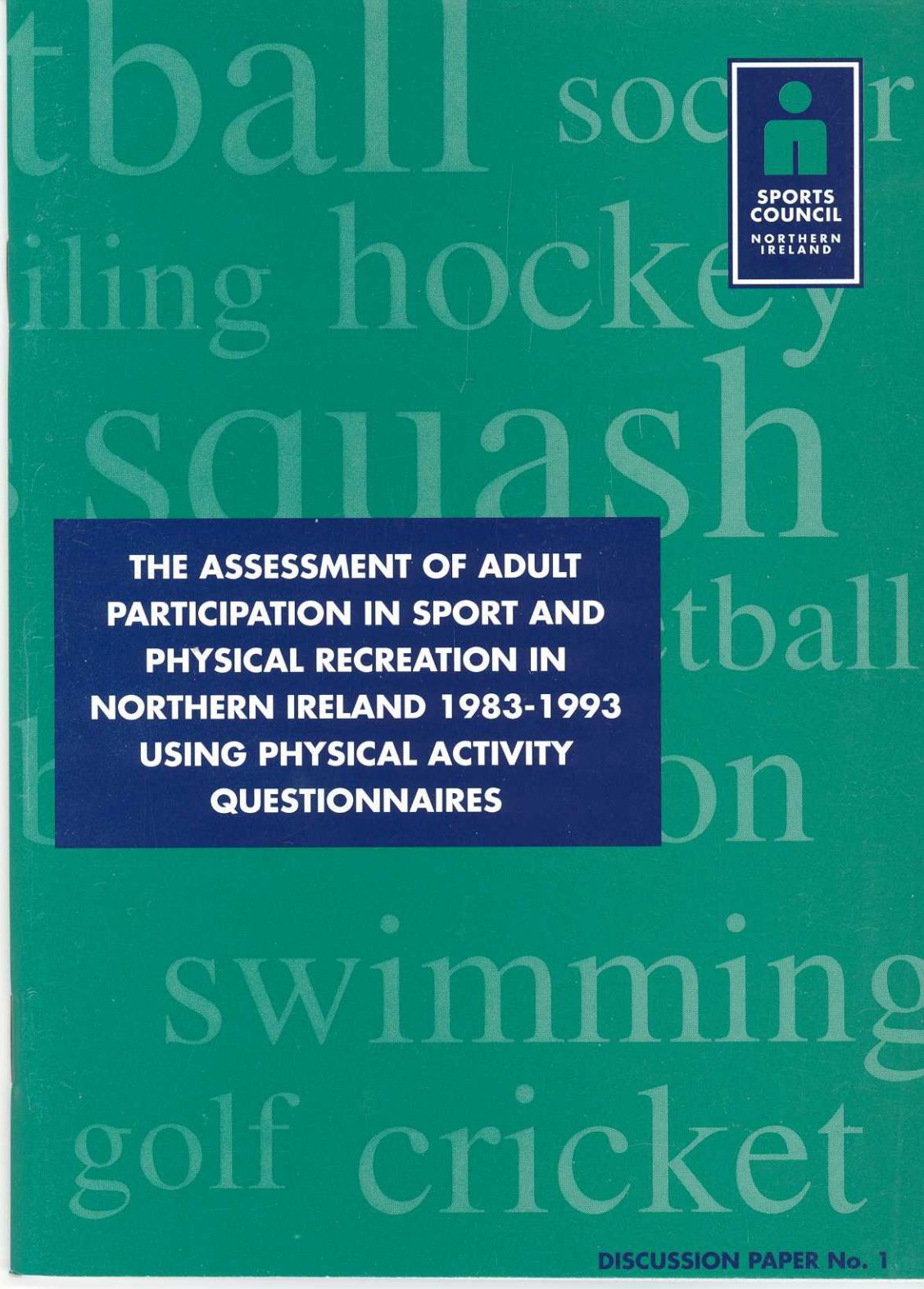

THE ASSESSMENT OF ADULT PARTICIPATION IN SPORT AND PHYSICAL RECREATION IN NORTHERN IRELAND 1983-1993 USING PHYSICAL ACTIVITY QUESTIONNAIRES

DISCUSSION PAPER No. 1

The Sports Council for Northern Ireland undertakes research into the development of sport in Northern Ireland. The Council commissions research of strategic importance as well as conducting evaluation and monitoring of Council policies.

The Council intends to disseminate research results to a wide audience using published reports, summary factsheets and audio-visual aids. Comments and discussion on reports and other publications is welcomed from all interested individuals and agencies.

The Council intends to publish future reports and discussion papers on:

Young People and Sport
Public Perceptions of Sport in Northern Ireland
Measuring the Development of Sport

THE ASSESSMENT OF ADULT PARTICIPATION IN SPORT AND PHYSICAL RECREATION IN NORTHERN IRELAND 1983-1993 USING PHYSICAL ACTIVITY QUESTIONNAIRES

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Any comments or queries regarding this paper are welcome. These should be directed to Dr Shaun Ogle, Research Officer with the Sports Council for Northern Ireland.

Sports Council for Northern Ireland

FOREWORD

One of the most frequent questions Sports Council staff are asked, is: "How many people 'play' sport in Northern Ireland"?, or "How many people 'take part' in such and such a sport"? Answers are provided from information collected by large scale surveys of the adult population, and this paper contains those published to date.

For many people, and understandably so, these types of questions will be perceived as the essential measure of the development of sport. That is, development occurs whenever a sport gains participants over a specified period of time. Growth, or increased numbers is equated with 'development'. However, to equate growth with development would be to accept a superficial notion of sports development. By implication, the quality of 'that' development or 'growth' is relegated to secondary importance. Once, however, quality is linked with quantity then there is a need to examine the measures used in terms of what they indicate about the development of sport per se.

Again, indicators that the health of people is improving as a result of involvement in sport and physical recreation, while important in making the case for investment in sport, have little to do with the development of sport per se. Despite this recognition, the balance of measurements has swung towards developing performance measures linking health and sport and away from sport itself. This paper provides a detailed examination of these measures.

Providing answers to questions of "how many do what" and "how often" involves complex procedures which are belied by the apparent simplicity of the questions. This paper reveals something of that complexity.

The paper is a contribution to the debate on measuring participation in sport and physical recreation. It examines thinking behind the surveys and focuses on the accuracy and appropriateness of information collected from the perspective of the Sports Council for Northern Ireland. Survey instruments used, the phrasing of questions and methods of eliciting responses are analysed and methodological difference and implications for future work drawn out. Published results from surveys are presented and analysed to paint a picture of the 'sporting participant' in Northern Ireland in the 1990s.

The paper closes by outlining one possible means of improving the accuracy and appropriateness of data collected, albeit from the perspective of the Sports Council For Northern Ireland. Explicit links are made between policy objectives for the development of sport and information which it is suggested is needed in order to indicate whether development is in line with objectives. Information requirements suggested lead away from an explicit concern with quantity and measures of the 'health of the nation' and towards the measurement of sports development itself.

INTRODUCTION

This is the first in a planned series of Sports Council for Northern Ireland Discussion Papers the aim of which is to inform, stimulate debate, and ultimately improve the development of sport by influencing, through the collection of good quality, appropriate and accurate information, strategic and operational management.

The assessment of adult participation in sport and physical recreation using physical activity questionnaires was chosen as the subject of the first discussion paper for a number of pertinent reasons:

Firstly: The Sports Council has as one of its overall policy objectives the encouragement of sport and physical recreation. Indeed, it has a statutory duty to encourage participation. It needs, therefore, to know something about how sport is developing and of the impact of policy, including its own, designed to encourage and increase participation. The Sports Council has commissioned research to help provide answers to these questions.

Secondly: Many other agencies in Northern Ireland are also active in promoting participation in physical recreation including The Department of Health and Social Services, individual Health Boards, Education Authorities, District Councils, The Health Promotion Agency and charitable bodies. In turn, many of these bodies have commissioned research on the number taking part in physical activity including sport and physical recreation.

Thirdly: Northern Ireland's population has been subject to almost two decades of continuous promotions designed to get more people to take more physical activity, including sport and physical recreation (Appendix 1). Since 1983 and in every following year, except 1985 and 1989, large scale surveys of the adult population have collected information about people's levels of physical activity including sport and physical recreation. The time is right, therefore, to review this research in terms of what the information actually shows as regards participation; its accuracy and utilisation or appropriateness for both policy formulation and assessment of the development of sport.

STRUCTURE OF DISCUSSION PAPER

The structure of the discussion paper is as follows. Section One is divided into three parts: Part One is a short general overview of surveys. Part Two presents a detailed review of seven survey instruments. Finally, Part Three takes a broader look at

methodological differences between the surveys and draws out some implications for future work. Section Two presents the main findings on participation in sport and physical recreation from the surveys. Section Three presents a framework for the development of sport with an attendant set of information requirements.

The paper is designed to show how thinking about the measurement of sporting and recreational participation has developed since 1983. The objectives of a survey largely determine the information to be collected, although limitations for whatever reason in survey design, equally curtail the usefulness of data collected or its power to say something about the phenomenon being studied. This paper is in no manner critical of any of the surveys undertaken. They have been designed with particular objectives in mind which in turn have a large bearing on information collected. The paper, however, does point up limitations in the utility of information collected as a result of the manner in which it was collected. This is a legitimate concern of all research.

PART ONE: GENERAL OVERVIEW OF SURVEYS UNDERTAKEN SINCE 1983

Table 1 shows large scale surveys of the adult population undertaken since 1983 which have included questions on participation in sport and physical recreation. A total of seven different survey instruments have been used covering 12 periods of measurement. None of the seven instruments used was solely dedicated to the measurement of sport and physical recreation. The Continuous Household Survey (CHS), the most accurate and long running instrument, collects information on a range of issues and is not devoted to sport alone. Other surveys carrying questions on sport and physical recreation have been premised on broader or more inclusive notions of physical activity. Sport and physical recreation represent only one form of this physical activity.

The Department of Health and Social Services, Department of Education and Sports Council for Northern Ireland have commissioned, in full or in part, 10 out of the 12 surveys. This is not surprising given each Department's similar respective interest in improving people's health by increasing the number taking part in physical activity.

On first sight many of the surveys listed in Table 1 appear analogous. For example, the frequency and type of activity undertaken has been recorded on 12 and 8 separate occasions respectively. Where an activity took place, its intensity and duration was recorded on 10, 6 and 5 occasions respectively. Again, methods of data collection appear similar with all but one of the surveys, the 1987 Change of Heart Survey, collecting information using structured questionnaires in face-to-face interviews in respondents' homes.

These apparent similarities, however, are far outnumbered by methodological differences. These differences, the substance of detailed analysis in Part Two of this section, place severe constraints on making any meaningful comparison of results across and between surveys. Some of the more apparent differences are also shown in Table 1. This is not to suggest that de facto there ever existed a basis for comparison. Rather it is to flag up dangers of a proclivity to make comparisons whenever like is not being compared with like. Superficial similarities, immediately evident through repeated use of the same concepts - frequency, intensity, sport, participation - creates the impression of the possibility of comparison, or ability to measure change over time. Closer examination of the different interpretations given these concepts, or the values placed on concepts in the context of survey objectives, reveals like is not being compared with like. For example: the age of population surveyed has variously started from 12, 16 and 18 years and over.

TABLE 1 — LARGE SCALE SURVEYS OF SPORTING PARTICIPATION AND PHYSICAL RECREATION IN THE ADULT POPULATION OF N IRELAND 1983-1993/94

YEAR DATA COLLECTED	SURVEY INSTRUMENT	COMMISSIONING AGENCY	MEASUREMENTS OF SPORT/ PHYSICAL RECREATION	METHOD OF MEASUREMENT AND POPULATION SURVEYED
1983	Continuous Household Survey	DENI/SCNI (1)	Type: Where undertaken; Frequency; Club M/ship.	Self Assessment by interviewer led questionnaire. NI population 16+.
1984	Continuous Household Survey	DENI/SCNI	Type; Where undertaken; Frequency.	Self Assessment by interviewer led questionnaire. NI population 16+.
1986	Continuous Household Survey	DENI/SCNI	Type; Where undertaken; Frequency.	Self Assessment by interviewer led questionnaire. NI population 16+.
1986/87	Diet, Lifestyle and health Survey	HPRT	Frequency; Intensity; Duration.	Self Assessment by interviewer led questionnaire. NI population 16+.
1987	Change of Heart Survey	DHSS	Where undertaken; Frequency; Intensity; Duration.	Self Assessment by interviewer led questionnaire. NI population 12-64..
1987/88	Change of Heart Baseline Clinical Survey	DHSS/WHO	Type; Where undertaken; Frequency; Intensity; Duration.	Self Assessment by interviewer led questionnaire. NI population 12-64.
1990	Lifestyle Survey	SHSSB	Frequency; Intensity.	Self Assessment by interviewer led questionnaire. SHSSB population 18-65.
1990/91	Continuous Household Survey	DENI/SCNII	Type; Where undertaken; Frequency.	Self Assessment by interviewer led questionnaire. NI population 16+.
1991	Sports Participation Survey (UMS Omnibus)	SCNI	Type; Where undertaken; Frequency; Intensity; Duration; Club Membership.	Self Assessment by interviewer led questionnaire. NI population 16-65.
1991/92	Continuous Household Survey	DENI/SCNI	Frequency; Where undertaken.	Self Assessment by interviewer led questionnaire. NI population 16+. (CAI)
1992	NI Health and Activity Survey	DENI/DHSS/ SCNI/CHSNI/ SP/HPA	Type; Where undertaken; Frequency; Intensity; Duration; History of involvement in activity.	Self Assessment by interviewer led questionnaire. NI population 16+. (CAI)
1993/94	Continuous Household Survey	DENI/SCNI	Type; Where undertaken; Frequency.	Self Assessment by interviewer led questionnaire. NI population 16+. (CAI)

Key to Commissioning Agencies:

DENI	Department of Education Northern Ireland
DHSS	Department of Health and Social Services
SCNI	Sports Council for Northern Ireland
WHO	World Health Organisation
HPRT	Health Promotion Research Trust
HPA	Health Promotion Agency
CHSNI	Chest Heart and Stroke Association NI
SP	Save and Prosper Educational Trust
SHSSB	Southern Health and Social Services Board
CAI	Computer Asssited Interview
(1)	Only the Sport and Leisure Sections of the CHS were commissioned by DENI/SCNI.

PART TWO: INDIVIDUAL SURVEYS

This paper, using only published sources, evaluates seven survey instruments which have contained questions on involvement in sport and physical recreation. The instruments reviewed are, the:

- Continuous Household Survey
- Change of Heart Baseline Clinical Survey
- Diet, Lifestyle and Health Survey
- Change of Heart Survey
- Lifestyle Survey
- Sports Participation Survey
- Northern Ireland Health and Activity Survey

In reviewing these surveys the intention is simply to gain an understanding of how involvement in sport and physical recreation have been measured, and how measurement has been refined and adjusted. It is recognised that most surveys were designed for purposes other than the measurement of the development of sport. Nevertheless it is important for the measurement of future development to examine the thinking behind the inclusion of questions on sport and physical recreation and to show how the Council's own thinking has and is developing.

It would be a laborious task for the writer and a tedious task for the reader to examine every aspect of every survey. In any case published documentation exists for each survey, to which the reader can refer, and is sourced at the end of this paper. Instead, key elements from each survey will be examined which have a critical bearing on data collected. For instance, Design; Was the survey continuous or a 'one off'? Sampling Method; Was this probability or non-probability based? Sample Size Achieved; Is this sufficient to answer questions asked of the data? Data Collection; Were prompt cards used? Response Rates; What were the number of usable returns? Questionnaire Content; What was asked of respondents' sporting participation and how were questions framed? (See Table 1, column 4 for a superficial comparison.) Through analyses of these questions, and in the light of changing emphases in policy, it will be shown that information which previously had been used widely in policy formulation is no longer, from a Council perspective, accorded the same priority. Section Three makes explicit changes which the Sports Council believes are necessary to gain a picture of participation in sport and physical recreation in the remainder of this decade and into the next century.

THE CONTINUOUS HOUSEHOLD SURVEY

The CHS is a continuous stratified simple random sample survey of approximately 1% of domestic properties in Northern Ireland, or about 4,500 addresses. The survey contains a number of different modules on a range of topics. Information is collected

by interviewers from households throughout the year and from the population aged 16 and over. The sample, which is drawn from the Rating Valuation List, yielded an effective sample of 4,066 addresses for the 1990/91 survey. 82% of co-operating households resulted in 5,854 responses from adults. Standard errors of 1.1-1.2% can be calculated for percentages of 32-74 on the total sample.

Questions about involvement in sport and physical recreation have been carried in the survey at irregular intervals and under variously named modules since 1983. The years were: 1983; 84; 86; 90/91; 91/92; 93/94. The module carrying questions was known as the 'Leisure Section' up until 1986 but became the Sports and Physical Activities Section in 1990/91, Sport and Entertainment in 1991/92 and Sports and Physical Activities again in 1993/94.

The CHS represents the only source of data on changes over the last 10 years in sporting participation by the adult population of Northern Ireland. Changes made to the phrasing of questions and method of eliciting responses have, however, resulted in the time series being broken. Only data collected as part of the 1990/91 and 1993/94 surveys is strictly comparable. The data for 1983/84/86 is not comparable with 1990/91. Data collected for 1983 is only strictly comparable with that for 1984 as both questionnaires asked about participation 'in the last 7 days' while the other surveys, including 1984, asked about participation 'during the last 4 weeks'. The 1983 survey also asked about participation 'nowadays'.

Table 2 shows changes made in question phrasing and methods of eliciting/prompting responses from interviewees between 1983 and 1993/94. Since 1983 there has been a methodological shift from eliciting responses unprompted, towards the prompting of responses mainly through the use of show cards listing sporting activities. For example, in 1983 an activity was recorded only if the respondent mentioned this activity. Cards listing sports were not shown to the respondents to prompt answers. By contrast, in 1984 the question on participation in sport and physical activities was not so specific as 'Do you do...'. Rather the interviewer asked about '...other things done in leisure time'. A specific instruction was given to the interviewer to prompt generally for participation in 'physical exercise'. Any activities mentioned were recorded. The interviewer then prompted further involvement through the use of a card listing sports and physical activities. These activities were then recorded.

In 1986 the procedure for eliciting responses changed again. This time no specific instruction was given to the interviewer to prompt for general involvement in sport and physical activities before specifically prompting involvement using a list of sports shown to the respondent. In contrast to 1983 and 1984 the '...other things done in leisure time...' question carried in 1986 included activities undertaken on holidays.

The 1990/91 survey introduced three further changes. Firstly, the notion of participation in sport was explicitly broadened to include 'training, coaching and refereeing'. Interviewers were instructed to prompt respondents to 'pick up' these activities. Secondly, specific questions were asked about participation in walking, swimming, soccer, and bowls. Thirdly, data was collected on people's participation during the previous 12 months. Respondents were prompted about their participation using a list of 41 sports and physical activities. Although respondents were asked whether they took part in the sports shown either indoors or outdoors, the distinction was not maintained in design of the questionnaire whenever responses were recorded.

These changes may appear relatively minor. However, simply changing the activities listed on an aide-memoire card or show card, for example by including activities which respondents may not have thought of as sporting activities, can have a major effect on responses. The 1990/91 CHS used show cards which were much expanded on the aide-memoire cards previously used in the 1986 survey. These changes were introduced in line with changes made in the General Household Survey undertaken in Great Britain. Methodological change was premised on a need to avoid the possibility of 'missing' sports people took part in. In short, the Sports Councils placed an emphasis, albeit implicit, on the number/quantity of participation rather than on the quality of that participation. As such, changes were consistent with the thinking at that time. Increases in the number participating in sport between 1986 and 1990/91 are in part the result of this methodological change. Determining that 'part' is extremely difficult.

Matheson (1987) has examined the effect of changes in methodology on responses to questions on participation in sport between versions of the General Household Survey. She concludes that "the introduction of the prompt card and the use of other methodological changes increased the overall number of sports activities mentioned by clarifying to all informants the activities to be included" (1987:9). There is no reason to believe that the CHS operating in Northern Ireland is any different in this respect.

The phrasing of questions and the manner in which responses are prompted aside, there are some dominant themes running through nearly all the CHSs undertaken. For example, with the exception of 1991/92 all other surveys recorded the type of sport and physical recreation participated in. A vast number of different activities have been recorded. However, given the relatively small number of people contacted by a general survey of the type of the CHS, the fact that 'sport' is composed of a number of activities played by relatively small numbers of people, and the resulting small effective samples for each sport, this information is of little value. Part Three of this section discusses this issue in more detail and raises questions about the utility of continuing to ask these questions.

TABLE 2 — SPORT AND PHYSICAL ACTIVITY QUESTIONS CARRIED IN THE CHS: CHANGES IN QUESTION PHRASING AND METHOD OF ELICITING RESPONSES 1983-1993/94

YEAR OF DATA COLLECTION	QUESTION	METHOD OF ELICITING RESPONSE
1983	Do you do any physical exercise or play any sports nowadays? Do you belong to any sporting club or association even as a non-playing member? How many times did you exercise or play sport altogether in the last 7 days? Did you go to a leisure or sports centre in the last 7 days even if only to watch or meet friends? Specific question on type of sport watched at any venue.	Those answering yes were asked what the activity was and this was recorded. Walks over 2 miles were regarded as exercise and prompted.
1984	What other things have you done in your leisure time in the 4 weeks ending last Sunday? Did you take part yourself or were you just watching. Specific question on swimming outdoors and walking. On how many days did you (activity) in the 4 weeks/last 7 days ending last Sunday? Did you swim using a public swimming pool? Was activity done indoors or outdoors? Do you belong to any sporting club or association as a playing/non playing member?	The interviewer was instructed to prompt for any physical exercise or sports as part of a look at what people did generally in their leisure time. Each activity was then recorded. Respondents were then specifically prompted using a show card with X sports and asked if they had done any: these activities were recorded.
1986	What other things have you done in your leisure time (or on holiday) in the 4 weeks ending last Sunday? Specific questions on walking, swimming. On about how many days did you do (activity)? Was activity done indoors or outdoors?	Same as 1984 with question on physical activity/sport forming part of broader look at use of leisure time but this time no specific prompt for general involvement in sport was used as in 1984. Specific participation in sports prompted as in 1984 using show card.
1990/91	I am now going to ask you some questions about some physical activities that you may have taken part in. Specific question on walking with prompted distances and number of days walked for 4 weeks and 12 months. Specific question on swimming/soccer/bowls did you play last 12 months/4 weeks and number of days in 4 weeks, and whether indoors or outdoors. Going back to/still in last 12 months, did you take part in any of the sports or physical exercises shown on these cards either indoor or outdoors? Same question for 4 weeks and number of times in 4 weeks recorded.	Interviewers instructed that participation by respondents could include training, coaching and refereeing. Specific checks on distances walked, swimming, indoor, outdoors and number of days spent swimming. Respondents prompted on 41 sports participated in during last 12 months, and 4 weeks.
1991/92	In the last 12 months, have you taken part in any of the sports or physical exercises shown on this card indoors? Question repeated for outdoor sports. Question repeated for 4 week period and whether indoor or outdoor sports.	Participation includes, training, coaching, refereeing. Prompt card of sports used. No specific activities were recorded.
1993/94	As 1990/91	As 1990/91

The frequency with which someone engages in an activity has been measured for the four week period prior to interview in all surveys except 1983, when the period referred to the previous seven days. In 1990/91 a twelve month reporting period was introduced alongside the four week period. Information on the frequency of participation has only ever been infrequently published.

The location of activities has also been variously recorded. Information on participation in leisure or sports centres (1983), public swimming pools (1984), indoors or outdoors (1984/1986/1990/91/ 1991/92) has been collected. The indoor/outdoor distinction was not always maintained in the design of questionnaires. Only the 1983 and 1984 CHSs recorded information on adult membership of sporting clubs and associations.

CHANGE OF HEART BASELINE CLINICAL SURVEY

The 'Change of Heart Baseline Clinical Survey' 1987/88 was an extension of previous MONICA (1) surveys carried out within the administrative boundary of the Eastern Health and Social Services Board. The Survey is designed to be repeated and to be able to detect important changes in risk factors associated with coronary heart disease.

A stratified random sample, by age and sex, was drawn from patients registered with General Practitioners throughout Northern Ireland. A total of 5,230 respondents aged between 12 and 64 were 'screened' and an overall response rate of 58% achieved. Careful consideration was given to the characteristics of non-respondents to ensure the minimum of 'bias' in the sample achieved. Overall the sample was representative of the population of Northern Ireland within the age bands specified.

Respondents were 'screened', a process that included being interviewed on a range of questions concerning health. The final section of the interview was concerned with physical activity. Of all the questions asked, only 7 out of 183 were directly related to sport and exercise. The questionnaire was administered in Health Centres, Clinics, and General Practitioners' Surgeries although it is not clear from the published report who actually carried out the interviews. Contact with those aged under 16 years was made through the parent or guardian.

Table 3 summarises sport and physical recreation questions carried on the 1987/88 survey. As in the 1983 and 1984 Continuous Household Surveys a 7 day recall period was used for exercise and sporting participation. The questionnaire contains no specific prompts as to what might be interpreted as exercise and/or sport, although respondents were prompted to specify the type of exercise taken. Those answering 'Yes' to taking exercise may also have answered 'Yes' to spending time participating in sports. The implied distinction cannot be determined from the questionnaire, and whether respondents made any distinction is not known.

(1) Multinational MONItoring of trends and determinants in CArdiovascular disease.

TABLE 3 — SPORT AND PHYSICAL ACTIVITY QUESTIONS CARRIED IN LARGE SCALE SURVEYS OTHER THAN THE CHS: QUESTION PHRASING AND METHOD OF ELICITING RESPONSES 1986-1992

YEAR OF DATA COLLECTION	QUESTION	METHOD OF ELICITING RESPONSE
1987/88 Change of Heart Baseline Clinical Survey	During the past 7 days have you taken any exercise? Specify exercise taken at work, in leisure time/intensity. Did this physical activity make you perspire or short of breath? Duration measured in minutes per week. Do you spend time on sporting activity? Type of sport, specify period undertaken during year, and intensity — slowly/briskly/vigorously/ maximally. What is greatest distance you have ever run/jogged in a day in last 3 years?	No specific instructions/prompts given on questionnaire used. No explicit instruction on difference between exercise and sport.
1986/87 Diet, Lifestyle and Health Survey	In the past week, on how many occasions were you engaged in light/moderate/strenuous physical activity for more than 20 minutes?	A card showing examples of light, moderate and strenuous activities was used to prompt responses. Sport and physical recreational activity came under moderate and strenuous categories. Competitive and training sessions under the strenuous category.
1987 Change of Heart Survey	The following questions are . . . concerned with physical activity outside the normal working day. In the past week, on how many occasions were you engaged in light/moderate/strenuous physical activity for more than 20 minutes each time? Have you exercised or undertaken some physical activity in a multi-purpose sport and leisure centre in the past 12 months?	Self completion booklets distributed with lists of physical activities of a light/moderate and strenuous nature used, identical to the 1986 Diet, Lifestyle and Health Survey. Prompt for recreation centre, sports centre.
1990 Lifestyle Survey	On average, how often do you undertake vigorous sport or recreational activities which make you breathless? On average how often do you undertake less vigorous sport or exercise in your normal activities? Scale of never to every day of week used with vigorous and less vigorous activity.	Prompt using show card with examples of jogging, aerobics, football, swimming. Prompt using show cards with examples of going for a walk, yoga, golf, gardening using show card.
1991 Sports Participation Survey	Which of the following outdoor/indoor sports and activities have you taken part in within the last 4 weeks? How many times within the last 4 weeks have you taken part in (activity)? Intensity recorded using sweat/breathless scale. Thinking about the most recent activity, how long do you usually (activity)? Have you visited a sports or leisure centre to participate in sport in last 4 weeks? Are you currently a member of a sports club? Are you one of your club's officials?	Show cards listing 57 sports used to prompt responses. Excludes travel, dressing time. Scale of 30 minutes to 5 hours used. Show card used to prompt role within club.

TABLE 3 — SPORT AND PHYSICAL ACTIVITY QUESTIONS CARRIED IN LARGE SCALE SURVEYS OTHER THAN THE CHS: QUESTION PHRASING AND METHOD OF ELICITING RESPONSES 1986-1992 (Continued)

YEAR OF DATA COLLECTION	QUESTION	METHOD OF ELICITING RESPONSE
1992 NI Health and Activity Survey	Specific questions on walking and cycling. Now I'd like to ask you to think about any sport or exercise activities . . . you've done during the past year . . . During the months that you (activity) how many times a month on average did you do it? Questions repeated for 4 week period and length of time and intensity recorded using sweat/ breathless scale. Questions on history of participation in sport and comparison with current (1992) activity levels.	Prompting for distance and time walked and cycled. Booklet containing activities shown to prompt responses. Check for other sports and activities by interviewer. Prompts using key points in life (age left school) and booklet showing list of activities.

In line with the survey's objective of detecting changes in risk factors associated with coronary heart disease respondents were asked about the intensity and duration of their participation. In particular, respondents were asked whether exercise caused them to perspire or be short of breath, a proxy measure of health 'benefiting' exercise. Whether activities were undertaken in work and/or leisure time was also recorded.

Time spent on exercise and sporting activity was recorded in minutes per week. Additionally, an annual assessment of involvement in sport was recorded by whether or not the respondent took part all year round, in the Summertime, or Wintertime. The type of sporting participation was recorded.

DIET, LIFESTYLE AND HEALTH SURVEY

One of the objectives of the Diet, Lifestyle and Health Survey 1986/87 was to investigate relationships between dietary intake and health status. A stratified random sample of the population aged 16-64 achieved an effective sample of 616 respondents or a response rate of 77%.

Data was collected using 7 fieldwork assistants - students recruited from a local university - all of whom received training in respondent identification using the Kish method of randomly selecting an individual from each household. This formed the second stage of a two stage sampling method, the first being the selection of a household using the Rating Valuation List. The main report of the survey details the comprehensive training received by fieldwork assistants and the methods employed to gather data including questionnaires, diaries and blood samples.

A small section of the survey measured occasions of light, moderate and strenuous physical activity lasting more than 20 minutes during the previous week. Show cards giving examples of activities rated as light, moderate and strenuous were used to prompt responses. Sport and physical recreational activities were given as examples in all three categories. For example bowling and sailing were included in the light category, cycling to and from work, swimming, jogging, golf and cricket in the moderate category, and basketball, competitive cycling and swimming and training for strenuous sports in the strenuous category.

While all given examples of strenuous activities were sports, some moderate activities included non-sporting activities such as 'heavy do-it-yourself' and 'disco-dancing'. Therefore, although all three categories contained examples of sporting activities, only those people who categorised their activity as strenuous can be regarded solely as sports participants.

As with the early Continuous Household Surveys and the Change of Heart Baseline Clinical Survey a 7 day recall period was used. However, unlike the CHS which did

not ask about the length of time spent exercising or participating in sport, or the Change of Heart Baseline Clinical Survey which recorded any time spent exercising or participating in sport, the Diet, Lifestyle and Health Survey only measured participation lasting twenty minutes or more.

CHANGE OF HEART SURVEY

The Change of Heart Survey was undertaken in 1987 to provide a baseline picture of the attitudes and behaviour of people aged 12-64 regarding their health. A constraint placed on the survey was the need to provide data for each of the four area Health Boards in Northern Ireland. Identical sample sizes were drawn for each Board using quotas based on a market research company's 'sampling stations' throughout Northern Ireland. Through 'pseudo-random sampling' 50 households were chosen from 120 sampling stations selected - 30 in each Health Board. This method ensured a representative geographical spread, a pre-requisite of the survey.

In essence the survey is a non-probability sample with weighting procedures introduced (see below) to allow for failures in the quota control system after data has been collected. The source of the established data used to re-weight the responses is not given in the published volume 1 of the report.

In many non-probability samples there is not a pre-determined sample and hence the concept of non-contacts is not applicable. However, in the case of the Change of Heart Survey, a record of all residents in a household was kept. However, there is no published analysis of non- respondents' reasons for not returning the questionnaires. This methodology may create a problem of overestimation of participation. The number taking part in sport may be inflated as non-respondents may be those more likely to be least active/interested in sport.

On contacting a household the interviewer attempted to interview the head of household, then left a self-completion questionnaire booklet for each of the residents aged 12-64 to complete. A total of 10,461 booklets were distributed and 5,863 (56%) returned. This poor response increases the probability of bias in non - response. Thus, responses were weighted to match the known population structure of each Health Board and then as a second stage in weighting, to match the Northern Ireland population as a whole.

The use of self completion questionnaires reduces the degree of 'quality control' which can be delivered in a face-to-face interview. The relatively poor response obtained is perhaps a reflection of the lack of contact with the interviewee who, for reasons not described, failed to return the questionnaire.

Questions on involvement in sport and physical recreation carried in the Change of

Heart Survey were identical to those carried in the Diet, Lifestyle and Health Survey of 1986/87. The only differences were in the wording of the Change of Heart Survey which referred to physical activity outside the 'normal working day', and because of the self completion nature of the questionnaire lists of activities were typed onto the questionnaire and not given on a show card. In total 72 questions were asked about lifestyle and diet of which only 3 related to sport and physical recreation. A series of supplementary questions, largely to do with attitudes to exercise, were given to a part of the original sample - other respondents were given questions on smoking, food and alcohol. One of these questions asked about involvement in indoor sport in recreation centres, although unlike the 1983 and 1984 CHS, usage referred to the previous year rather than a 7 day or 4 week period.

LIFESTYLE SURVEY

The 1990 Lifestyle Survey was a random sample of 1.5% of residents aged 18 years and over in the Southern Health and Social Services Board drawn from the Northern Ireland 1991 electoral register. An overall response rate of 67% was achieved. Analysis of non-respondents and a comparison of response achieved against the population of the Board, derived from the 1990 estimate of population based on the 1981 Census, showed the sample to be representative.

The questionnaire carried 91 questions of which only 5 related to exercise and sport. Respondents were interviewed at home by trained interviewers. Aside from three questions on attitudes towards exercise and sport there were 2 questions directly addressing sporting and exercise behaviour. In common with the Change of Heart Baseline Clinical Survey the concept of 'out of breath' as a proxy measure of intensity of exercise was used. Examples of activities causing breathlessness were used as prompts to elicit responses. The intensity of physical recreation and sporting involvement was measured using the concepts of 'vigorous' and 'less vigorous'. Only the Change of Heart Baseline Clinical Survey had previously used the concept 'vigorously', although in a more limited sense as a proxy description for intensity of sporting behaviour. Both the Diet, Lifestyle and Health and Change of Heart Survey used a threefold proxy measurement of intensity based on light, moderate and strenuous activity.

In common with the other surveys reviewed, lists of activities qualifying as vigorous/ less vigorous behaviour were used to elicit responses. Only sporting activities such as jogging, aerobics, football and swimming qualified as vigorous exercise. Vigorous exercise was defined as that causing breathlessness. Less vigorous sport and exercise included gardening, going for a walk and yoga. This broader conception of exercise is in line with the survey's attempts to measure activity in general, and not just involvement in sport and physical recreation.

Frequency of involvement was measured using a scale ranging from every day of the week, one to three days per month, less than one day a month, to never. This scale enables comparison, response rates permitting, with other surveys measuring involvement on a weekly and four weekly basis.

SPORTS PARTICIPATION SURVEY

Although referred to as the Sports Participation Survey 1991, questions pertaining to involvement in sport and physical recreation were inserted into a quarterly omnibus survey of individuals aged 16 and over. The survey is based on a non-probability sample of approximately 1,000 adults per quarter. The survey carried the most comprehensive set of questions relating to sporting participation of any survey undertaken in Northern Ireland up until 1991. However, a limited budget constrained design and restricted sample size, and ultimately the accuracy of results.

Given that a record of non-respondents was not kept, no assessment can be made of the response rate. Moreover, sampling errors cannot be calculated. Data was collected in four waves throughout 1991 to reflect the seasonality of sporting participation. These data were then consolidated for the year. A total of 4,412 completed returns represented the achieved sample size collected by personal interview using a structured questionnaire. In its design the survey shares many of the methodological limitations associated with the 1987 Change of Heart Survey.

Information was collected on the frequency, intensity, duration, and type of sporting participation. Membership of sports clubs was recorded along with the percentage of people using leisure centres for sporting purposes. Frequency of participation referred to a four week period, intensity to an activity which caused breathlessness and/or sweating and duration to the length of time spent on an activity excluding travel and changing time. Participation indoors or outdoors was also recorded.

Participation in sport was prompted using show cards listing 57 different sporting activities. Information on positions of responsibility held within sporting clubs was elicited using a show card listing various club roles, for example secretary, treasurer and coach. Specific instructions were written on the questionnaire in order that interviewers recorded answers in line with the definitions used by the sponsoring agency. For example, club membership excluded membership of darts, billiards and snooker clubs.

THE NORTHERN IRELAND HEALTH AND ACTIVITY SURVEY

The main objective of the Northern Ireland Health and Activity Survey was to provide comprehensive data for the population of Northern Ireland on physical activity undertaken while at home, in work, and during sport and physical recreation. These

data are then related to information on fitness levels measured by a combination of self assessment and anthropometric and physiological testing. For example, aerobic fitness was measured using a treadmill to approximate walking on the flat and up a slight gradient. The survey, which it is intended to repeat, is designed to measure levels of physical activity in general. It is not a dedicated survey of participation in sport and physical recreation.

The survey used a two stage stratified probability sample. Stage one involved the random selection of 1,600 addresses from the Rating Valuation List. The sample was stratified by Belfast, East of Northern Ireland and West of Northern Ireland to ensure a representative geographical coverage. Stage two, involved the use of the Kish method to randomly select one person from each household for detailed interviewing. Finally, the sample was weighted to allow for variation in household size. A representative sample was achieved with an overall response rate of 70% or 1,020 completed interviews. An examination of the characteristics of non-respondents shows that they did not invalidate the representative nature of the sample.

Data was collected using Computer Assisted Interviewing with the interviewer directly 'keying in' data in the presence of the interviewee. Parameters within which answers should fall were pre-set in order to limit the possibility of abnormal results. Interviewer prompts were also stored on the computer based questionnaire.

Tables 1 and 3 summarise questions carried on the survey. Specific questions were asked about walking and cycling including distance, intensity, and number of occasions. A Sports and Exercise Activities section focused on the type of activity undertaken. A card listing activities was used to prompt responses. The number of activities undertaken in a 12 month period and the average number of times per month each activity was undertaken, was recorded. Duration of involvement was measured in hours and minutes, and intensity by whether or not the activity caused breathlessness or sweating.

Past participation in sport and exercise activities from age 14 was recorded using prompts pertaining to changes in people's lives, for example, the age when someone left school. The survey carried approximately 120 questions of which only 12 were directly related to sport and exercise.

PART THREE: METHODOLOGICAL DIFFERENCES: A COMPARATIVE IMPASSE AND IMPLICATIONS FOR LARGE SCALE SURVEYS MEASURING PARTICIPATION IN SPORT

Part Two of the discussion in Section One detailed differences between individual surveys. Part Three closes the section by drawing together some broader themes emerging from the review of individual surveys.

SURVEY DESIGN

In terms of design some surveys have been 'one offs', for instance, the Change of Heart Survey. The Continuous Household Survey has been repeated many times and the intention remains to repeat others, for example, the Health and Activity Survey.

Within each survey designs differ radically. The Sports Participation Survey collected data in a series of quarterly 'sweeps' of the adult population, while the CHS collects data on a month-by-month basis. The Health And Activity Survey data was collected over an eight month period from February to October using Computer Assisted Interviewing. The Change of Heart data was collected, using self completion booklets, between March and May of 1987. These design variations affect response rates and the ability to check the accuracy of results.

For example, in the case of the Sports Participation Survey, adding the phases of repeat 'sweeps' together in order to produce average annual estimates of participation is not without drawbacks. One likely outcome is that a non-participant could be counted more than once when perhaps they have later been a participant. It cannot be assumed that answering a question in one month of one quarter represents participation in each of those months. When combined with non-probability sampling (see below) accuracy suffers. It should be borne in mind, however, that it is often constraints on resourcing large scale surveys - money, expertise, and time available, which results in the unfortunate inhibiting necessity of methodological compromise.

SAMPLING FRAME

The majority of surveys reviewed used some form of probability sampling. Simply expressed, this means that the probability of selecting someone is known, or can be determined, or that individuals selected for a particular survey are chosen and not someone else. Sampling errors can be calculated. Surveys using non-probability sampling such as the Change of Heart and Sports Participation Survey, and which use general population based quota controls cannot accurately relate the sample to the phenomenon being studied, in this case sports participation. Quotas are limited because a person is selected to meet the quota, or 'fill' a particular category, for example a male aged between 16 and 19. Should someone refuse to answer, the interviewer

moves on to another person until the quota of males aged 16-19 is met or 'filled'. It matters little who is chosen other than that person fulfils the quota control. Omnibus surveys which are designed to provide data for a number of different sponsoring clients can compound this difficulty because of the need to elicit information from different populations or audiences.

Quota based samples are also limited as regards measuring the prevalence of behaviour. Using repeat surveys and adhering to strict quality controls ensuring comparability, still cannot ensure that measurements are made without bias. They still will not allow the calculation of error in samples selected. Moreover, similarity of results between different surveys, especially those based on non-probability random sampling, must be interpreted cautiously especially if used in planning. (See Table 4 in Section Two). Flagging up similarities between results from different surveys using both probability and non-probability sampling, for example the 1986 CHS, the 1987/88 Change of Heart Baseline Clinical Survey and the 1991 Sports Participation Survey, is "to toss straws into the wind" (Joint Centre For Survey Methods: 1993) and to disregard defining the precision and certainty of results. In short, apparent order or similarity is down to chance - the way the straws have fallen - and is not premised on design. There is absolutely no relation or scientific basis for comparison.

INTERVIEWEE 'FATIGUE'

The design of omnibus surveys, including those using random probability sampling, may be such as to introduce 'interviewee fatigue'. For example, the sport and physical recreation questions making up the Sports Participation Survey were only one series of questions asked of people. The same is the case for questions carried on the Continuous Household Survey. It is not known at which point in the interview the sports questions were asked of respondents within the omnibus survey, but if they came at the end of a long interview this may affect accuracy of response. As regards the CHS, control on possible 'fatigue' is exercised through a limit on the questions in each section. To measure the 'fatigue factor' accurately would require a separate study. The possibility of 'fatigue' could be reduced either through a dedicated sports survey, or by having fewer questions on existing surveys, for example, by eliminating or at least reducing the long lists of sports currently used on surveys (see Section Three).

SAMPLE SIZE

The size of sample used in sports participation surveys is important in two respects. Firstly, in common with all other large scale surveys it is a major factor affecting sampling errors. In turn, this will impact on the degree of accuracy which can be afforded to results. Secondly, if the objective is to collect information concerning a range of individual sporting activities and examine real changes outside of sampling

error within these activities over time, which implicitly was the rationale behind the Sports Council wishing to retain lists of sports, then the order of sample needed could be extremely large. Certainly existing surveys in Northern Ireland are, because of their general nature, too small for all but the most popular sports - those played by at least 5% and over of the population - to be used to measure change in this manner. By implication, therefore, the usefulness of recording lengthy lists of people involved in a plethora of different sports is questionable.

Badminton with a participation rate of 2% of the adult population, or 23,285 participants (1990/91 CHS) can be used to illustrate this argument. If the objective of collecting information on badminton is to detect the rate of change in the proportion and number playing badminton then the minimum level of increase or decrease to be detected needs to be made explicit. For example, to detect a 10% change in the number playing badminton, from say 2%-2.2% means being able to detect changes of approximately 2,330 between surveys.

In order to detect change at this level would require a sample, based on simple random sampling, of around 40,000. Most sports in Northern Ireland are played by less than 1% of the adult population. To ensure a meaningful level of accuracy in measuring changes would therefore require a large investment of resources. The usefulness of such data - Why does an agency require this information? - would need to be paramount before such investment was made. (See section three). Given that data on individual activities collected in Northern Ireland is largely of little meaningful use, swimming data collected as part of the CHS excepted, raises the question of the rationale underpinning persistence of attempts to differentiate between every sport using 'lists of sports'.

More constructively, it may be possible to measure change in those sports in which 10% or more of the adult population take part. Measuring change of the order of one tenth in such sports would 'only' require a sample size of the order of 10,000. Section Three develops this argument further. There it is suggested that attempts to estimate change in the number and proportion of those participating in every individual sporting activity is not feasible and indeed unnecessary as a measurement of the development of sport.

SECTION TWO

SURVEY FINDINGS: WHAT THEY INDICATE ABOUT PARTICIPATION IN SPORT AND PHYSICAL RECREATION IN NORTHERN IRELAND.

The intention in this section is to present a broad synopsis of results from the surveys, rather than detailed findings from every survey. A more detailed analysis of results can be found in the forthcoming Policy Planning and Research Unit's report of the Continuous Household Survey (1994), a chapter of which presents results pertaining to participation in sport between 1983 and 1990/91, and in the published reports of each survey.

Results are presented under the following headings: The population participating in sport and physical recreation; Age; Gender; and Social Class of participants; other variables known to have an effect on participation; Frequency; Intensity; Duration of participation; and Type of activity; some further measures of participation; Location of activities and club membership. These classifications and categorisations of people and behaviour are used here as they are those most commonly appearing in published results.

Grouping results in this manner is not without irony given the discussion in Section One which highlighted irreconcilable differences between surveys. However, as long as comparisons are not inferred, the individual surveys, complete with caveats, represent the best and only picture currently available of adult participation.

THE POPULATION PARTICIPATING IN SPORT AND PHYSICAL RECREATION

Table 4 shows that until 1990/91 a minority of the adult population, around two fifths, took part in sport and physical recreation. In 1990/91 the CHS showed, for the first time, that a majority of the adult population (57%) had done at least one of the sports activities, including walking, shown on the prompt card at some time in the four week period prior to being interviewed.

A crucial question concerning the sharp increase in participation suggested by these figures is: How much of this change is behavioural and how much of it is due to methodological alterations? The use of a more inclusive notion of participation, coupled with specific questions on walking, increases the chances of capturing more people participating. It is likely, moreover, that the proportion of the population participating over a twelve month period will be greater still than that for a 4 week period.

Excluding walking, arguably not a sport in any case, considerably reduces the overall

proportion participating. For example, the 1990/91 CHS proportions decrease by 17% from 57% to 40% (PPRU Monitor 1/92). Similarly the 1991 Sports Participation Survey showed a drop from 42% involved in any sport to 36% involved in any sport excluding walking 2-5 miles, darts, billiards and snooker.

AGE OF PARTICIPANTS

All the surveys reviewed clearly show participation in sport and physical recreation to be age related. Participation decreases with age. For example, the 1986 CHS shows that whereas over two thirds (68%) of 16-19 year olds had taken part in sport, less than half (48%) of the 30-44 age group, and only a fifth (20%) of those 70 or over had participated in the four weeks prior to interview (1). Intensity of participation also diminishes with age (see below).

GENDER OF PARTICIPANTS

As with age, there is a clear association between sports participation and gender. Table 4 shows that men are more likely than women to have participated in sport and physical recreation, albeit that there are differences in the sports they did. CHS data show there to have been considerable increases in both male and female participation. The proportion of males participating has increased from just under a half (49%) in 1984 to approximately two thirds (65%) in 1990/91. Female participation has increased, and at a slightly higher rate than male participation, from 32% in 1984 to 50% in 1990/91(1). Until 1990/91 only approximately one third of women took part in sport.

The Change of Heart Baseline Clinical Survey also showed a strong association between participation in sport and age and gender. For example in 12-15 year olds, almost 9 out of 10 boys (86%) and 8 out of 10 girls (78%) were involved in exercise. However, in the 16-24 age group there was a considerable drop in participation to 6 out of 10 men (58%) and 5 out of 10 women (46%). An implicit broad conceptualisation of exercise is used which could include sport and physical recreation.

The Sports Participation Survey found a gradual decline in participation from around 7 out of 10 young people (73%) aged 16-19 to approximately 2 out of 10 (16%) people aged 65 years and over. The Survey also found that men were three times more likely (26%) to be members of sports clubs than women (7%).

SOCIAL CLASS OF PARTICIPANTS

Social class is variously defined throughout the surveys. Market research companies use an ABCl, C2, DE classification, the CHS uses socio economic groups and the

(1) Communication with PPRU

TABLE 4 — COMPARISON OF PUBLISHED RESULTS FROM LARGE SCALE SURVEYS OF SPORT AND PHYSICAL RECREATION UNDERTAKEN IN NORTHERN IRELAND

SURVEY INSTRUMENT	SPORT AND PHYSICAL RECREATION/EXERCISE			% OF SPORT AND PHYSICAL RECREATION PARTICIPANTS PRESUMED TO BE PARTICIPATING AT AN INTENSITY BENEFICIAL TO THEIR HEALTH		
	TOTAL	% PARTICIPATING MALE	FEMALE	TOTAL	% PARTICIPATING MALE	FEMALE
CHS						
1984	40	49	32	+	+	+
1986	44	53	37	+	+	+
1990/91	57	65	50	+	+	+
1987/88 CHANGE OF HEART BASELINE SURVEY	42	48	36	20	23.5	16.5
1986/87 DIET, LIFESTYLE AND HEALTH	—	45	31	—	24	7
1987 CHANGE OF HEART	+	+	+	22	16	3
1990 LIFESTYLE SURVEY	—	39	32	—	21	17
1991 SPORTS PARTICIPATION SURVEY	42	53	32	36	36	37
1992 HEALTH AND ACTIVITY SURVEY	—	52	45	13	21	6

Legend:
– = % not published or base not given for calculation of total.
+ = not measured.

Change of Heart Baseline Clinical Survey a distinction between non-manual, manual and unemployed. Whatever the classification used, all surveys show an association between social class and participation, although it is not as strong as the associations shown for age and gender.

The Sports Participation Survey found that over half (51%) of those classed as ABC1 participated in sport, compared to just one third (33%) of those in the D and E classes. The Change of Heart Baseline Clinical Survey found differences in participation in sport among non-manual males (53%) and females (35.5%) and unemployed males (37%) and females in manual occupations (19%).

Further analyses could be undertaken, effective sample sizes permitting, on the association between social class or socio-economic group and sporting participation. For example, it may be possible to examine consolidated CHS data for the years 1983-1993/94 to see if increased participation in specified sports has only been among those in the higher professional and non-manual classes. For instance: Are the increasing proportions of the population participating in individual pursuits, such as cycling, swimming, and keep fit, representative of all people irrespective of class? Again, is the growth in billiards, snooker, pool and golf, recorded by the CHS, being experienced by people from all social classes? This is important given the promotion of the 'Sport For All' ideal by the Sports Council and others.

OTHER VARIABLES KNOWN TO HAVE AN EFFECT ON PARTICIPATION

Worldwide research on sporting participation over the last 25 years has shown variables other than age, gender and social class to be significant in limiting or providing opportunity to participate. Among these variables are car ownership or access to a car, educational attainment, ethnic identity and the number of children per household.

In Northern Ireland, only limited analyses have been undertaken on these variables. For example, the Change of Heart Baseline Clinical Survey found a 'highly significant' (1990:140) association between sporting participation and access to cars. The Health and Activity Survey (1993) has also shown an association between non-involvement in vigorous or moderate activity by 16-34 year olds, much of which is sporting activity, and lower educational attainment. There remains a considerable amount of further research to be undertaken using these variables and others before a more definitive picture can be presented.

FREQUENCY OF PARTICIPATION

Measurements of the frequency, intensity, and duration of participation are commonly accepted proxy indicators of potential 'health gain' for the population. More accurately, proxy measurements made in most surveys of physical activity have to do with dynamic

aerobic exercise which in turn is normally indicated by participation in sport and physical recreation. Although not made explicit, most of the surveys are seeking to record the potential 'training effect' of this kind of activity. That is, they are seeking to identify that proportion of the population likely to benefit its health as a result of participating in various types of exercise including sport and physical recreation.

Allied with this notion of health gain, are the attendant notions that activities have to be performed at a certain level of vigour over a long enough period of time. This is commonly understood at three times per week for at least 15-30 minutes, and 'briskly' enough to raise heart and breathing rates. Identifying those people taking part in sporting activities is a crude indication of the proportion of the population likely to be benefiting its health, more particularly health measured in cardiovascular terms. (Measurements of intensity and duration of participation will be discussed below).

Aside from the more obvious indication of the health of the population inferred from frequency of participation, frequency can also be a guide to use made of facilities. Knowing the average number of times someone participates indoors could prove useful in recommending future levels of provision.

The CHS has measured frequency as the number of times in a four week period someone took part in sport and physical recreation. Results, however, have not been published. The Change of Heart Baseline Clinical survey only measured frequency of involvement in sporting activity in general terms - Round the Year, Summertime, Wintertime. Results have not yet been published. Involvement in exercise was measured according to whether someone had undertaken it in the last 7 days. However, the number of occasions in the last 7 days was not recorded. The Health and Activity Survey has recorded details of frequency. Results will be available in early 1994.

The 1991 Sports Participation Survey found participants took part in the following indoor sports more than four times in a four week period, or approximately once a week: swimming; circuit training/ keep fit; aerobics; multi gym/fitness training. Outdoor sports taken part in more than four times in a four week period were: soccer; golf; cycling; jogging. The Lifestyle Survey recorded the frequency of exercise taken using a scale of 'never', '1-3 days per month', '1-3 days per week', to '4-7 days per week'. Only 4% of men and 3% of women exercised on 4-7 days per week. Equal proportions (14%) of women exercised either 1-3 days per month or 1-3 days per week. The corresponding proportions for men were slightly higher at 19% and 16%. Only small proportions of men (21%) and women (17%) participated at least once a week in vigorous exercise.

The Change of Heart Survey measured the number of occasions of participation per week. Of the 44% of the population undertaking moderate exercise - golf, jogging, tennis - the majority did so on 1-2 occasions per week. For the 22% of the population

involved in strenuous exercise - Competitive sports - 13% did so on 1-2 occasions per week.

INTENSITY OF PARTICIPATION

The discussion on frequency of participation has already touched upon the notion of intensity . In total, 6 of the 7 Survey instruments have attempted to measure intensity, the most accurate being the Health and Activity Survey. Results will be available in 1994.

The Diet, Lifestyle and Health Survey using a scale of light, moderate and strenuous activity found approximately a quarter of men 24% and only 7% of women taking strenuous activity . The Change of Heart Survey which used an identical scale found 22% of the population aged 12-64 took strenuous exercise, lasting for more than 20 minutes, of which 16% were men and only 3% women .

The Lifestyle Survey, Sports Participation Survey, Change of Heart Baseline Clinical Survey, and Health and Activity Survey measured intensity of participation on a scale of 'not out of breath' or 'sweating' to 'breathless' and/or 'sweating'. The Lifestyle Survey found 21% of men and 17% of women exercised at an intensity causing breathlessness, whereas The Sports Participation Survey found a greater proportion of the population 36% exercising at this intensity. The Change of Heart Baseline Clinical Survey showed a fifth (20%) of the population aged 12-64 exercising at a level of intensity causing sweating or breathlessness. Again, in common with the other surveys, with the exception of the Sports Participation Survey, men (23.5%) were found to exercise at a greater level of intensity than women (16.5%).

DURATION OF PARTICIPATION

Duration has been included as a measure of participation largely because of the 'at least 20 minutes 3 times a week health benefiting rule'. The most comprehensive examination is contained within the Health and Activity Survey, but like the Change of Heart Baseline Clinical Survey published data are not available. The Change of Heart Survey results on duration are included in the discussion of intensity as only activity lasting for more than twenty minutes was recorded.

The Sports Participation Survey found that a small majority (52%) of those participating in their 'main sport' did so for less than one and a half hours. Duration was found to be associated with gender. Whereas 5 out of 10 men (49%) participated for less than one and a half hours on each occasion, this figure rose to 7 out of 10 women (72%). Duration of participation was shorter for indoor sport, with 7 out of 10 participants (71%) doing so for less than one and a half hours in comparison to outdoor sport were only 4 out of 10 (41%) did so. The duration of participation was

also found to be associated with age. Older people spent more time participating than younger people, although at much reduced levels of intensity.

SOME FURTHER MEASURES OF PARTICIPATION

The foregoing discussion, it could be suggested, has had more to do with attempts at measuring potential health benefits accruing to participants in sport and physical recreation than with the development of sport per se. Section Three will expand upon this question of what it is that those involved in the development of sport should perhaps be measuring in order to demonstrate development.

There are, however, other data gathered as part of the surveys reviewed which illustrate something of the development of sport. These data indicate where activities took place, the proportion of the population who are members of sports clubs, and the type of activity undertaken.

LOCATION OF ACTIVITIES

5 out of the 7 surveys collected information on the location of activities, more particularly whether done indoors or outdoors. Published figures, however, are only available from the Sports Participation Survey. A slightly greater proportion of the population was found to take part in indoor based activities (30%) than outdoor activities (26%). For those participating in indoor (16%) and outdoor (12%) sports only the bias was repeated.

Combining the location of an activity with the gender of participant shows a strong association between men and outdoor activities (36%) as compared with women (16%). A similar association, although not as marked as that for outdoor sports, was found among indoor participants with 37% of men and 24% of women involved at least once in the four weeks prior to interview. Interestingly, whenever participation in indoor sport only is examined equal proportions of men and women (16%) participate.

The 1991 Sports Participation Survey found that only 3 out of 10 adults (27%) had ever taken part in sport in a leisure centre. The data also suggest that usage of centres is marginally higher among men and those classed as ABC1s.

CLUB MEMBERSHIP

Only 3 surveys have recorded data on club membership, the 1983, and 1984 CHS and the 1991 Sports Participation Survey. Published results are available only for the latter 2 surveys.

The 1984 CHS found just over 1 in 10 adults (13%) to be playing members of sports

clubs. The 1991 Sports Participation Survey found 16% of adults claiming membership of a sports club, excluding darts, billiards and snooker clubs, with a third (33%) members of more than one club. Men were three times more likely (27%) to be members than women (7%), and there was an association between social class and membership with 22% of members from social classes ABCl, 16% from C2 and only 10% from DE.

The picture of the 'sports club member' in Northern Ireland in the mid 1990s, and not inconsistent with that for participants in sport in general is: male and from a higher social class.

TYPE OF ACTIVITY

Not withstanding the difficulties referred to in Section One of this paper, one of the most frequent questions asked of the Sports Council, among other agencies, is: How many people play this or that sport? or, How many people are involved in such and such a physical activity? For many, and understandably so, these types of questions will be perceived as the essential measure of the development of sport. Implicit within these questions is a notion of development based on quantity. That is, if sport or physical recreation x or y gains participants over a period of time, then it is showing 'development' as it has 'grown'.

While this is obviously the case it is nevertheless only one measure of development and, it could be suggested, a narrow perception of development based on a crude notion of quantity. The implication is, following this line of thought, the more people participating the better. At first glance this appears a powerful argument. However, accepting it would be to hold to a superficial notion of sports development which implicitly denies examining anything to do with the quality of that participation. Section Three will discuss this issue in more detail, and suggest other, more qualitative, measures of development.

The type of sporting activity taken part in has been recorded by 4 out of 7 surveys. Excluding walking, the only sport or physical recreation in which more than 1 in 10 (12%) of the adult population participate is swimming.

Data from the CHS 1983-1990/91 indicate that increased proportions of adult participants have largely been in individual activities: swimming, cycling, keep fit, golf, and walking. The only team sport to have experienced a growth, from the data published, is soccer. However, and as discussed in Section One, large scale surveys currently operating in Northern Ireland are not designed to detect change in what are often minority activities.

SECTION THREE

CONCLUSIONS AND A FRAMEWORK GUIDING FUTURE INFORMATION REQUIREMENTS

This discussion paper has attempted to do two things. The first is to comprehensively review, for the first time, attempts to measure participation in sport and physical recreation in Northern Ireland using large scale surveys. The second, using only published results and a 'broad brush' to cover methodological difference, paints a general picture of the sporting participant in the mid 1990s in Northern Ireland.

Several key points emerge from the review of surveys, more particularly the methodologies employed:

— There has not been a dedicated survey of adult participation and/or involvement in sport and physical recreation, even allowing for the Sports Section within the CHS and Sports Participation Survey which was but one module within an omnibus survey.

— Aside from the two surveys mentioned above, the principal objectives of surveys have been 'health related'. Questions have been included on participation in sport and physical recreation and participation measured using health indices.

— Measurement has largely been about the 'state' of people's health and not about the development of sport.

— Frequent changes in instruments of measurement combined with different sampling frames severely restrict comparability of results and compound the already considerable difficulty in measuring differences in rates of participation which are behavioural and not methodological.

— The dominant or favoured measures of participation in sport have been and continue to be behavioural and not attitudinal.

Published results from the surveys show a proclivity for the sporting participant, in the mid 1990s in Northern Ireland, to be:

— Someone who is relatively well off, from a higher social class or socio-economic group, male, young, possibly a car owner, with above average educational qualifications, participating on average once or twice a week for about an hour and a half on each occasion.

— Of those participating only around a quarter do so at an intensity likely to confer some 'health gain'.

DEVELOPING A FRAMEWORK: APPROPRIATE INSTRUMENTS AND MEASUREMENTS

For those involved in planning for the future development of sport, the accuracy and appropriateness of information is of paramount importance. Apposite information is largely determined by some form of theoretical framework, strategy, or plan. The attendant aims and objectives of any such framework provide a basis on which to measure success, assuming objectives are given measurable expression.

A fourfold theoretical framework - sports development continuum provides the rationale for the Sports Council for Northern Ireland's range of developmental programmes. The framework has four components: Foundation; Participation; Performance and Excellence. Only participation, providing opportunities enabling people to take up an activity, and performance, providing opportunities for those participating to 'improve' their ability to do an activity, are relevant to this discussion paper.

The Sports Council, in conjunction with its parent department Education, has decided to measure the success or efficacy of policies and programmes designed to provide opportunities for people to take up and/or improve in sport and physical recreation by:

the extent to which voluntary participation by the population increases in both frequency and quality.

This begs the question: Are current instruments and measures appropriate? The short answer to this question is 'No'. However, it depends on which information is regarded as appropriate. This paper will close with a brief discussion of one possible suggestion for an accurate survey instrument, and a more detailed discussion of indicators currently being developed and used to measure the 'extent' of change in frequency and quality of participation.

ACCURACY OF DATA

This part of the discussion draws on ongoing work involving the Joint Centre For Survey Methods and Sports Councils in the UK who are examining instruments and measures used to assess the development of sport. Research Officers from the Sports Councils in Wales, Scotland, England and Northern Ireland are currently working towards agreeing standardised definitions and questionnaires to facilitate comparative

measures of performance. The intention is to establish a more meaningful set of measures, collected through large scale surveys, of direct policy relevance to the work of the Councils and its partners. Section One of this paper has already discussed accuracy of data with regard to non-probability sampling and the feasibility of measuring change in individual sporting activities. Probability sampling will be necessary to ensure future accuracy, especially when the objective is to measure change over specified periods of time. Persistence with the notion that measuring sports development is only about measuring changes in participation in individual activities will necessitate the generation of very large samples, probably of the order of 40,000 adults, at concomitantly great expense.

Is the recording of change in individual sports or physical activities of overriding importance? Are there not other more analytic measurements which could be made, and which would result in more manageable sample sizes? Could a compromise be used, and only those sports with a known participation rate of 10% and over be recorded? If the latter option was accepted, and there is an argument expressed earlier in this paper (pps 22-23) favouring this option, then the Continuous Household Survey may provide an instrument capable of providing accurate and appropriate data.

A sample of the order of 8-10,000 would deliver accurate data for participation rates of 10% and upwards. The CHS currently contacts approximately 4,500 households. Issuing a self completion questionnaire to all co-operating households could realise, given an average household size in Northern Ireland 2.91 (PPRU Monitor 1/92) a sample of around 9,000. (JCSM Unpublished report for UK Sports Councils 1993:12).

The CHS is an appropriate instrument. Using stratified simple random sampling, it allows sampling errors to be calculated and affords a high degree of accuracy to results. Resource considerations including finance and time for reporting, would largely determine whether aspired levels of accuracy became achieved levels of accuracy.

In short, given certain adjustments, the CHS could potentially fulfil the requirement for an accurate instrument measuring participation in sport and physical recreation. Not a dedicated sports survey, it nevertheless probably represents the most accurate instrument in the absence of this ideal.

One possible drawback in the use of the CHS, assuming that agreement on adjustments could be reached, is the move to computer-assisted personal interviewing (CAI), which removes the need for administered paper questionnaires. Using some form of postal questionnaire issued to other adults in selected households could realise a much larger sample, but be costly and introduce an element of inaccuracy due to non-response. Nevertheless it is suggested that the risk involved is still acceptable and that potentially the method offers a means of satisfying a need for accuracy.

APPROPRIATE MEASUREMENTS

An amended mode of triennial data collection based on the CHS may well offer the best option as regards accuracy of data collection. However, even allowing for the achievement of boosted sample sizes, it is suggested that information currently being collected is not that which is necessary for measuring the development of sport in Northern Ireland in line with the policy objectives of the Sports Council.

Before outlining current thinking on suitable indicators it is necessary to contextualise Sports Council thinking in terms of the many agencies involved in the development of sport. Suggestions made below as to what information is 'appropriate' are those of the Sports Council, and may well not be shared by every agency.

An overall theoretical framework or strategy has not been negotiated for the development of sport as a whole in Northern Ireland which may allow commitment to measurement of that development, possibly using Sports Council derived measures. The sports development framework referred to above (p34) is that agreed between the Sports Council and the Department of Education Northern Ireland. Negotiated commitment exists for these agencies, but broader agreement among all agencies exists for the development of sport in part only, for example, through the Sports Council's Young People and Sport Strategy.

These agreements have been arrived at through a recognition by the Sports Council that it alone cannot possibly hope to achieve 'its' policy objectives, and that chances will be improved by securing, through negotiation, the commitment of significant others. In turn, this will raise questions as to the appropriateness of information being used to measure the 'extent' of shared desirable development.

The implicit age old notion underpining these agreements is that planning is an effective means of allocating and making best use of limited resources. In the current absence of an overall framework for Northern Ireland as a whole, assuming that there existed a need and willingness to progress such, this paper discusses indicators being developed and used to measure the 'extent' to which the desired outcome for developing participation, agreed between The Sports Council and Department of Education, is being attained.

This agreed framework defines the scope and appropriateness of information requirements. That is, only information necessary to show the 'extent' of development is collected. The result has been a radical and innovative re-think of information requirements.

The Sports Council's Policy Objective One lays stress on increasing committed participation in sport and physical recreation particularly among young people aged

7-18. The ultimate outcome from this objective will be evidenced by increases in the frequency and quality of voluntary participation, frequency and quality being proxy indicators of commitment. Baseline measurements of attitudes and behaviour of young people involved with sport are currently being collected. The aim is to develop a common set of indicators for both young people and adults. Discussion of the measurement of adult participation, the concern of this paper, is here limited to behavioural indicators of commitment.

Increasing commitment will be indicated by the proportion participating in sport and physical recreation on a regular basis; the proportion of participants who are club members; the proportion of participants receiving some form of instruction; and the proportion involved in some form of competitive activity.

The total number or proportion of the population regularly participating is not a new measure. Frequency or regularity of participation is defined as the number of days/ occasions of participation per week and in a four week period. The 'have you done any activities in the last twelve months' measurement is not seen as necessary and in any case only serves to give the appearance of increased participation.

Quality of participation will be measured using behavioural proxy indicators of club membership; instruction; and competition. Those participants who have joined a club, and are playing members, have through the action of joining explicitly indicated a willingness to improve at their particular sport. Very often clubs confer benefits not widely available, for example access to different levels of coaching and other forms of instruction. Clubs can also offer greater opportunities to take part in formally arranged competition. Participants getting involved in competition are also indicating a commitment to improve their quality of participation.

These data requirements at first sight appear similar to those previously collected and described in Section One. For example, questions on frequency of involvement have been asked in almost every large scale survey undertaken. It is important to continue to ask about frequency as it is an indicator, albeit a crude one, of commitment.

Questions have never been asked, however, about the level or kind of instruction received. For example, has someone received tuition from a qualified/unqualified instructor/coach; practised on a regular basis; or bought videos, manuals or other materials in a desire to improve. Those coaching or administering within sport have been included as participants, but those participating have never been asked about the kind of instruction received, or any means they have used in an attempt to improve at their sport.

Questions about competitive sporting activity have never been asked. The proportion of those involved in competition can be derived indirectly from those claiming club

membership, but this is a crude measure if a distinction between playing and non-playing member is not maintained. Levels of competition will have to be clearly differentiated.

The changes made in question phrasing and methods of eliciting responses during the 1980s, at least in the case of the CHS, suggest quantity of participation was an important determining notion for the Sports Council. The 'more we can get taking part the better'. Relaxing the definition of participation resulted in increasing proportions of the population being able to class themselves as participants.

In the 1990s, with an explicit emphasis on quality, targets set for increases in participation still reveal an interest in quantity, but this time such increases are clearly articulated within an agreed strategic framework where quality is accorded an explicit high priority.

Absent from the list of information requirements are measurements to do with 'health gain'. Intensity or duration of involvement have to do with the business of health, not sport, although it is recognised that improvements in public health is a major rationale for investing public money in sport, as well as being for many people a motivating factor for participating. (Sport and Health will form the subject for a future discussion paper.)

Questions on the location of activities could be used as an indication of the frequency or demand for participation in indoor leisure or sports halls. Such information would prove useful in future facility planning at a strategic level.

The utilisation of data collected on participation in sport and physical recreation during the 1980s was limited, in part, because of the absence of an explicitly agreed framework articulating information and development. The agreed framework or strategy between the Sports Council and Department of Education for the development of sport in the 1990s clearly articulates information requirements and development objectives.

The establishment of a baseline picture in line with developmental objectives will enable targets to be set for committed voluntary participation by all the population. Data is currently being collected for young people aged 7-18. If the measurements outlined above prove reliable, and an accurate method of data collection is established, then a picture of participation for adults, in line with that for young people, will be produced.

Without undertaking large scale surveys of the adult population and collecting the kind of data outlined above, there will be no reliable means of setting targets or being able to say other than in vague terms that change has occurred. This paper has suggested a more radical agenda for future work, not a recipe, in which the context from which

surveys are derived is intimately bound up with the use of results from those surveys in that same context. As such, surveys are not ends in themselves.

This paper has attempted, in part, to go back to the theory or notions upon which surveys have been predicated and to contextualise those surveys. For example, many surveys were generated from a concern with health onto which sport and physical recreation questions were grafted. In this way sport became lost in the search for definitive answers about benefits to the nation's health. The paper will have been a success, at least for the author, if it causes the reader to reflect as to whether the answers are always provided by 'doing the survey'. Rarely do surveys provide 'Yes' and 'No' answers. Rather they very often raise as many questions as they answer. Some questions raised in this paper, and which the Sports Council would welcome debate on, are:

Is it sufficient to continue to measure participation in sport and physical recreation simply by asking whether or not someone has done one of maybe 50 sports?

Are the alternative measurements suggested herein seen as appropriate by agencies other than the Sports Council for measuring participation in sport?

How capable are large scale surveys of providing the answers required to measure the development of sport?

The picture of the sporting participant in the 1990s in Northern Ireland presents policy makers at all levels with many challenges in terms of effecting equity of opportunity and in making Sport For All a reality for more than just the privileged in Northern Ireland. Is it possible to 'extend' participation across the social classes and reduce the gender gap or are structural barriers overwhelmingly determinant in deciding future sporting participants?

APPENDIX ONE

Development of Exercise/Physical Activity and Health Initiatives in Northern Ireland 1977-1992.

DATE	INSTRUMENTS USED	OBJECTIVE
1977-1982	Fun days Swimarounds Marathons Fun Runs Sportstown Family Participation	Get more people to become more active as means to improved health.
1983-1988	Multiple running/ jogging events Marathons Exercise Challenges Walk days	As above
1989-1991	Lifestyle Challenges Exercise groups Inter City Challenges	As above

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