and where those problems did play a role they were most often in the form of

sports injuries. For younger people, therefore, it is likely that sports participation affects health rather than vice versa. Among people at older ages, however, health impediments were more often mentioned as reasons for not participating in sport and here it is likely that the relationship between sports participation and health becomes circular: lack of physical activity tends to have a negative effect on health and physical fitness, while poor health and physical disability tends to reduce people's participation in sport.

Table 5.5 gives MCS and PCS scores by age group for those who do or do not participate regularly in sport or exercise (once or more a month) and also gives the difference between the scores of those who do participate compared to those who do not. As the 'total' row shows, on average, those who participate are both mentally and physically healthier. In terms of physical health, those who participate are on average 4.3 units healthier than those who do not whereas on the mental health scale the difference is smaller at 1.8 on average. This difference in health status holds across the age range (with the exception of those in the 25-34 year age group in terms of mental health), but more interestingly, the difference between those who participate and those who do not increases with age. For example, whereas on the physical health measure the difference between those who participate and those who do not is 1.3 below age 25, this increases to 2.7 between 45 and 54 years, 3.5 between 55 and 64 years and rises very steeply to 9.2 after age 64. This same pattern is repeated in terms of mental health except that the increase is not as pronounced. These findings suggest that regular sport and exercise is very strongly related to both physical and mental health with the relationship growing stronger in older age groups.

**Table 5.5: Physical and Mental Health Component Scores by Age Group and Whether Participate Regularly in Sport**

	PCS			MCS		
	Participate in Sport or Exercise Once a Month?					
	No	Yes	Diff	No	Yes	Diff
18-24 years	52.7	54.0	1.3	50.4	52.2	1.8
25-34 years	52.7	53.6	0.8	51.2	50.0	-1.2
35-44 years	51.9	52.4	0.5	49.1	51.5	2.4
45-54 years	49.5	52.1	2.7	49.1	50.7	1.6
55-64 years	47.8	51.3	3.5	49.2	51.4	2.2
65+ years	39.1	48.3	9.2	48.1	51.7	3.7
Total	48.5	52.8	4.3	49.4	51.2	1.8
Eta <sup>2</sup>	0.041***			0.007***		

Key: \*\*\*=P<0.001,\*\*=P<0.01,\*=P<0.05.

There is clearly a relationship between regular sport/exercise and health, but does this relationship vary at different levels of exercise and do people receive a benefit from undertaking even light exercise? As we saw in Chapter 2, the official position of both US and European health protection agencies now is that individuals can obtain health related benefits from moderate activity of 30 minutes or more per day as long as they are carried out on most days of the week.

**Table 5.6: Mean PCS and MCS by Number of Months Participating in Sport Per Year**

	PCS	MCS
No sport	48.2	49.3
1-7 Months	51.7	50.6
8-11 Months	52.7	51.8
12 Months	52.7	51.1
Eta <sup>2</sup>	0.043***	0.009***

Key: \*\*\*=P<0.001; \*\*=P<0.01; \*=P<0.05.

We look at this issue first by examining the relationship between health and regularity of sports participation over the year. Table 5.6 shows the average physical and mental health scores as the number of months a year in which the person participates in sport increases. It is clear, as we would expect, that those who do not partake in sport have lower health status, both physical and mental. As the number of months in which the person participates increases we see increases in health status although there seems to be little difference or even a negative effect as we move from those participating between 8 and 11 months and those participating all year round. This would suggest that those with less than complete year-round participation still have health gains.

The measure used in Table 5.6 says nothing about the exertion or intensity of exercise undertaken. This is dealt with in Table 5.7, which shows the level of exertion used in the sport in which the person participates based on a threefold distinction between light, moderate and hard/extreme effort. Effort here is defined in terms of cardiovascular performance, thus light effort requires a mild increase in breathing rate, moderate, a noticeable increase in breathing and hard, heavy breathing or gasping for breath.

**Table 5.7: Mean Physical Component Score and Mental Component Score by Levels of Exertion in Sport**

	PCS	MCS
No sport	46.2	48.0
Light Effort	51.6	51.1
Moderate Effort	50.7	50.5
Hard/Extreme Effort	52.0	50.3
Eta <sup>2</sup>	0.057	0.015

This table shows again that the greatest gain in health is between those who are totally inactive in sport and those who engage in at least light effort. Beyond that, an increase in exertion does not necessarily lead to higher levels of health status. For example, for both physical and mental health, the score for those using light effort is actually higher than for those using moderate effort and, for mental health, it is also higher than for those using hard or extreme effort.

As we saw in Chapter 3, the three most common sports for men are golf, soccer and swimming whereas for women they are

swimming, aerobics and cycling for leisure. Table 5.8 shows the self-assessed level of exertion attained whilst playing these sports and shows that these sports differ in terms of exertion levels. Men partaking in soccer or swimming have greater levels of exertion at the hard or extreme level. Over two-thirds are involved in sport using moderate and above levels of exertion. For women, this level is similar, but with a slightly lower proportion on average applying hard or extreme levels of exertion.

**Table 5.8: Level of Exertion by Sport**

	Light	Moderate	Hard/Extreme
<b>Men</b>			
Golf	40.9	29.5	29.6
Soccer	32.1	21.9	46.0
Swimming	30.3	26.9	42.8
<b>Women</b>			
Swimming	29.6	44.0	29.4
Aerobics	20.6	33.5	45.9
Cycling for Leisure	31.9	50.0	18.1

While this shows that men have on average higher levels of exertion than women, it may be that light or moderate levels of physical activity are just as beneficial in terms of health benefits. As discussed earlier, the American College of Sports Medicine issued a set of guidelines in 1990 that recommended that people undertake at least 30 minutes of exercise of a mild intensity five or more days a week. This was an addition to an earlier, more demanding standard which prescribed more intense activity for 20 minutes three or more times a week (see WHO, 2003). Drawing on the survey of Sport and Physical Exercise we constructed a measure of activity that was comparable to the latter threshold as this could also be compared to the results from the Irish National Health and Lifestyle Survey (Slán) from 2002. Table 5.9 shows that only 26 per cent of men and 17 per cent of women reach the ACSM's moderate activity threshold.

**Table 5.9: Proportion of Individuals Participating in 20 or More Minutes of Physical Activity Per Week**

<b>Men</b>	
All	25.8
All Regular Participants	60.8
Golf	46.7
Soccer	56.5
Swimming	57.1
<b>Women</b>	
All	17.0
All Regular Participants	65.4
Swimming	49.6
Aerobics	70.7
Cycling for Leisure	47.1

The figure for men is almost exactly that reported by Slán, whereas the female figure is substantially lower at 17 per cent than the Slán figure of 27 per cent. This low figure may be partially

explained by the fact that our data only measure activity which was undertaken as part of sport or exercise whereas the Slán figures include exertion as part of paid work, around the home, or while walking or cycling purely for transport. Although the non-inclusion of everyday exercise could explain the lower female proportion, it is odd that this is not an issue when measuring men’s exercise. However, if we leave such comparisons aside for the moment, it is encouraging that 61 per cent of men and 65 per cent of women who participate in sport regularly do reach the ACSM threshold suggesting that sport and exercise make a substantial contribution to better health status in Ireland. It is also useful to look at the most popular sports or activities in Ireland and the extent to which these fulfil the ACSM requirement. Table 5.9 shows that among men well over half of the participants in soccer and swimming would reach this threshold with a slightly lower proportion doing so whilst playing golf. Among women the proportion reaching the threshold is similar for the most frequent three sports, except for aerobics where over 70 per cent of participants reach the threshold.

**5.4  
Sport and  
Lifestyle Habits**

Moving on to the second part of this chapter, we now look at levels of cigarette smoking and drinking alcohol among the population and how this is related to participation in sport. *A priori*, we would expect that if people who participate in sport are concerned about their health then we would find that they have lower levels of both smoking and drinking than do those who do not participate. However, it may also be true that the social dimension of sport, particularly in team games, may contribute to higher levels of certain negative lifestyle practices, particularly alcohol consumption.

**SMOKING**

We begin with an examination of smoking. Table 5.10 shows the extent of smoking among men and women in the sample. More than half the population either used to smoke or are current smokers, and a slightly higher proportion of men than women currently smoke. The distribution of current smokers shows that almost 50 per cent of men who smoke regularly fall into the ‘high’ category of over 20 cigarettes a day, whilst the same is true of 35 per cent of women.

**Table 5.10: Amount Smoked and Smoking History by Sex**

	Male	Female	All
Never Smoked	41.6	54.0	47.8
Used to Smoke	26.1	18.7	22.4
Currently Smoke	32.4	27.2	29.8
Total	100	100	100
<b>Distribution of Current Smokers</b>			
Low	19.8	20.7	20.2
Medium	33.7	44.8	38.8
High	46.6	34.6	41.0
	100	100	100

Are individuals who participate in sport less likely to smoke? It is now well established that smokers tend to be less physically active than non-smokers (Blair, 1985, Faulkner, 1987) and we also see this pattern in the survey data as shown in Table 5.11, although the difference between those who participate and those who do not is not as pronounced as one might expect.

**Table 5.11: Amount Smoked by Regular Participation in Sport**

	Number of Times a Year Partake in Sport			
	Never	1-7 Times	8-11 Times	12+ Times
Never Smoked	45.9	46.5	54.4	50.4
Used to Smoke	22.0	23.9	17.9	25.4
Currently Smoke	32.1	29.6	27.7	24.2
Total	100	100	100	100
<b>Distribution of Current Smokers</b>				
Low	16.8	27.9	17.7	27.0
Medium	39.2	37.6	47.2	36.8
High	44.1	34.5	35.1	36.2
	100	100	100	100

Whereas 32 per cent of those who never participate are currently smokers, this is true of 24 per cent of those who participate in sport at least once a month. Interestingly, more of this latter group used to smoke than any of the other groupings, including those who never participate. We might expect that those who participate regularly, but who also smoke would tend to smoke less and this does indeed seem to be so with 27 per cent of this group smoking falling into the low category in terms of the number of cigarettes smoked compared to 17 per cent of those who never participate. The relatively small difference between those who participate regularly and those who never participate may be due in part to the inclusion of all types of sports, including those such as fishing which do not require even a raised level of exertion. We might expect, however, that the difference in level of smoking would be greater for those who have higher levels of exertion in their sport.

In fact, as Table 5.12 shows, even among those whose sport requires substantial effort, we still see relatively high levels of smoking at 24 per cent, although the overall prevalence is lower than for those with no sport (35 per cent).

**Table 5.12: Past and Present Smoking Status by Level of Exertion in Regular Sport**

	Self-Assessed Level of Exertion			
	No Sport	Light Effort	Moderate Effort	Substantial Effort
Never Smoked	43.9	45.5	51.5	54.2
Used to Smoke	21.0	23.0	23.5	21.6
Currently Smoke	35.1	31.5	25.0	24.2
Total	100	100	100	100
<b>Distribution of Current Smokers</b>				
Low	13.9	20.5	23.3	30.5
Medium	37.4	41.4	37.3	37.5
High	48.7	38.1	39.4	32.0
	100	100	100	100

### ALCOHOL CONSUMPTION

The survey also collected information on alcohol consumption and this allows us to examine whether regular participation in sport is associated with a lower intake of alcohol. Looking first at overall levels of alcohol consumption, Table 5.13 shows that men consume more than women. Twenty-eight per cent of men fall into the ‘high’ consumption category, which for men is 16 or more units of alcohol a week, compared to 26 per cent of women who drink more than 5 units a week. Over 36 per cent of women do not drink compared to 22 per cent of men.

Is there a relationship between regular participation in sport and alcohol consumption? As suggested earlier we would expect that regular participants would be more health conscious and so consume less, but it could also happen that the social aspect of many sports might actually lead to higher levels of consumption. The bottom two rows of Table 5.13 show the distribution of drinking among men and women participating in sport regularly (12 or more times a year). Respondents are ranked by consumption and the population divided into thirds to create the categories in Table 5.13. This shows that regular participants in sport are actually more likely to drink higher numbers of units per week, with 34 per cent of men drinking 16 or more units a week and 37 per cent of women drinking more than 5 units per week. Both men and women who participate in sport have lower proportions who do not drink at all than are found in the general population.

**Table 5.13: Distribution of Consumption of Alcoholic Units per Week by Sex (%)**

	<b>Don't Drink</b>	<b>Consumption Low</b>	<b>Consumption Medium</b>	<b>Consumption High</b>	<b>Total</b>
Male <sup>1</sup>	22.4	20.8	28.5	28.3	100
Female <sup>2</sup>	36.4	16.5	21.7	25.5	100
All	29.5	18.6	25.0	26.9	100
<b>Regular Participants in Sport</b>					
Male	16.7	20.5	29.2	33.6	100
Female	20.0	17.0	26.0	37.0	100
All	18.0	19.1	28.0	34.9	100

<sup>1</sup> For men, low consumption is <8 units per week, medium is 8-15 units and high 16+ units per week.

<sup>2</sup> For women low consumption is less than 3 units, medium 3 to 5 units and high more than 5 units per week.

Is this tendency among regular participants to drink higher levels of alcohol confined to younger age groups, or is it a general feature of regular participants at all ages? Table 5.14 shows that ‘high’ levels of alcohol consumption are most common among the youngest age groups with the level falling steadily with age. This pattern is clearer for women than men but among both sexes, the under 35s who participate in sport are far more likely to have high levels of consumption. Further analyses not presented here show that even if we control for age and sex, men who participate regularly are 29 per

cent more likely than non-participants to consume high levels of alcohol and regular women participants are 50 per cent more likely to have high levels of consumption ( $P < 0.01$ ).

**Table 5.14: Proportion of Regular Participants Who Drink 'High' Levels of Units of Alcohol Per Week**

Age Group	Men	Women
18-24 years	38.7	52.7
25-34 years	40.9	38.5
35-44 years	28.9	32.5
45-54 years	26.0	29.3
55-64 years	26.7	16.7
65+ years	12.2	15.0
Total	33.6	37.0

<sup>1</sup> For men, low consumption is <8 units per week, medium is 8-15 units and high 16+ units per week.

<sup>2</sup> For women low consumption is less than 3 units, medium 3 to 5 units and high more than 5 units per week.

How do these levels of alcohol consumption relate to the levels of consumption regarded as safe by the health authorities in Ireland? For men the safe limit is widely regarded as up to 21 units per week, whereas for women it is substantially lower at 14 units (Kelleher *et al.*, 2003, p. 30). Table 5.15 shows that among the general population 13 per cent of men and around 4 per cent of women state that they drink more than the recommended maximum number of units per week. Among regular participants, on the other hand, the proportions who drink over the recommended limit are higher: 15 per cent in the case of men and over 7 per cent in the case of women.

**Table 5.15: Proportion Drinking More than the Recommended Number of Alcoholic Units per Week**

	All	Regular Participant	Team Sports Participant
Male	13.0	15.2	15.8
Female	4.4	7.1	12.1
All	8.6	12.0	15.1

The final column of Table 5.15 examines whether the higher level of unsafe alcohol consumption among regular participants may be more of a problem among those who participate in team sports where higher levels of drinking are more acceptable. This does seem to be so with almost 16 per cent of men in team sports drinking more than the recommended level per week and 12 per cent of women. For women, the proportion among those participating in team sports is almost three times that of the general population. We should note here that this pattern disappears as individuals get older and sports participants in the older age groups are less likely to drink above the recommended levels compared to the population as a whole. It should also be noted that these results are based upon a relatively small sample that means that the results are not statistically significant. Given this, all we can say with any certainty is that,



among participants of team sports, those in the youngest age group are more likely to drink more than the recommended limit and this excess consumption seems to be as common among regular participants of team sports as it is among other sports participants.

---

## 5.5 Conclusions

This chapter has examined the relationship between exercise, sport and health. There is now clear evidence from international research that physical inactivity is a direct contributory factor to a number of diseases and is also associated with poorer mental health.

Our analysis confirms that those who participate in sport are indeed healthier on average, even within age groups, and this is true for both physical and mental health. We find that even those who participate less regularly and/or use a light level of effort still benefit in terms of health.

The relationship between sports participation and health grows stronger in older age groups. The nature of the relationship is also likely to change as people age: among younger people, inactivity is likely to be more a cause than a consequence of poorer health, but as people age, inactivity can become both cause and consequence – lack of exercise worsens health but deteriorating health and physical fitness also deters people from taking exercise.

Lifestyle habits such as smoking and drinking are associated with lower levels of health overall, so we also looked at the relationship between these habits and sports participation. We found that those who participated regularly in sport were less likely to smoke. Similarly, those who participated more, or who used higher levels of effort also smoked less, but the differences were not as pronounced as one might expect. For example, around a quarter of those who used ‘substantial’ or ‘extreme’ effort in their sport still smoked and of these around one-third were smoking 20 or more cigarettes a day. This suggests that these people see no contradiction between participating in very strenuous sport and smoking.

In terms of alcohol consumption, we find that regular sports participants are more likely to drink higher numbers of units per week compared to the general population, with higher levels of consumption being particularly common among female regular participants. A higher proportion of men tend to drink more than the recommended limits and there seems to be some suggestion that the tendency to drink more than the recommended limit is more common among regular sports participants and this may be most pronounced among those playing team sports such as soccer, hurling, rugby and football. The most striking finding here is the high level of alcohol consumption among the under 35s, but particularly among the under 25s and this seems to be most pronounced among young women generally and both men and women participating in sport. This is a troubling finding since high levels of alcohol consumption are known to be related to higher levels of mental illness and depression, but also to other social and

relational problems as well as higher risks of particular cancers and stroke.

# 6. CONCLUSIONS

---

## 6.1 Context

International research shows that physical inactivity is a major contributor to poor health and premature mortality. It increases the risk of heart disease, stroke, hypertension, diabetes, colon cancer, breast cancer and osteoporotic fractures. It also contributes to various mental health conditions, particularly depression, anxiety and negative mood.

When attention began to be focused on this issue first in the 1960s and 1970s, medical opinion felt that regular participation in aerobically intensive exercise was needed to sustain good health. By the 1990s, however, it had come to be accepted that there was little prospect of getting anything but a minority of people in developed countries to engage in physical exercise to that degree. It had also emerged from health research that substantial health benefits could be gained from lighter physical activity engaged in as part of the normal routines of daily living (walking, gardening, climbing stairs, etc.). New recommended standards of physical activity promulgated in the 1990s reflected this new thinking. Those standards specified an accumulated 30 minutes of moderate activity for five or more days per week as the minimum that people should aim for in order to benefit their health (by ‘accumulated’ is meant that the recommended amount of activity does not need to be carried out all at once but can be built up over a number of bouts in a single day).

While there are no standardised international data on levels of physical activity in adult populations, the World Health Organisation estimates that world-wide, more than 60 per cent of adults do not engage in the minimum recommended levels, and that this is increasingly becoming the case in poor counties as well as rich ones. A significant minority of adults – of the order of 20-25 per cent – are completely inactive.

There is even less hard information on trends over time than on present-day patterns. In Finland, the country with the longest time-series data on this subject (which started in 1978), participation in sport and leisure-time activity seems to have gone up while occupation-related activity (including walking to work) has gone down. In most countries, there is no clear evidence on trends over time.

The promotion of sports as a matter of public policy has a role to play in raising the level of physical activity in populations. However, that role may be relatively modest. Although there have been many policy initiatives in this area in many countries, methods of

intervention that have been proven to work well have not yet been found. Where positive results from intervention have emerged, those effects have tended to be either small or short lived, or both. It should also be noted that sports promotion occurs through many agencies, public and private, besides public bodies specifically set up for that purpose. In the public arena, services as diverse as education, health, public parks and amenities, urban design and transport may consider that physical activity levels in the population are part of their concern or may have important indirect effects in that area. In the private sector, sport is a major business. While much of this business might hamper as much as support widespread participation (e.g. by encouraging people to watch sport on television rather than take part in it themselves), it nevertheless helps to keep sport in a prominent position in modern social and cultural life.

---

## 6.2 Participation Among Adults in Ireland

The survey reported on here found that about 22 per cent of adults in Ireland were completely inactive in sport or recreational walking. The balance of 78 per cent engaged in physical activity to some degree, but only about 40 per cent or less took part regularly enough and with enough intensity of effort to approximate to the minimum standards of physical activity recommended by the World Health Organisation. Participation varied strongly by gender and age: men participated more than women and the young more than the old. It also varied by social class, in that higher socio-economic groups had higher levels of participation, particularly in regard to activities other than walking.

Recreational walking is by far the most popular form of leisure-time physical activity – about 60 per cent of adults had taken a walk in the four weeks prior to the survey. Women engage in walking more than men. However, much walking entails little intensity of effort or is engaged in too irregularly to contribute a great deal to the minimum recommended levels of physical activity. About 25 per cent of people walked often enough and vigorously enough to meet those standards.

Apart from walking and hiking, 43 per cent of adults had taken part in some sport in the twelve months prior to the survey, and about half of these participated regularly and intensively enough to attain the minimum recommended standards of physical activity. Men are more likely to participate in sport than women. Age is also a major influence, particularly in regard to participation in sport at moderate to hard levels of effort which drops steadily after age 30 and fall to very low levels by old age.

These levels and patterns of participation are broadly in line with those found in other countries.

The most popular sports that people take part in are golf, soccer, swimming and GAA games for men, and swimming and aerobics for women. Age patterns of participation differ between sports. Swimmers are evenly spread across the age-groups, golfers are

concentrated among those in middle and older years, while soccer and GAA players are concentrated among those aged under 30 years.

---

### 6.3 Reasons for Non- Participation

The major reasons that people give for non-participation in sport have to do with the lack of interest, willingness or time on their part. Lack of sports facilities or other impediments arising on the supply side of the sports system hardly feature at all in people's conscious reasons for not participating. One should not thereby conclude that supply side problems play no role in determining participation, since they may have considerable background or conditioning effect. For example, it might enter people's minds to take up swimming only when a good swimming pool becomes available in their area, or they might walk or cycle more if footpaths or cycle ways were provided. Nevertheless, one can conclude that supply side factors do not amount to a major direct impediment which, if addressed, would be likely to have an immediate impact in raising participation rates.

---

### 6.4 Participation and the Life Course

There are important life course dimensions to people's participation in sports. These dimensions vary by gender – men are more likely to participate when younger and to continue participating in mid-life and old age. They also vary by birth cohort, especially among women – older women are more likely to have never participated than either men of the same age or women in younger cohorts. Younger women are just as likely as younger men to have had at least some participation in sport at some point in their lives, but they are also more likely to drop-out of sport in their twenties and thirties.

The most important aspect of life course patterns of participation in sport is the degree of change which occurs as people move through the life course. For the most part, people start out with high intensity team games in their teenage years, and as they grow into mature adulthood they either give up sport altogether or move to sports which are less physically demanding and less team-based. The kind of transition which occurs when people move away from the sports of their youth is thus of critical consequence for overall levels of participation, since a common outcome of that transition is that people give up sport altogether.

---

### 6.5 Participation and Ability in Sports

While people's sense of their own ability in sport has some influence on the likelihood that they will persist with sport, that influence is surprisingly small. Most people who drop-out of a particular sport think that they had at least average ability in that sport and only about one in ten think that they were below average ability. Those who persist with sport rate their ability slightly higher than those who drop-out, but the difference is small. Lack of

confidence in their sporting ability may thus have some influence on people's tendency not to participate, but it cannot be considered a major influence.

---

## 6.6 Sport and Health

Those who participate in sport are healthier on average, even within age groups, than those who do not. This is true for both physical and mental health. Even those who participate with limited regularity and/or with only light effort still gain some health benefit.

The relationship between sports participation and health grows stronger as people age. The nature of the relationship is also likely to change as people grow older: among younger people, inactivity is likely to be more a cause than a consequence of poorer health, but as people age, inactivity can become both cause and consequence – lack of exercise worsens health but deteriorating health and physical fitness as people age also deters them from taking exercise.

Lifestyle habits such as smoking and drinking are also linked to sports participation. Those who participated regularly were less likely to smoke and this effect was stronger among those who participated more, or who used higher levels of effort. However, the differences associated with highly regular and intensive participation were not as pronounced as one might expect. About a quarter of those who participated with 'substantial' or 'extreme' effort smoked and of these around one-third were smoking 20 or more cigarettes a day.

While sports participation is associated with lower cigarette smoking, it is associated with higher consumption of alcohol. This effect is especially present among women who participate in sport and even more so among women who participate in team sports. These effects are also more pronounced among younger adults, especially among those aged under 25 years. This indicates that the lifestyle effects of sports are not entirely positive, high levels of alcohol consumption are known to be related to higher levels of mental illness and depression, but also to other social and relational problems as well as higher risks of particular cancers and stroke.

---

## 6.7 Policy Implications

The main implications for policy arising from the present study are as follows:

1. Sports promotion has a role to play in promoting physical activity in the adult population as a means to improving public health but that role has its limits. The need in Ireland in this regard is similar to that in other countries, in that there is a considerable incidence of physical inactivity in the adult population and of physical activity that is only barely worthwhile from a health point of view. However, it is difficult to encourage people to take more exercise and for many currently inactive people, sports, apart from recreational walking, would not be the first or most appealing thing they

would think of in that regard. Furthermore, sport and other physical activity is already promoted by a range of public and private bodies and it only one among a range of objectives typically pursued by bodies that are specifically concerned with sport. **The Irish Sports Council is typical in this regard, in that the resources at its disposal are small relative to the total resources devoted to sport in Ireland and its remit encompasses a range of objectives beyond the goal of raising physical activity levels in the population (including, for example, support for elite competitors).** Therefore, only modest effects should be expected from its work as far as public health is concerned and those effects should not be expected to be easy to detect.

2. **The particular value of dedicated sports promotion from a health point of view is likely to be tied to its ability to identify niches where it has a comparative advantage.** These niches are not readily evident and have to be sought out through trial and error, research on local conditions, and learning from experience elsewhere. Niche activities could consist of types of promotional initiatives which are not already provided by other bodies, target groups who are inadequately provided for by existing services, and the provision of information and understanding about the role of sport in people's lives and the way its positive impact on health can be maximised.
3. The niche potential for the promotion of sport and physical activity becomes evident when we consider the factors associated with low levels of physical activity. By far the strongest of these are age and gender – physical inactivity becomes more common as people age (particularly after age 40 years or so) and is more prevalent among women than men. Socio-economic position also has an effect, though not to the same degree as age or gender. **Since the greatest public health gains are achieved by generating even modest activity levels among those who are completely sedentary, the Irish Sports Council could best serve the physical activity and public health dimensions of its remit by focusing more attention on older people and women, and to a certain extent also, on those in lower socio-economic positions.** (Other dimensions of the Council's remit, such as those relating to support for elite sports people, would point to different priorities. It is beyond the brief of the present report to consider how resources should be allocated between these different priorities.)

4. While policy on the promotion of sport and physical activity is often rightly concerned about young people and with associated issues such as sport in schools, it should be remembered that there are some 2.5 million adults in Ireland who have passed out of the education system and who also need to be kept in mind in framing sports policy. Of these, 1.5 million are aged over 40 years, and since it is from this point in the life-cycle onwards that sedentarism becomes especially common, there is a particular need to direct attention at the over-40s in devising means to raise physical activity levels in the population.
5. **A focus on sports promotion among people aged over 40 years, especially women in that age group, has implications for the kinds of sports which should receive support.** The traditional dominant sports such as football and soccer are likely to have little appeal for these target groups and are unlikely to be an effective means of encouraging people out of sedentarism. For older people, walking, golf, swimming and aerobics are the most common activities and may be easier to promote among the inactive than team-based or contact sports. They warrant greater attention from the Irish Sports Council on that account. More generally, in deciding on supports for particular sports from a physical activity and public health point of view, the Irish Sports Council should assess the likely appeal of the sports in question to currently inactive segments of the population and should proactively identify and cultivate those sports with the greatest potential in this regard. This might mean that activities which have a limited profile at present, such as recreational cycling, might be given greater attention in the future.
6. People fail to participate in sport primarily because they lack interest and willingness to do so. Lack of sports facilities as conventionally understood or other impediments arising on the supply side of the sports system do not amount to a major direct impediment which, if addressed, would be likely to have an immediate impact in raising participation rates. **As a general rule, policy initiatives which focus on the provision of sports facilities would be unlikely to have a major impact on raising levels of sports participation in the population.**

However, there may be exceptions to this rule – for example, it is possible (though by no means certain) that wider provision of swimming pools might encourage more people to swim. It is also possible that people would walk and cycle more if there were more safe and attractive footpaths and cycle paths on which they could do so. This highlights the



importance of physical planning and design in providing a supportive context for physical activity. These issues arise as much in the countryside as in urban areas: Irish country roads typically have no footpaths or cycle paths, fields are increasingly closed off to walkers, and provision of public parks and walkways is limited. **As far as physical infrastructure is concerned, therefore, the most important deficiencies may arise not in connection with sports facilities as usually understood but with aspects of the general physical environment which discourage both the idea and the practice of physical activity.**

7. As an instance of the need to improve understanding of the social role of sport and the way it fits into peoples lives, we can point to the life-course aspects of sports which the present study has highlighted. **There is a limited degree of continuity between the sports people play as teenagers or in their early twenties and what they do in later life. This has to be kept in mind in designing policies directed at raising levels of sports participation in the population.** Such policies have to be age-specific – what might be effective among those in their twenties might not work among those in their thirties or forties, much less among those at older ages. Success in raising participation rates among young people, while important in itself, will not necessarily guarantee high levels of participation when those same people reach mid-life or old age. Furthermore, for young people, there may be some benefit in adjusting the *kind* of sports participation that is encouraged during their teenage years or early twenties, with a view to exposing them to activities they are more likely to persist with in later life. This is not to downplay the value of the kinds of sports that to date have been most common among young people in schools, which are dominated by high-intensity team sports such as GAA games. It is to recognise that such sports will become less appealing and less feasible for people as they enter mature adulthood.

**Thus, the challenge to sustain participation in sports and physical activity arises at every stage of the life-course, is a different challenge at each stage, and at each stage should look forward to the transition to next stage as well as addressing the needs of the present.** The knowledge base needed to guide policy in responding to this complexity and diversity of challenge is now only beginning to be developed and would be worth considerable investment to enhance in the future.

8. **Lack of confidence in their sporting ability may have a deterrent effect on sports participation among some**

**people but this syndrome is not widespread.** Efforts to enhance people's sense of self-efficacy in sport, therefore, may have some role in encouraging and sustaining participation, but that role is likely to be small and does not warrant being treated as a major objective of policy.

9. **While sports participation is generally beneficial for people's health, it can have one lifestyle consequence which has attracted little attention in health promotion research: its tendency to give rise to higher levels of alcohol consumption.** This tendency is present especially among younger adults. Sports promotion policy should be concerned about the association between certain kinds of sports and alcohol consumption and should develop means to weaken or break that connection.

## REFERENCES

- AMERICAN COLLEGE OF SPORTS MEDICINE, 1978. "Position Stand: The recommended quantity and quality of exercise for maintaining fitness in healthy adults", *Medicine and Science in Sports and Exercise*, Vol. 10, pp. vii-x.
- AMERICAN COLLEGE OF SPORTS MEDICINE, 1990. "Position Stand on the recommended quantity and quality of exercise for developing and maintaining cardiorespiratory and muscular fitness in healthy adults", *Medicine and Science in Sports and Exercise*, Vol. 22, pp. 265-274.
- BAADE, R.A., 2003. "Evaluating subsidies for professional sports in the United States and Europe: A public sector primer", *Oxford Review of Economic Policy*, Vol. 19, No. 4, pp. 585-597.
- BAUMAN, A., I. FORD and T. ARMSTRONG, 2002. *Trends in population levels of reported physical activity in Australia, 1997, 1999 and 2000*, Canberra: Australian Sports Commission.
- BRITISH HEART FOUNDATION National Centre for Physical Activity and Health, 2004. *A Physically Active Lifestyle Information Pack*. Typescript at <http://www.bhfactive.org.uk/resources/>.
- BLAIR, S. N., 1993. "Physical activity, physical fitness and health", C. H. McCloy research lecture. *Research Quarterly for Exercise and Sport*, Vol. 64, pp. 365-376.
- BLAIR, S. N., 1985. "Relationship between exercise or physical activity and other health behaviours", *Public Health Reports*, Vol. 100, No. 2, pp. 172-80.
- BLAIR, S. N., Y. CHENG and J. HOLDER, 2001. "Is physical activity or physical fitness more important in defining health benefits?" *Medicine and Science in Sports and Exercise. Supplement: Dose-response issues concerning physical activity and health: an evidence-based symposium*. Vol. 33, No. 6, pp. S379-S399.
- BOREHAM, C., W. WALLACE and A. NEVILLE, 2000. "Training effects of accumulated daily stair climbing exercise in previously sedentary young women", *Preventive Medicine*, Vol. 30, pp. 277-281.
- BOURCHARD, C., 2001. "Physical activity and health: Introduction to the dose-response symposium", *Medicine and Science in Sports and Exercise. Supplement: Dose-response issues concerning physical activity and health*, Vol. 33, No. 6, pp. S364-S369.
- CENTRAL STATISTICS OFFICE, 2004. *Census 2002, Vol. 9. Travel to Work, School and College*. Cork: Central Statistics Office.
- CURTIS, J. A. and J. WILLIAMS (n.d.). *A National Survey of Recreational Walking in Ireland*. Dublin: The Economic and Social Research Institute (typescript).
- DEPARTMENT OF EDUCATION AND SCIENCE, 2003. *Junior Cycle: Physical Education*. Dublin: Stationery Office.
- DEPARTMENT OF HEALTH AND CHILDREN, HEALTH PROMOTION UNIT, 1995. *A Health Promotion Strategy ... Making the Healthier Choice the Easier Choice*, Dublin: Department of Health and Children.
- DEPARTMENT OF HEALTH AND CHILDREN, 2000. *The National Health Promotion Strategy 2000-2005*, Dublin: Department of Health and Children.
- FAULKNER, R., 1987. "The relationship of physical activity to smoking characteristics in Canadian men and women", *Canadian Journal of Public Health*, Vol. 78, No. 3, pp. 155-60.

- FOGEL, R. W., 2004. "Changes in the disparities in chronic disease during the course of the twentieth century", Working paper 10311, National Bureau of Economic Research. <http://www.nber.org/papers/w10311>.
- FOSTER, C., 2001. *Guidelines for Health-Enhancing Physical Activity Promotion Programmes*, Tampere, Finland: UKK-Institute Centre for Health Promotion Research.
- GOODSTADT, M. S., B. HYNDMAN, D. V. McQUEEN, L. POTVIN, I. ROOTMAN and J. SPRINGETT, 2001. "Evaluating health promotion: synthesis and recommendations" in I. Rootman, M. Goodstadt, B. Hyndman, D.V. McQueen, L. Potvin, J. Springett and E. Ziglio (eds.), *Evaluation in Health Promotion: Principles and Perspectives*, WHO Regional Publications European Series, No. 92. Copenhagen: WHO Regional Office for Europe, pp. 517-533.
- HARDMAN, A., 1999. "Accumulation of physical activity for health gains: what is the evidence?", *British Journal of Sports Medicine*, Vol. 33, pp. 87-92.
- HEALTH PROMOTION UNIT/DEPARTMENT OF EDUCATION, 1996. *A National Survey of Involvement in Sport and Physical Activity*, Dublin.
- HIRSCH, G., 1985. "Immediate effects of smoking on cardiorespiratory response to exercise", *Journal of Applied Physiology*, Vol. 58, pp. 1975-81.
- IRISH SPORTS COUNCIL (no date). *Sport for Life. The Irish Sports Council's Statement of Strategy 2003-2005*, Dublin: Irish Sports Council.
- JENKINSON, C and R. LAYTE, 1997. The Development and Testing of the UK SF-12. *Journal of Health Service Research and Policy*, Vol. 2, No. 1, pp. 14-18.
- KTL-National Institute of Public Health, 2002. *Health Behaviour and Health among Finnish Adult Population, Spring 2002*. Publications of the National Public Health Institute B12/2002, Helsinki. <http://www.ktl.fi/publications/2002/b12.pdf>.
- LAYTE, R. and C. JENKINSON, 2001. "Normative Data for the SF-12 Health Survey in the Republic of Ireland with Comparisons to England", *Irish Journal of Psychology*, Vol. 22, No. 1, pp. 63-72.
- Mac DONNCHA, C., 2002. "A strategy for physical education in Ireland", Physical Education Association of Ireland ([www.peai.org/policy/PE\\_proposed\\_Strategy.htm](http://www.peai.org/policy/PE_proposed_Strategy.htm)).
- MORGAN, W., 1979. "Negative Addiction in Runners", *Physician and Sports Medicine*, Vol. 7, pp. 57-70.
- PAFFENBARGER, R., R. HYDE, A. WING, I-M. LEE, D. JUNG and J. KAMPERT, 1993. "The association of changes in physical activity level and other lifestyle characteristics with mortality among men", *New England Journal of Medicine*, Vol. 314, pp. 605-613.
- PHYSICAL ACTIVITY GROUP, 1997. *Promoting Increased Physical Activity. A Strategy for Health Boards in Ireland*. [no publication details available].
- PHYSICAL ACTIVITY GROUP, 2001. *Promoting Increased Physical Activity. A review of the national strategy for Health Boards 1997-2000*, Dublin: The Office for Health Gain.
- POLIVY, J., 1994. "Physical activity, fitness and compulsive behaviours" in C. Bouchard, R. Shephard and T. Stephens (eds.), *Physical activity, fitness, and health: international proceedings and consensus statement*. Champaign, IL: Human Kinetics, pp. 883-897.
- RAGLIN, J., 1990. "Exercise and Mental Health: Beneficial and Detrimental Effects", *Sports Medicine*, Vol. 19, No. 456-463.

- ROYAL COLLEGE OF PHYSICIANS, ROYAL COLLEGE OF PAEDIATRICS AND CHILD HEALTH AND THE FACULTY OF PUBLIC HEALTH, 2004. *Storing Up Problems. The medical case for a slimmer nation. Report of a Working Party*. London: Royal College of Physicians.
- ROOTMAN, I., M. GOODSTADT, B. HYNDMAN, D.V. McQUEEN, L. POTVIN, J. SPRINGETT and E. ZIGLIO (eds.), 2001. *Evaluation in Health Promotion: Principles and Perspectives*. WHO Regional Publications European Series, No. 92. Copenhagen: WHO Regional Office for Europe.
- SLOANE, P., 1977. "The economics of professional football: the football club as a utility maximiser", *Scottish Journal of Political Economy*, Vol. 17, No. 2, pp. 121-146.
- SPORT ENGLAND, 1999. *General Household Survey: Trends in adult participation in sport in Great Britain 1987-1996*, London: Sport England and UK.
- SPORTS COUNCIL FOR NORTHERN IRELAND, 1994. *The Assessment of Adult Participation in Sport and Physical Recreation in Northern Ireland 1983-1993 Using Physical Activity Questionnaires*, Discussion Paper No. 1. Belfast: The Sports Council for Northern Ireland.
- SPORTS COUNCIL FOR WALES/CYNGOR CHWARAEON CYMRU, 2002. *Adult Sports Participation and Club Membership in Wales 2000/01*, Sports Update No. 50. Cardiff: The Sports Council for Wales/Cyngor Chwaraeon Cymru.
- STATISTICS CANADA, 2000. *Sport Participation in Canada 1998 Report*, Sport Canada.
- STEPHENS, T., 1987. "Secular trends in adult physical activity", *Research Quarterly for Exercise and Sport*, Vol. 101, pp. 587-592.
- US DEPARTMENT of HEALTH and HUMAN SERVICES, 1996. *Physical Activity and Health. A Report of the US Surgeon General*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- WATTEN, R. G., 1995. "Sports, physical exercise and use of alcohol", *Scandinavian Journal of Medicine and Science in Sports*, Vol. 5, No.6, pp. 364-368.
- WELSH ASSEMBLY GOVERNMENT, 2003. *Sport and Recreation in Wales. Strategy for Consultation*. Cardiff: Sport Policy Unit, National Assembly for Wales.
- WORLD HEALTH ORGANISATION Regional Office for Europe, 2002. *The European Health Report 2002*. Copenhagen: WHO Regional Office for Europe.
- WORLD HEALTH ORGANISATION, 2002. *World Health Report 2002*. Geneva: World Health Organisation.
- WORLD HEALTH ORGANISATION, 2003. *Health and Development through Physical Activity and Sport*. Geneva: World Health Organisation.
- ZIMABLIS, A., 2003. "Sport as business", *Oxford Review of Economic Policy*, Vol. 19, No. 4, pp. 503-511.