



Young People's

**participation
in sports
and
recreational
activities,
and
associated
injury.**

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Executive Summary

The Centre for Allied Health Research (Uni SA) in conjunction with Sports Medicine Australia (SA) undertook a major research project in 1996-7 to establish previously unavailable baseline information on young people's knowledge of, attitudes to and participation in sport and recreational activities and the prevalence of associated injuries.

Several reports have been generated from this information, which have been or are envisaged to provide a basis from which to develop strategies to educate young people, their parents, coaches teachers and sports medicine professionals. Each of these reports has been geared specifically to the focus group so this abstract will concentrate on information that will be of interest to the medical community be it a specialist or general practitioner.

To date, most data on adolescent recreational or sporting injury in Australia has been collected at emergency clinics in acute care hospitals, specialist multidisciplinary medical clinics or injury centres at major sporting events. In these settings data collection focuses on severe injury and/ or those considered to require a medical opinion. They provide information neither about major injuries for which no medical opinion is sought nor about "minor" injuries which do not require medical opinion but may incur an opportunity cost. (Opportunity costs may include the adolescent or parent potentially losing time from school or work or the other adolescent being unable to enjoy other recreational, sporting or social activities because of the injury.)

All injury regardless of severity, has the potential to impact on future participation in recreational activities, particularly if it is persistent and /or reduces the adolescents enjoyment of the activity. In order to describe the rate and extent of the injuries, this study set about to use a population based data set gathered from adolescents themselves with appropriate measures to validate recall and the seriousness of the injury put into place.

100 metropolitan Adelaide schools (60 primary 40 secondary) were randomly selected to be part of the study. 72 schools supported the study with 3,538 students taking part in the survey. (A further 363 SAPSASA students data was also collected but has been analysed separately). In the data set, 8997 participations were reported (2.5 per student) which resulted in 3,191 injuries to specific body parts, constituting an overall rate of one body part injured for every three participations.

There were 20 sports and recreational activities with more than 100 reported participations. These activities were used in all subsequent investigations in this report as they reflect 75.6% of all of the activities students reported being engaged in during the previous week. The list reflects distinctly recreational activities, organized sport with rules and administration and some activities which could fall into sport or recreation depending on the way in which they were undertaken.

Young people reported an average of 5.6 hours of participation in recreation or sporting activities in the week prior to the survey. The fact that some of these activities (eg ice skating, surfing and horse riding) do not appear on the most common activities list indicates small groups of dedicated enthusiasts.

Students described the level of participation in either competition/ practice / Physical Education / for fun or other categories. Most activities were undertaken for fun with a small percentage as competition. It was pleasing to note that rather than drop out of activity as previous studies suggested, older adolescents (especially girls) turned their focus from more organized competitive sports to fun recreational activities, in which they could participate with their friends.

There was a significantly higher risk of Year 7 students injuring themselves when compared to Year 10 students.

Significantly elevated risks of injury were found in Australian Rules Football, Basketball, Hockey, Martial Sports, Netball, Roller skating and Soccer. Significantly low risks were found for Bicycling, Dance, Golf, Jogging/Running, Tennis, Volleyball and Walking.

The majority of injuries reported in the study were not serious. The most frequently injured body parts were the knee (14.1% of all injuries) and the ankle (12.9% of all injuries) Mechanism of injury included bumping into someone, falling, landing badly and tripping. Indirect mechanisms were more common in sports / activities such as Dance, Jogging, Netball and Hockey. Boys had higher prevalence of direct mechanisms in knee injury such as falling, landing badly, and hitting another player. Serious injury to the lower limb appeared to be associated with jumping, pivoting and landing sports. It was also interesting to note the large number of reported aches and pains of the lower limb, particularly by girls. The frequency of this reporting suggests potential for insidious onset and growth related joint problems. Identification of such problems as Osgood Schlatters Disease or Chondromalacia Patella will prove important as will the examination of the lower limb joints and basic taping procedures as an injury countermeasure. Further research into the teaching of good landing techniques is also warranted.

Injuries were investigated with regard to participation levels with the assertion that the more intense a students involvement the more likely an injury would occur. This was true of all the traditional sports but for 8 of the activities more than 20% occurred during the "for fun" category. This was especially the case in biking and walking.

It was pleasing to note that 89% of students reported having learnt about sport safety. Teachers coaches and parents were the primary source of this information. The newly developed SMA (SA) website www.smartplay.net and SMARTPLAY CD Rom should allow all of these important educators and adolescents themselves the opportunity to access fun educational material aimed at further reducing the level of sporting and recreational injuries.

The overall perception of young people's recreational activity provided by this report in that most young people surveyed were physically active. They participated in organised sports, and also in leisure time activities with family and friends. While injuries were common, they were mostly minor. The findings suggest that encouragement to remain physically active should accompany a broad range of physical activities which can be continued as young people get older and have to adjust to increasing pressures on their time. Information on injury management should also be provided so that young people can assume responsibility for injuries that occur when no adult is present.

Purpose of this report

This report provides summary data from the survey:

'Young People's Participation in Sports and Recreational Activity, and Injury sustained from it'

undertaken by Karen Grimmer, Patricia Trott, Jenny Williams and Lisa Holland during 1996-7. This was a collaborative project between the Centre for Physiotherapy Research, Uni SA, and SA Branch Sports Medicine Australia. Denise Jones and Quinette Louw were students on the Masters Coursework program, School of Physiotherapy, Uni SA during 1997 who undertook data analysis and reporting with respect to the ankle and knee, and who developed a module of the internet site www.smartplay.net based on their findings.

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1. PROJECT OVERVIEW

This report deals with the findings of a study undertaken in South Australia during 1996-7 on recent adolescents participation in sports and recreational activity, and on the prevalence and nature of injury sustained from it.

1.1 Background

Adolescents aged 11-12 years (Year Seven, final year primary school) and 15-16 years (Year Ten, third year high school) were selected for the study, because the literature suggested that they were in critical decision-making age ranges for ongoing participation in recreational physical activity (Sale 1991, Van Mechelin et al 1996). Educational practice in South Australia supports this, as in most primary schools in South Australia, physical education classes are compulsory, and students are given some exposure to regular physical activities and skills. In most high schools, however, physical education classes are not compulsory and young people choose in their early teens to continue (or not) with active involvement in recreational physical activity.

Little is known about adolescent participation rates in sports and physical activity in Australia. Over the last decade, the choices Australian young people have made regarding the way they spend their leisure time have been increasingly influenced by changes in a number of areas: compulsory participation in school sport, occupation and educational opportunities after leaving school, the organisation and availability of community-based sporting activities, and family life. These changes have increased the difficulties of collecting participation data from representative samples of young people.

The accuracy of adolescent self reports of participation and injury may also be influenced by recall bias. A common method of confirming the accuracy of information provided by children is to check with knowledgeable adults. However, teachers and/ or coaches, who have previously been considered appropriate validators of children's reports of physical activity (Kowalski et al 1997, Saris et al 1980), may be less and less able to verify the extent to which today's young people participate in recreational activities, because of the range of informal/unsupervised recreational activities being undertaken. Collection of valid and comparable participation data also involves the use of standard definitions, standard wording of data items and standard time frames (Finch et al 1995). The recognised lack of the first two issues in an Australian setting is currently being addressed by the development of an Australian sports injury data dictionary (Finch 1997). However, there has yet to be any agreement regarding the appropriate time frame for data collection: whether a prospective study that collects ongoing information on day-to-day recreational activities, but which can be plagued by high costs and rates of attrition, is preferable to a retrospective study which is less expensive but provides, at best, summary information hindered by recall bias. In view of the high cost associated with collecting population-based data, a retrospective study presents a persuasive alternative; however, the time period which incurs the least inaccuracies in retrospective assessment has not been conclusively established for either adults or children. There is increasing support in the literature for the seven day recall period (Baranowski 1988, Kowalski et al 1997, Sallis et al 1993), and this time period was employed in this study.

To date, most data on adolescent recreational injury in Australia has been collected at emergency clinics in acute care hospitals, specialist multidisciplinary medical clinics or injury centres at major sporting events (Finch et al 1995). In these settings data collection focuses upon severe injuries, and/or those that are considered to require a medical opinion. They provide information neither about major injuries for which no medical attention is sought, nor about minor injuries which do not require medical attention, but which may incur an opportunity cost. Moreover, such injuries have probably not been considered in estimations of real and opportunity costs of injury from sporting and other recreational activities (Egger 1990) yet they may have a significant impact on participation rates and ongoing commitment to the activity. Opportunity costs include the adolescent and parent potentially losing time from school or work, or the adolescent being unable to enjoy other recreational or social activities because of the injury (McLeod 1987).

Regardless of the site where it occurs, collection of information on recreational injury incurs some form of interpretation and/or reporting bias (Sackett 1979). The location of injury is usually self evident, either in a medical or self-reporting sense. However, the mechanism of injury, its nature and severity can be influenced by bias. In a medical emergency clinic, the attending health practitioner records a differential diagnosis and prognosis by interpreting the adolescent's and/ or attending adult's recall of the mechanism and presentation of injury. The validity of such an approach is based on the assumption that health practitioners are better qualified than adolescent patients to diagnose the

nature of the injury. However, reports of the mechanism, the presentation and the severity of the injury by the person who sustains it incurs recall and/or interpretation bias, irrespective of whether the report is being given to a health professional or as retrospective self-reporting, such as in a questionnaire. All injury, regardless of its severity, has the potential to impact on adolescents' future participation in recreational activities (Sale 1991), particularly if it is persistent, and/or reduces the adolescent's ongoing enjoyment of the activity (Report from US Surgeon General 1995). In one of the few Australian population-based studies to examine the prevalence and nature of injuries sustained by young Australian adolescents during sporting activity, it was estimated that 54 percent of respondents sustained at least one recreation-related injury in the preceding six month period (Alcock et al 1996). Several studies that have examined adolescent attitudes to regular participation in recreational sporting activities identified that up to eight percent of adolescents 'drop out' annually because of injury occurrence or simply the fear of it (Fun, Sport and Action Report 1995, Sale 1991). Injury-related attrition of adolescents from recreational exercise has implications for both adolescent and adult health and fitness in Australia (Bonjour et al). The potential loss of adolescent participants to regular recreational exercise because of injury deserves further investigation so that appropriate health promotion and injury-prevention strategies can be implemented. In order to describe the rate and extent of these injuries, population-based information needs to be gathered from adolescents themselves, with appropriate measures to validate recall and seriousness of the injury. This project undertook such a study, and this report provides a range of information about adolescent participation in sports and recreational activities, how, where and with whom the activities were undertaken, and the injuries sustained from the activities. Additions to this report will be produced as further analysis is undertaken. This report is an addendum to the website www.smartplay.net, developed collaboratively between Sports Medicine Australia (SA Branch) and Centre for Physiotherapy Research, Uni SA.

2. METHOD OF DATA COLLECTION

Ethics permission for this study was obtained from the Human Research and Ethics Committees of both the University of South Australia and the Department of Education and Adolescents' Services (DECS), South Australia (recently renamed The Department Education, Training and Employment).

2.1 Data instrument

The written questionnaire, developed specifically for this study, was based partly on the wording and intent of two retrospective surveys conducted during 1995-96. One of these surveys was administered to amateur sports participants in South Australia with a one week recall period (Williams et al 1996), while the other was administered to adolescents in New South Wales schools with a six month recall period (Alcock et al 1996). The content, design and wording of the data items in the questionnaire was developed with input provided by an expert reference group consisting of a paediatrician, two sports physiotherapists and a graphic designer, the designers of the South Australian and NSW studies, and personnel in the research unit at the Department of Education and Children's Services (DECS), South Australia. The questionnaire is provided as Appendix 1.

2.2 Pilot study

A pilot study was conducted to test the accuracy and consistency of recall of young people in reporting participation in sports and recreational activities, and the injuries sustained from them. The pilot study provided the opportunity to validate the questionnaire items with both adults and adolescents.

2.2.1 Subjects

Seventy-five young people in six Adelaide state schools (three primary, three secondary) were surveyed twice within three weeks during December 1996. Pilot subjects were in the same age groups as subjects in the large study, i.e. 11-13 years, and 15-16 years. The participating schools were sampled conveniently, by the willingness of principals and class teachers to participate in the study. There was no reason to suspect that the students in these schools differed from any other, in their ability to recall participation in recreational activity. Written parent consent was required before students could participate, and on the consent form parents agreed to validate one set of their child's responses. Parents were chosen as the most appropriate source to test inter-rater reliability, because previous studies into adolescent sport participation in South Australia (Sale 1991, Fun, Sport and Action 1995) identified the high frequency of participation in non-organised recreational activities, which would be known only by the child and parent.

2.2.2 Time frame of testing

The questionnaire was administered twice by teachers or project staff during the first three weeks of December 1996. Since school time was used to capture the student sample, and December (being the end of the Australian school year) imposes greater than usual constraints on the use of school time, it was not possible for project staff to dictate the exact time period between the two administrations of the questionnaire. Parents were telephoned within one week of the date on which one set of their child's responses was obtained, to verify their child's nominated recreational activities, the frequency of participation and the circumstances in which they had participated. The parent interviews were conducted until Dec 24th, 1996.

2.2.3 Reliability of recall

Reliability of recall was examined in two ways: as test-retest reliability and inter-rater reliability. Test-retest reliability was determined by comparing the two sets of young people's responses, and inter-rater reliability was derived from comparison of young people's responses with those of their parents/care givers. Analysis was undertaken in the manner described by Armstrong et al (1992) and Fleiss (1981).

a. Test-retest reliability

From the two sets of data provided by the children, matched information on recreational activities, and the circumstances in which those activities were undertaken, was expressed as per cent agreement. Each match was assigned a perfect score, and partial agreements were scored as proportions of the score. Multiple Analysis of Variance procedures using continuous exposure measures in two way random effects models were generated to determine overall agreement, and the effect on agreement of gender and year level. Intraclass correlation coefficients were calculated from the ANOVA output. Up to three recreational activities could be reported by young people, and as these activities could be reported in a different order on the two occasions of testing, a coding system was devised in an attempt to further explore the per-respondent agreement. Complete agreement in all nominated activities (irrespective of ordering) on the two occasions of testing was assigned a perfect score, and fractional agreement was allocated where the activities reported on two occasions of testing did not completely agree. Zero was allocated for no agreement. Mean agreement was then calculated across subjects. The hours in which respondents participated in each recreational activity were summed, and student t-tests and multiple ANOVA procedures were applied to determine agreement, and the effect of gender and year level on agreement.

b. Inter-rater reliability

As with test-retest reliability (intra-rater) analysis, agreement between the parent and each child response was assigned a perfect score, and 'Zero' was allocated for no agreement. Partial agreement was expressed as proportions of the score. Percent agreement and multiple ANOVA procedures were undertaken, as described previously.

2.2.4 Pilot study results

Respondents included 55 primary school (Year Seven) students aged 11-13 years (56% boys, 44% girls) and 20 high school Year Ten students aged 15-16 years (50% boys, 50% girls). The remainder of the students did not return parent consent forms in time for two questionnaire administrations to occur. Sixty parents agreed to participate in the study. Of these, 20 responded following the first administration of the questionnaire, and 39 participated following its second administration. One parent could not be contacted.

a) Sport and recreational activities

Not all young people nominated three recreational activities. The activities ranged from formal team sports such as cricket, football and netball, to more individual sports such as triathlon and weightlifting, and a range of less formal activities such as waterskiing, rock climbing, rollerblading and bicycle riding.

i) Test-retest reliability

Approximately ten percent of the respondents participated in ballet, aerobics and/or calisthenics classes. This was an early indication of the range of activities which would be reported in the main study (conducted in the following year). Two hundred and four activities were nominated on the first administration of the questionnaire, and there were 177 agreements (86.7% agreement) in the second questionnaire (intraclass correlation coefficient of 0.64). No significant effect on agreement was found for year level or gender.

Approximately 60% of respondents with matched answers did not nominate their activities in the same order, possible evidence of the lack of recall bias influencing the second set of responses. The mean overall scored agreement was 0.88 (SD 0.20). The mean agreement on type of activities undertaken in the previous week per gender and year level is reported in Table 1.

ii). Inter-rater reliability

Eighty-six percent of parents agreed totally with their child’s recreational activities, and ten percent partially agreed (agreeing to one of two activities, or one or two activities of three). Four percent of parents did not agree with their child’s nominations at all. The overall intraclass correlation coefficient was 0.65.

Table 1. Mean agreement on activities undertaken in the previous week, per gender and year level

	Mean agreement	Standard Deviation
Year Seven Boys	0.88	0.22
Year Seven girls	0.85	0.21
Year Ten Boys	0.90	0.23
Year Ten Girls	0.92	0.18

b) Circumstances in which activities were undertaken

Of the 204 responses to ‘where activities were undertaken’ on the first administration of the questionnaire, there were 178 matches on the second administration (percent agreement of 87.2 percent, intraclass correlation coefficient of 0.64). The mean agreement between sets of responses was 0.87 (SD 0.20). There was no significant difference in test-retest reliability for gender or year level, and mean agreement per strata is reported in Table 2. Ninety-two percent of the parents agreed with their child’s responses regarding where activities were undertaken (ICC = 0.87).

Table 2. Mean agreement on circumstance in which activities were undertaken in the previous week, per gender and year level

	Mean agreement	Standard Deviation
Year Seven Boys	0.83	0.30
Year Seven girls	0.88	0.18
Year Ten Boys	0.93	0.22
Year Ten Girls	0.95	0.16

c) Hours per week in which activities were played

The first questionnaire administration provided an average response of total hours of average weekly participation of 5.7 hours (SD 3.2 hours), while response to the second questionnaire was 4.9 hours total average participation (SD 3.2 hours). Overall, the hours reported in the first and second administrations of the questionnaire were significantly different ($p < 0.05$), supported by a relatively low interclass correlation coefficient (0.57). However, when examining the stratified data, by year level and gender, significant differences in reporting across the two tests were found only in Year Seven girls. The mean total hours per week per year level and gender, and the p values associated with paired t -tests are reported in Table 3. It is of note that the significant mean differences (overall, and for the Year Seven girls) are relatively small (approximately one hour), which in practice may not be meaningful. Eighty-nine percent of parents agreed with their child’s response regarding hours in the preceding week of participation in recreational activities (ICC = 0.79). This suggested that the significant difference in mean hours of participation reflected behavioural change, and the effect of the end of the school year, rather than inaccurate reporting.

Table 3. Mean difference (hours) between the two reports of hours in which activities were undertaken in the previous week, per gender and year level

	<i>Mean difference</i>	<i>Standard Deviation</i>	<i>p value of paired t test</i>
Year Seven Boys	0.77	2.6	0.11
Year Seven girls	1.1	2.1	0.02
Year Ten Boys	0.15	5.8	0.94
Year Ten Girls	0.95	1.7	0.57

N.B. paired t-tests examine the differences in the two reports from each gender/ year level strata

d) Injury

Thirty-eight adolescents in total (over the two questionnaire administrations) reported sustaining at least one injury from their recreational activities. Twenty-four respondents reported injuries in the first week of testing (32%) while 30 respondents reported injury in the second week (40%). Sixteen respondents (21%) reported injuries in both weeks of testing. Injuries were generally minor, ranging from sunburn to cuts and bruises, blisters and aches and pains. However, four broken bones were reported. The mean number of injuries sustained in the week prior to the first administration of the questionnaire was 0.5 (SD 0.8), with the mean number sustained prior to the second questionnaire administration being 0.6 (SD 0.8). The generally minor nature of reported injuries was reflected in the changing sample of injured respondents, an indication that the majority of injuries reported in the first week of testing had healed by the time the second questionnaire was administered. Of the 16 respondents who reported injuries in both weeks of testing, only half of these reported the same body location and nature of injury twice. The variability in injury reporting was reflected in the poor agreement between adolescents' reports of injury on the two occasions of testing (ICC = 0.33), and the poor test-retest reliability statistic (Pearson $r = 0.30$). However, the accuracy of adolescents' reporting of injury was supported by good agreement with parents. Test-retest reliability statistics were high (Pearson $r = 0.94$ for the first week of testing, and 0.93 for the second week of testing), and there was good agreement between parents' and adolescents' responses for the nature and location of the injury on both weeks of testing (ICC statistics of 0.94 and 0.96 respectively). While there was high agreement between child and parent reports of injuries, parents indicated the minor nature of these injuries. There was no influence of gender or age on the accuracy of reporting either between the two sets of adolescent responses, or between parent and adolescent, as the effect of gender and age terms in multiple analysis of variance models was non-significant.

2.3 Cross-sectional study

One hundred metropolitan Adelaide schools (60 primary schools and 40 secondary schools) were selected using random numbers applied to the Department of Education, Training and Employment state and independent school list, and these schools were invited to participate in this study. This approach was via a letter of invitation sent to the school principal and followed by a telephone call two weeks later to discuss participation in the study. Schools which agreed to participate in the study were visited by the project officer and one administration of the questionnaire was undertaken in association with the class/home room teachers to all final year primary school students in the primary schools and all third year high school students in the high schools. Parent consent was obtained prior to the study from the participating students, and all students present on the day of testing completed the questionnaire during class as part of their school activities. Testing was conducted during the second, third or fourth school terms of 1997 and schools nominated the most convenient time of the year for testing. Thus data collection was spread evenly throughout three school terms, which bridged winter and summer recreational activities. This provided an overview of seasonally-related activities and associated injuries.

3. RESULTS

3.1 Schools and students

This study received support from 72 of the 100 selected schools (72.0 percent compliance). Twenty-five of the 100 participating schools were secondary schools (40 secondary schools were approached) and the remaining 47 were primary schools (60 primary schools were approached). This response ratio was in line with the ratio of primary to secondary schools in the schools list. Information was provided by 3538 students. An additional data set was obtained from 363 SAPSASA (South Australian Primary School Association Sporting Activities) students, who were mainly Year Seven students from the country who were in Adelaide for specific primary school sports camps. In the information provided in this report, data from the SAPSASA students has not been counted into the investigations of participation or injury because the focused nature of the participation of these students in the previous week was considered to be a potential bias. From the number of students enrolled in the participating classes, the response represented an overall within-class compliance of 97.5 percent, and there were no differences between compliance in primary or high school. The children who did not participate were mostly absent on the day of testing due to illness or other school commitments, and only two children were absent due to known recreational injury. 1,760 girls and 1,778 boys participated (49.7% and 50.3% respectively of the total number of students derived from the school survey). The percentage of Year Seven/Year Ten students was 41.8%, and 58.1% respectively. The total school-based sample comprised 22.4% Year Seven girls (N = 794), 19.4% Year Seven boys (N = 687), 27.3 percent Year Ten girls (N = 966) and 30.8% Year Ten boys (N = 1091).

3.2 Activities

In the entire data set (all students including SAPSASA), a total of 9906 participations in recreational/sporting activities were reported for the week prior to the study (an average of 2.54 participations per student). There were 3334 injuries reported for specific body parts, constituting an overall rate of about one body part injured for every three participations (33.7 percent), or 0.85(...465) injured body parts per participant. Not counting the SAPSASA students, 8997 participations were reported (again, 2.5 participations per student), which resulted in 3191 injuries to specific body parts and represented nearly one injured body part per three activities, or 0.90 injured body parts per student. The percentage of injured students per year level and gender was 30% of Year Seven girls (N = 244), 21% of Year Ten girls (N = 210), 33% of Year Seven boys (N = 228) and 23% of Year Ten boys (N = 254). The 20 sports and recreational activities with more than 100 reported participations are listed in Table 4. These activities were used in all subsequent investigations in this report as they reflected 75.6% of the total number of activities in which students reported participating in the week prior to the study. This list reflects: distinctly recreational activities (such as bicycling, roller skating—including in-line hockey, rollerblading and roller skating—and walking); organised sports, which have recognised rules and administrative structures (such as Australian Rules football—“Aussie Rules”, cricket and netball); and activities which can include levels of either recreational or sporting participation (such as basketball, dance and swimming). The entire list of activities is provided in Appendix 2, with the rationale behind the combination of certain activities into broader groupings provided in Appendix 3.

Table 4. The 20 most commonly reported activities*NB those with more than 100 recorded participations*

	<i>N. reports of Participation</i>	<i>% Total participators (N=8997)</i>	<i>% Students participating (N=3538)</i>
1. Walking	940	10.4%	26.6%
2. Basketball	875	9.7%	24.7%
3. Aussie Rules	637	7.1%	18.0%
4. Bicycling	631	7.0%	17.8%
5. Netball	609	6.8%	17.2%
6. Soccer	587	6.5%	16.6%
7. Dance	537	6.0%	15.2%
8. Jogging/Running	443	4.9%	12.5%
9. Cricket	388	4.3%	11.0%
10. Swimming	333	3.7%	9.4%
11. Tennis	288	3.2%	8.1%
12. Roller skating	269	3.0%	7.6%
13. Gym Activities	265	2.9%	7.5%
14. Volleyball	203	2.3%	5.7%
15. Golf	190	2.1%	5.3%
16. Martial Sports	133	1.4%	3.7%
17. Handball	131	1.4%	3.7%
18. Softball	109	1.2%	3.0%
19. Badminton	108	1.2%	3.0%
20. Hockey	103	1.1%	2.9%

3.3 Participation per gender and year level

Participation percentages in the 20 most commonly reported activities are listed in Tables 5.1-5.4 by year level and gender, in decreasing order of frequency. The denominator is the total number of participations reported in each gender/year level stratum. Major differences in participation according to gender were found in Netball, Dance, Golf and Australian Rules Football.

Raw data on participation overall, and per year level is reported in Appendix 4.

Table 5.1 Participation by gender and year level: Year 7 Girls

DENOMINATOR = 2196

<i>Activity</i>	<i>Reporting participation</i>	<i>% participating</i>
1. Netball	323	14.7%
2. Walking	239	10.9%
3. Basketball	200	9.1%
4. Dance	176	8.0%
5. Jogging/Running	157	7.1%
6. Bicycling	142	6.5%
7. Soccer	121	5.5%
8. Rollering	97	4.4%
9. Swimming	89	4.1%
10. Aussie Rules	68	3.1%
11. Tennis	67	3.1%
12. Volleyball	57	2.6%
13. Handball	56	2.6%
14. Softball	47	2.1%
15. Cricket	36	1.6%
16. Hockey	33	1.5%
17. Gym activities	30	1.4%
18. Badminton	15	0.7%
19. Martial sports	13	0.6%
20. Golf	6	0.3%

Table 5.2 Participation by gender and year level: Year 10 Girls

Denominator = 2306

	<i>Activity</i>	<i>reporting participation</i>	<i>% participating</i>
1.	Walking	463	20.1%
2.	Various Dance	277	12.0%
3.	Netball	243	10.5%
4.	Swimming	142	6.2%
5.	Jogging/Running	124	5.4%
6.	Basketball	113	4.9%
7.	Gym activities	94	4.1%
8.	Bicycling	82	3.6%
9.	Soccer	75	3.3%
10.	Volleyball	74	3.2%
11.	Tennis	73	3.2%
12.	Aussie Rules	70	3.0%
13.	Rollering	54	2.3%
14.	Badminton	43	1.9%
15.	Cricket	42	1.8%
16.	Martial sports	38	1.6%
17.	Softball	34	1.5%
18.	Golf	18	0.8%
19.	Handball	15	0.7%
20.	Hockey	11	0.5%

Table 5.3 Participation by gender and year level: Year 7 Boys

Denominator = 1856

	Activity	Reporting participation	% participating
1.	Aussie Rules	256	13.8%
2.	Basketball	234	12.6%
3.	Soccer	217	11.7%
4.	Bicycling	180	9.7%
5.	Cricket	141	7.6%
6.	Walking	73	3.9%
7.	Jogging/Running	65	3.5%
8.	Rollering	64	3.4%
9.	Swimming	55	3.0%
10.	Tennis	47	2.5%
11.	Handball	36	1.9%
12.	Golf	34	1.8%
13.	Hockey	34	1.8%
14.	Dance	31	1.7%
15.	Martial sports	25	1.3%
16.	Volleyball	22	1.2%
17.	Netball	19	1.0%
18.	Gym activities	19	1.0%
19.	Softball	4	0.2%
20.	Badminton	2	0.1%

Table 5.4 Participation by gender and year level: Year 10 Boys

Denominator = 2641

	Activity	Reporting participation	% participating
1.	Basketball	328	12.4%
2.	Aussie Rules	243	9.2%
3.	Bicycling	227	8.6%
4.	Soccer	174	6.6%
5.	Cricket	169	6.4%
6.	Walking	165	6.2%
7.	Golf	134	5.1%
8.	Gym activities	122	4.6%
9.	Tennis	101	3.8%
10.	Jogging/Running	97	3.7%
11.	Martial sports	57	2.2%
12.	Rollering	54	2.0%
13.	Dance	53	2.0%
14.	Volleyball	50	1.9%
15.	Badminton	48	1.8%
16.	Swimming	47	1.8%
17.	Hockey	25	0.9%
18.	Netball	24	0.9%
19.	Handball	24	0.9%
20.	Softball	24	0.9%

3.4 Hours per week participation in recreational activities

Young people reported an average of 5.6 hours (SD 4.4 hours) of participation within recreational/sporting activities for the preceding week. The top ten ranked activities with the highest average hours of participation are listed, in decreasing order, in Table 6 with respect to gender and year level. It is of interest that these activities differ significantly in ranking from those most commonly participated in (Tables 5.1-5.4). This suggests a relatively small but dedicated group participated in each activity. Raw data for hours and days per week participation is reported in Appendix 5.

Table 6. Comparisons between ten ranked activities which occupied the greatest number of hours per week

<i>Year 7 girls</i>	<i>Year 7 boys</i>	<i>Year 10 girls</i>	<i>Year 10 boys</i>
Ice Skating	Cricket	Surfing	Surfing
Horseriding	Swimming	Ice Skating	Cricket
Swimming	Surfing	Horseriding	Rollerblading
Dancing	Golf	Swimming	Dancing
Softball	Aussie Rules	Dancing	Aussie Rules
Hockey	Bicycling	Golf	Hockey
Netball	Ice Skating	Softball	Soccer
Basketball	Soccer	Basketball	Swimming
Rollerblading	Hockey	Cricket	Golf
Soccer	Rollerblading	Netball	Ice Skating
Aerobics	Basketball	Hockey	Basketball
Aussie Rules	Handball	Soccer	Softbal
Bikeriding	Horseriding	Aussie Rules	Bikeriding
Handball	Jogging/ Running	Rollerblading	Handball
Golf	Dancing	Aerobics	Horseriding
Surfing	Netball	Bikeriding	Netball
Jogging/ Running	Aerobics	Handball	Jogging/ Running
Cricket	Soccer	Jogging/ Running	Soccer
Soccer	Softball	Soccer	Aerobics

3.5 Days per week participation in recreational activities

An average of 6 hours (SD 2.1 days) of participation in any activity was reported for the preceding week. Activities with the highest average hours of participation are listed in Table 7, in decreasing order, with respect to gender and year level. It should be noted that these activities differ significantly in ranking from those in which participation was highest (Tables 5.1-5.4), as well as those in which the greatest number of hours were spent (Table 6). Again, this suggests a relatively small but dedicated group of participants took part in each activity.

Table 7. Comparisons between ten ranked activities which occupied the greatest number of days per week.

<i>Year 7 girls</i>	<i>Year 7 boys</i>	<i>Year 10 girls</i>	<i>Year 10 boys</i>
Handball	Bicycling	Basketball	Dancing
Jogging/Running	Basketball	Horseriding	Bicycling
Aussie Rules	Handball	Bicycling	Rollerblading
Basketball	Jogging/Running	Jogging/Running	Handball
Bicycling	Aussie Rules	Rollerblading	Aussie Rules
Rollerblading	Soccer	Dancing	Hockey
Ice Skating	Cricket	Aerobics	Soccer
Soccer	Swimming	Swimming	Basketball
Dancing	Horseriding	Hockey	Jogging/Running
Horseriding	Rollerblading	Golf	Cricket
Netball	Surfing	Handball	Swimming
Cricket	Hockey	Softball	Netball
Aerobics	Netball	Netball	Surfing
Swimming	Softball	Soccer	Softball
Softball	Golf	Surfing	Aerobics
Hockey	Ice Skating	Cricket	Golf
Golf	Dancing	Aussie Rules	Ice Skating
Surfing	Aerobics	Ice Skating	Horseriding

3.6 Level of participation

Students described the level of their participation in sports and recreational activities as competition, training/rehearsal/practice, physical education classes at school, just for fun and an 'other' option. As expected, the most prevalent level of participation was 'for fun', this being found for the majority of the most common activities, the exceptions being netball and hockey. The percent prevalence of the level of participation reported for the 20 most common activities is listed in Table 8. The level of participation per gender and year level differed somewhat across categories, and is listed in Appendix 4. Responses in the 'other' categories involved mainly bike riding and walking respectively, where there were 15 and 21 responses detailing 'I have to', 'job', 'to get to school', 'for exercise', or 'get to work'. The sum of proportions along each row may exceed 100% due to students recording multiple choices for level of participation. Where the sum of proportions is less than 100%, it reflects the absence of the 'other' choices.

Table 8. The overall level of participation*NB Bolded figures indicate greatest prevalence for that activity*

<i>Activity</i>	<i>competition</i>	<i>training</i>	<i>PE</i>	<i>for fun</i>
Aussie Rules	42.7%	30.9%	14.1%	57.1%
Badminton	21.3%	20.4%	43.5%	44.4%
Basketball	42.6%	25.3%	19.3%	60.7%
Bicycling	1.9%	10.5%	2.8%	81.3%
Cricket	42.8%	28.6%	24.2%	44.3%
Dance	18.1%	36.7%	21.6%	43.4%
Golf	14.2%	13.2%	36.3%	51.0%
Gym Activities	0.4%	41.9%	15.8%	46.0%
Handball	5.3%	2.3%	7.6%	89.3%
Hockey	57.3%	40.8%	35.9%	16.5%
Jogging/Running	6.3%	30.9%	21.0%	54.4%
Martial Sports	24.1%	75.2%	4.5%	28.6%
Netball	79.0%	50.6%	11.3%	23.5%
Rollering	10.4%	6.7%	1.5%	97.0%
Soccer	43.6%	36.5%	19.1%	53.3%
Softball	33.0%	31.2%	39.4%	27.5%
Swimming	9.3%	28.2%	6.6%	68.2%
Tennis	45.1%	42.4%	17.7%	37.8%
Volleyball	35.0%	15.3%	47.3%	27.6%
Walking	0.5%	2.6%	3.6%	55.2%

3.7. Injury

There were 3191 reported injuries to body parts, with a body part injured in for every 2.8 participations in activities. There was a significantly higher risk of Year Seven students injuring themselves compared with Year 10 students, with older age appearing to have a significantly protective effect on injury. Without taking account of particular activities, similar risks per gender and year level were found when comparing the actual number of injured students (those who reported at least one injury for their activities) with the total number of participants, and when comparing the number of body parts injured and the number of participations. The findings are reported as Odds Ratios (95% Confidence Limits) in Table 9, first using student numbers (year/gender student sustaining any injury compared with all other years/gender sustaining any injury) and then using participations (participation injury per year level and gender compared with all other participations). Significantly elevated Odds Ratios (where the lower 95%CL exceeded unity) are reported in bold type, and significantly protective Odds Ratios (where the upper 95% CL is less than unity) are reported in italics and are underlined. Participation figures per level of activity and per injury, and the top twenty activities per level of participation are reported in Appendix 7.

Table 9. The risk (reported as Odds Ratios) of injury, per year level, gender

	Year Seven Girls <i>N student = 794</i> <i>N part. = 2196</i>	Year Ten Girls <i>N students= 966</i> <i>N part. = 2306</i>	Year Seven Boys <i>N students = 687</i> <i>N part. = 1856</i>	Year Ten Boys <i>N students = 1091</i> <i>N part = 2641</i>
OR injury (student numbers)	1.32 (1.10-1.57)	<u>0.71 (0.59-0.84)</u>	1.50 (1.25-1.81)	<u>0.79(0.66-0.93)</u>
OR injury (participations and body parts)	1.22 (1.10-1.35)	<u>0.69 (0.62-0.77)</u>	1.56 (1.40-1.73)	<u>0.87 (0.79-0.96)</u>

3.7.1 Activities

There was general consistency in the activities which incurred injuries to all body parts across gender and year levels. These Odds Ratios were derived from the number of injured body parts and the number of reported participations in each activity. Significantly elevated risk of injury was found for Australian Rules Football, Basketball, Hockey, Martial Sports, Netball, Rollering, and Soccer. Protective associations for injury were found for Bicycling, Dance, Golf, Jogging/Running, Tennis, Volleyball and Walking. The overall percentage of injury in the top 20 activities is reported in Table 10.1, while the overall risk of injury to any body part associated with particular activities, and the gender/year level risk of injury for these activities are reported as Odds Ratios in Table 10.2. Several calculations could not be undertaken because the number of injured body parts exceeded the number of participations, or the number of injuries was less than five. These are indicated in Table 10.2 as “not calculable”.

Table 10.1 Overall percentage of injury in the top 20 activities

Activity	% injured in participation
1. Martial Sports	63.9%
2. Hockey	62.1%
3. Aussie Rules	58.4%
4. Rollering	52.4%
5. Netball	51.7%
6. Soccer	47.9%
7. Basketball	43.1%
8. Cricket	35.5%
9. Bicycling	34.9%
10. Gym Activities	31.3%
11. Swimming	27.9%
12. Softball	19.3%
13. Dance	18.1%
14. Volleyball	17.7%
15. Badminton	17.6%
16. Jogging/Running	16.2%
17. Golf	12.1%
18. Tennis	11.8%
19. Handball	9.2%
20. Walking	7.9%

Table 10.2 The risk of injury associated with the 20 most common activities (reported as Odds Ratios)

	<i>overall</i>	<i>Y7G</i>	<i>Y7B</i>	<i>Y10G</i>	<i>Y10B</i>
Aussie Rules	1.74 (1.51-1.98)	0.97 (0.58-1.64)	1.60 (1.22-2.10)	Not calculable	2.44 (1.85-3.21)
Badminton	0.38 (0.23-0.65)	0.38 (0.08-1.33)	Not calculable	Not calculable	0.46 (0.21-0.99)
Basketball	1.42 (1.20-1.60)	3.67 (2.67-5.05)	0.67 (0.50-0.90)	3.52 (2.13-5.91)	1.05 (0.81-1.34)
Bicycling	0.97 (0.81-1.15)	0.68 (0.38-0.85)	0.84 (0.61-1.62)	0.76 (0.44-1.31)	1.38 (1.03-1.84)
Cricket	1.09 (0.87-1.73)	0.40 (0.16-0.96)	0.97 (0.67-1.39)	0.12 (0.02-0.51)	1.81 (1.26-2.60)
Dance	0.38 (0.30-0.48)	0.37 (0.25-0.56)	Not calculable	0.66 (0.48-0.90)	Not calculable
Golf	0.62 (0.37-1.02)	Not calculable	0.53 (0.23-1.16)	Not calculable	0.19 (0.10-0.35)
Gym Activities	1.01 (0.67-1.35)	1.15 (0.5-2.63)	1.14 (0.40-3.23)	3.11 (1.97-4.92)	0.36 (0.20-0.64)
Handball	0.18 (0.09-0.34)	0.18 (0.09-0.34)	0.11 (0.03-0.39)	Not calculable	0.09 (0.00-0.60)
Hockey	3.02 (1.99-4.5)	0.83 (0.38-1.81)	2.38 (1.12-5.14)	Not calculable	5.24 (2.06-13.86)
Jogging /Running	0.34 (0.26-0.44)	0.37 (0.24-0.57)	0.37 (0.20-0.69)	0.42 (0.25-0.70)	0.17 (0.08-0.37)
Martial Sports	3.27 (2.27-4.75)	0.5 (0.11-1.96)	5.22 (1.85-15.92)	1.76 (0.88-3.52)	8.79 (4.38-18.07)
Netball	2.05 (1.73-2.42)	2.08 (1.62-2.65)	0.24 (0.05-0.87)	3.57 (2.69-4.73)	0.40 (0.12-1.24)
Rollering	2.03 (1.58-2.61)	0.98 (0.63-1.53)	2.19 (1.27-3.78)	0.84 (0.43-1.60)	36.16 (10.85-145.4)
Soccer	1.73 (1.46-2.05)	5.83 (3.73-9.14)	1.37 (1.02-1.83)	0.93 (0.54-1.59)	1.00 (0.71-1.41)
Softball	0.43 (0.26-0.71)	0.43 (0.26-0.71)	Not calculable	0.70 (0.32-1.48)	0.28 (0.07-1.00)
Swimming	0.69 (0.54-0.89)	1.32 (0.84-2.06)	1.24 (0.70-2.19)	0.33 (0.19-0.56)	0.47 (0.21-1.01)
Tennis	0.23 (0.16-0.34)	0.32 (0.16-0.63)	0.27 (0.11-0.59)	0.25 (0.10-0.56)	0.16 (0.07-0.35)
Volleyball	0.38 (0.26-0.56)	0.23 (0.09-0.52)	0.28 (0.08-0.88)	0.71 (0.39-1.26)	0.38 (0.16-0.84)
Walking	0.13 (0.11-0.17)	0.18 (0.11-0.27)	0.07 (0.02-0.20)	0.16 (0.11-0.23)	0.09 (0.04-0.20)

3.7.2 Body Parts Injured

The overall frequency with which body parts were injured is reported in Table 11.

Table 11. Frequency of body parts injured

<i>Activity</i>	<i>% injured in participation</i>
1. Knee	14.1%
2. Ankle	12.9%
3. Finger	6.8%
4. Lower leg	5.2%
5. Back	5.0%
6. Foot	5.0%
7. Hand	4.7%
8. Wrist	4.5%
9. Upper leg	4.5%
10. Elbow	3.4%
11. Upper arm	3.3%
12. Thumb	3.1%
13. Face	2.7%
14. Toes	2.7%
15. Ribs/chest	2.3%
16. Hip	2.0%
17. Stomach	1.9%
18. Nose	1.7%
19. Backside	1.7%
20. Groin	1.7%
21. Neck/throat	1.4%
22. Forearm	1.4%
23. Skull	1.4%
24. Side	1.2%
25. Shoulders	1.0%
26. Teeth	0.8%
27. Ears	0.6%
28. Genitals	0.5%
29. Shin	0.4%
30. Lungs (asthma)	0.4%

a) Frequent lower limb injuries

The most frequently injured body parts were the knee and the ankle. Of the total injuries, injuries to the knee constituted 14.1% while injuries to the ankle constituted 12.9%. Together these two joints contributed 27.0% of all injuries. The frequencies of injury to the knee and the ankle along with overall rate of injury are reported in Table 12 for the top 20 activities. The activities are listed in descending order by the overall rate of injury. Also included, for the sake of comparison, are the rates for all activities other than those included in the top 20 and the top 20 activities combined. Table 13 lists gender and year level risk of ankle and knee injury, demonstrating the gender/year-level nature of injury. Tables 14.1 and 14.2 lists the odds of injuring the knee and the ankle in the activities in which there were more than 20 knee or ankle injuries. These activities were focused upon primarily because participants in all other activities reported fewer ankle and knee injuries which precluded the calculation of robust odds ratios.

Table 12. The activities associated with injury, overall and to knee and ankle

<i>Activity (Top 20)</i>	<i>N Ankle injury</i>	<i>Ankle injury/ All injury</i>	<i>N knee injury</i>	<i>Knee injury/ All injury</i>	<i>All injury</i>	<i>Ratio of injury/ participation</i>	<i>Participations</i>	<i>Ankle injury/ participation</i>	<i>Knee injury/ participation</i>
Aussie Rules	40	10.8%	48	12.9%	372	0.6	637	6.3%	7.5%
Badminton	4	21.1%	2	10.5%	19	0.2	108	3.7%	1.9%
Basketball	53	14.1%	53	14.1%	377	0.4	875	6.1%	6.1%
Bicycling	13	5.9%	31	14.1%	220	0.3	631	2.1%	4.9%
Cricket (also Kanga)	8	5.9%	10	7.4%	136	0.4	388	2.1%	2.6%
Golf	1	4.3%	1	4.3%	23	0.1	190	0.5%	0.5%
gym activities	3	8.1%	8	21.6%	37	0.1	265	1.1%	3.0%
Handball	0	0.0%	2	16.7%	12	0.1	131	0.0%	1.5%
Hockey (Minkey)	7	10.9%	14	21.9%	64	0.6	103	6.8%	13.6%
Jogging/running	20	27.8%	10	13.9%	72	0.2	443	4.5%	2.3%
Martial sports	6	7.1%	6	7.1%	85	0.6	133	4.5%	4.5%
Netball	60	19.0%	67	21.3%	315	0.5	609	9.9%	11.0%
Rollering	14	9.9%	26	18.4%	141	0.5	269	5.2%	9.7%
Soccer	53	19.6%	41	15.1%	271	0.5	587	9.0%	7.0%
Softball	3	14.3%	2	9.5%	21	0.2	109	2.8%	1.8%
Swimming	5	5.4%	9	9.7%	93	0.3	333	1.5%	2.7%
Tennis	6	17.6%	5	14.7%	34	0.1	288	2.1%	1.7%
Various dance	28	20.1%	18	12.9%	139	0.3	537	5.2%	3.4%
Volleyball	6	16.7%	3	8.3%	36	0.2	203	3.0%	1.5%
Walking	22	29.7%	11	14.9%	74	0.1	940	2.3%	1.2%

Table 13. Frequency of knee and ankle injury per gender and year level

Body part	Year 7 Girls	Year 7 Boys	Year 10 Girls	Year 10 Boys
Knee	15.5%	15.5%	15.1%	10.7%
Ankle	16.6%	16.1%	10.2%	9.5%

Table 14.1 Stratum specific odds ratios associating activities and knee injuries*NB Not calculable indicates injuries to the knee of less than five*

	Year 7 girls	Year 7 boys	Year 10 girls	Year 10 boys
All Activities	1.17 (0.93-1.46)	1.11 (0.88-1.40)	1.15 (0.90-1.47)	<u>0.66 (0.52-0.85)</u>
Aussie Rules	0.74 (0.17-2.64)	1.73 (1.05-2.83)	<u>0.33 (0.11-0.87)</u>	0.93 (0.48-1.79)
Basketball	0.60 (0.32-1.12)	1.16 (0.60-2.21)	1.40 (0.63-3.03)	1.38 (0.73-2.58)
Bicycling	1.81 (0.77-4.13)	0.90 (0.42-1.88)	0.28 (0.01-2.01)	1.16 (0.56-2.36)
Hockey	2.07 (0.43-8.70)	1.92 (0.67-5.27)	0.99 (0.27-3.60)	1.69 (0.38-6.36)
Jogging	<u>0.83 (0.24-0.56)</u>	0.86 (0.0-4.08)	1.47 (0.40-4.87)	Not calculable
Netball	1.90 (1.22-2.95)	Not calculable	1.44 (0.86-2.40)	Not calculable
Rollering	0.87 (0.29-2.42)	1.43 (0.59-3.35)	0.94 (0.26-3.45)	2.46 (1.14-5.21)
Soccer	0.88 (0.45-1.70)	1.18 (0.65-2.09)	1.30 (0.36-4.21)	2.27 (1.29-5.63)
Dance	0.78 (0.27-2.14)	Not calculable	0.91 (0.46-1.77)	Not calculable
Walking	0.21 (0.01-1.48)	17.27 (1.59-434.8)	1.10 (0.40-2.86)	1.19 (0.18-7.37)

Table 14.2 Stratum specific odds ratios associating activities and ankle injuries*NB Not calculable indicates injuries to the ankle of less than five*

	Year 7 girls	Year 7 males	Year 10 girls	Year 10 males
All Activities	1.50 (1.19-1.89)	0.84 (0.65-1.09)	1.27 (1.00-1.62)	<u>0.65 (0.50-0.84)</u>
Aussie Rules	1.27 (0.41-3.65)	0.73 (0.35-1.46)	<u>0.38 (0.15-0.95)</u>	1.67 (0.92-3.01)
Basketball	0.95 (0.55-1.62)	1.95 (0.99-3.78)	0.56 (0.19-1.52)	1.27 (0.64-2.45)
Bicycling	0.43 (0.10-1.49)	0.57 (0.17-1.68)	0.92 (0.21-3.40)	<u>0.29 (0.07-0.98)</u>
Gym	1.26 (0.21-7.01)	Not calculable	0.32 (0.02-2.33)	0.71 (0.11-4.91)
Hockey	0.50 (0.02-3.81)	0.88 (0.23-3.39)	1.58 (0.34-6.36)	0.54 (0.03-3.93)
Jogging	2.23 (0.92-5.27)	3.80 (0.99-13.4)	1.41 (0.39-4.65)	5.83 (1.08-28.6)
Netball	1.06 (0.66-1.69)	Not calculable	1.53 (0.93-2.52)	Not calculable
Rollering	4.11 (0.91-17.8)	0.70 (0.17-2.45)	0.21 (0.01-1.52)	1.26 (0.47-3.21)
Soccer	0.98 (0.52-1.82)	2.38 (1.32-4.27)	2.15 (0.73-6.09)	3.26 (1.54-6.79)
Dance	1.67 (0.74-3.66)	1.48 (0.23-8.74)	1.26 (0.68-2.30)	Not calculable
Walking	42.7 (5.38-916.4)	2.95 (0.50-13.8)	2.81 (1.28-6.11)	1.34 (0.20-8.18)

3.7.3 Nature of injury (symptoms and presentations)

Respondents indicated the nature of their injury by listing a number of features to describe injury symptoms and presentation. This question was asked to account for the multiple presentations that could characterise a particular injury, for instance one injury may involve bruising, bleeding and gravel rash. As expected, multiple responses were provided to this question. The wealth of information provided may need to be considered in context, as it was provided as retrospective self-reports. Errors in interpretation of the nature of injury may have occurred, but more likely is magnification of injury severity. Indeed, the pilot study which investigated the accuracy of recall of students with respect to recent injury certainly highlighted the introspective and highly detailed nature of student recall of the most minor of injuries, when compared with parent recall of injuries.

Overall, there was an average of 1.9 presentations (symptoms) reported per injury. Aches and pains, and bruising were the most commonly reported presentations, representing 18.4% and 18.3%, respectively, of the total injury presentations. Following in decreasing order of reporting were:

- muscle strain (12.7%)
- swelling (8.9%)
- bleeding (7.9%)
- joint sprain (6.4%)
- gravel rash (5.4%)
- blister (4.5%)
- sunburn (3.4%)
- dislocation (2.2%)
- concussion (1.7%)
- broken bones (0.8%)
- ligament strain (0.3%).

A small number of other injury presentations were also reported, such as heat stress, eye injury, scratches, ripped fingernails etc. The overall trends in the type of injury presentation were generally consistent across the 20 most common activities. However, specific sports/recreational activities were related to specific types of injury presentation.

In summary, the highest proportion of aches and pains, bruises and sunburn were found in the injuries associated with swimming. Injuries associated with walking reflected the highest proportion of joint sprains and blisters, whereas the highest prevalence of swelling, which may be associated with severe injury, was found among basketball injuries. bicycling injuries contributed the highest proportions of bleeding, concussion and gravel rash, while injuries from jogging/running contributed the highest proportion of broken bones. Cricket contributed the highest proportion of dislocation injuries, and of the few ligament sprains reported, Australian Rules football contributed the greatest proportion.

From this list, minor injuries were collectively described on an a priori basis as bruises, aches and pains, bleeding, blister, gravel rash, joint sprains, ligament and muscle strains, sunburn and swelling. These constituted 86.5% overall of injury presentations. Major (more severe) injuries were considered to be broken bones, concussion and dislocations, and contributed 4.8% of the total injury presentations. The remaining (missing) data dealt with a small number of specific injury presentations, including cuts, torn fingernails, eye injuries etc.

The a priori data amalgamations of minor and major injuries are currently being tested by comparing them with the proportion of injuries for which medical assistance was sought, or where participation in the activity ceased because of injury (survey questions 26, 28, 29). An injury for which medical attention was sought, or which caused a student to cease participation was considered to identify major injury and, therefore, validation of student's injury characterisation.

Table 15. The within-activity prevalence (%) of the most common injury descriptions, for the 20 most common activities

Activity		aches & pains	bleeding	blister	broken bone	bruise	concussion	dislocation	gravel rash	joint sprain	ligament strain	muscle strain	sunburn	swelling
1. Aussie Rules	(1317)	17.3%	9.1%	5.3%	1.3%	18.1%	1.1%	2.5%	4.8%	5.4%	1.0%	11.9%	4.6%	8.8%
2. Badminton	(30)	26.7%	3.3%	10.0%	0.0%	20.0%	0.0%	0.0%	0.0%	3.3%	0.0%	10.0%	0.0%	13.3%
3. Basketball	(1124)	19.0%	9.8%	3.2%	1.3%	18.6%	0.5%	2.2%	2.2%	8.6%	0.1%	12.4%	0.9%	11.6%
4. Bicycling	(917)	13.0%	14.7%	6.0%	0.4%	18.3%	2.7%	0.2%	12.0%	5.7%	0.0%	8.1%	2.7%	8.8%
5. Cricket (also Kanga)	(464)	18.3%	3.4%	4.3%	0.6%	16.2%	0.0%	4.1%	6.5%	4.5%	0.0%	10.3%	8.6%	8.4%
6. Golf	(41)	31.7%	0.0%	22.0%	0.0%	14.6%	0.0%	0.0%	0.0%	0.0%	0.0%	9.8%	17.1%	0.0%
7. Gym activities	(72)	44.4%	0.0%	0.0%	0.0%	9.7%	0.0%	0.0%	0.0%	5.6%	0.0%	33.3%	0.0%	0.0%
8. Handball	(21)	19.0%	0.0%	4.8%	0.0%	38.1%	0.0%	0.0%	9.5%	19.0%	0.0%	0.0%	9.5%	0.0%
9. Hockey (Minkey)	(166)	17.5%	9.0%	2.4%	0.0%	31.3%	0.0%	0.0%	7.8%	1.2%	0.0%	9.6%	2.4%	15.1%
10. Jogging/running	(179)	21.8%	5.0%	4.5%	3.4%	12.8%	0.6%	0.0%	2.8%	7.8%	0.0%	19.6%	1.7%	8.4%
11. Martial sports	(88)	9.1%	22.7%	0.0%	0.0%	33.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.0%	0.0%	9.1%
12. Netball	(862)	20.2%	5.8%	4.1%	0.5%	17.1%	0.0%	2.7%	6.0%	6.3%	0.2%	17.1%	1.6%	9.2%
13. Roller skating	(367)	19.1%	13.1%	5.2%	0.3%	24.3%	0.0%	1.4%	13.6%	6.8%	0.0%	6.5%	0.0%	6.5%
14. Soccer	(729)	20.7%	5.2%	5.5%	0.3%	22.1%	0.1%	3.4%	5.8%	5.2%	0.4%	15.1%	1.0%	6.6%
15. Softball	(53)	22.6%	5.7%	3.8%	9.4%	17.0%	0.0%	3.8%	3.8%	5.7%	0.0%	13.2%	5.7%	5.7%
16. Swimming	(243)	22.2%	4.5%	2.1%	0.0%	12.3%	1.2%	0.0%	4.5%	6.6%	0.0%	15.2%	12.3%	4.1%
17. Tennis	(70)	25.7%	0.0%	12.9%	0.0%	8.6%	0.0%	0.0%	0.0%	8.6%	0.0%	27.1%	2.9%	8.6%
18. Dance	(305)	26.6%	1.3%	8.5%	0.3%	15.7%	0.0%	3.0%	0.3%	6.9%	0.0%	24.9%	1.3%	2.6%
19. Volleyball	(83)	21.7%	0.0%	0.0%	1.2%	19.3%	0.0%	0.0%	0.0%	20.5%	0.0%	16.9%	1.2%	10.8%
20. Walking	(154)	18.2%	0.6%	7.1%	0.6%	10.4%	0.0%	1.3%	0.6%	11.7%	0.0%	12.3%	10.4%	3.9%

a) Nature of knee and ankle injury

Ankle and knee injuries were further considered in this report because they were the most common. A total of 24 different categories describing the nature of ankle injuries were reported, and a total of 32 were reported for knee injuries. As for mechanisms of injury, multiple reports of problems were common for either injury. Overall averages of 2.5 problems per ankle injury and 2.7 problems per knee injury were found, and there were consistent findings across specific activities. There were no significant differences in the number of injury problems between different year or gender groups.

Aches and pains, bruises and muscle strains represented approximately half of the problems reported for both ankle and knee (52% and 52.5%, respectively). Seven most frequently reported problems were the same for both ankles and knees, with the exception of elevated reports of gravel rash for knees and blisters for ankles. The seven most frequently reported problems for ankles and knees are reported in Table 16, representing over 80% of problems described by the respondents.

There were few differences between the nature of ankle and knee injuries, with minor differences only noted in the rankings. Serious injury (described as dislocation or broken bones) was reported in three per cent of ankle injuries and four per cent of knee injuries.

Table 16. The most common presentations of knee and ankle injury (percent reporting problem)

Problem	Ankle	Knee
Aches & Pains	19.8%	19.5%
Bruise	16.7%	19.3%
Muscle Strain	15.4%	13.6%
Joint Sprain	11.2%	8.0%
Swelling	10.9%	7.6%
Bleeding	4.9%	8.4%
Blister	4.1%	3.9%
Gravel Rash/Grass Burn	3.4%	6.5%

b) Discussion on injury from recreational and sporting activity

These findings offer clear evidence that injury is a frequent accompaniment to participation in recreational sport/activities. Even if one takes into account the possibilities of over-reporting or magnification of injury occurrence, the rate of 0.85 injuries per student (or nearly one injury for three participations) indicates the high potential for students to curtail or cease participation because of injury.

Thus these findings validate the need for the health promotion initiative that has resulted from this study, the internet site www.smartplay.net, which aims to educate young people about injury minimisation. This site encourages smart players who prevent injuries from occurring in the first instance, and who know what to do when injuries occur.

3.7.4. Mechanism of injury

Numerous mechanisms of injury were reported overall. The most common mechanisms of injury are reported in Table 17.

Table 17. The most common mechanisms of injury overall

activity (Total mechanisms)	Bumped into	Fell	Hit by ball	Landed Badly	Overuse	Tripped	Don't know	Just happened
1.Aussie Rules (892)	21.9%	10.2%	2.0%	15.9%	8.7%	9.8%	9.0%	8.7%
2.Badminton (23)	8.7%	13.0%	0.0%	17.4%	8.7%	8.7%	17.4%	13.0%
3.Basketball (862)	20.9%	13.1%	2.6%	20.1%	4.4%	14.6%	6.7%	7.7%
4.Bicycling (401)	5.2%	20.9%	0.0%	28.4%	5.7%	2.7%	3.0%	7.0%
5.Cricket (also Kanga) (165)	0.6%	4.2%	26.1%	18.8%	15.2%	4.8%	6.7%	12.1%
6.Golf (21)	0.0%	0.0%	4.8%	0.0%	28.6%	0.0%	19.0%	9.5%
7.Gym activities (43)	0.0%	0.0%	0.0%	0.0%	30.2%	0.0%	16.3%	44.2%
8.Handball (10)	0.0%	50.0%	0.0%	0.0%	40.0%	10.0%	0.0%	0.0%
9.Hockey (Minkey) (116)	17.2%	14.7%	22.4%	7.8%	6.0%	10.3%	0.0%	6.0%
10.Jogging/running (113)	8.0%	15.9%	0.0%	14.2%	10.6%	14.2%	17.7%	18.6%
11.Martial sports (74)	10.8%	10.8%	0.0%	14.9%	0.0%	10.8%	12.2%	14.9%
12.Netball (566)	19.1%	14.0%	6.4%	19.8%	2.5%	11.5%	8.1%	8.5%
13.Rollering (304)	7.9%	24.7%	0.0%	22.0%	2.6%	15.1%	0.7%	3.0%
14.Soccer (430)	19.8%	3.5%	4.2%	19.3%	4.0%	18.6%	5.1%	8.8%
15.Softball (32)	12.5%	15.6%	12.5%	21.9%	12.5%	12.5%	3.1%	6.3%
16.Swimming (123)	4.1%	7.3%	0.0%	8.9%	9.8%	0.0%	8.1%	30.1%
17.Tennis (35)	0.0%	0.0%	2.9%	14.3%	2.9%	2.9%	28.6%	22.9%
18.Various dance (176)	4.0%	6.3%	0.0%	23.3%	17.6%	4.0%	11.9%	22.7%
19.Volleyball (48)	12.5%	14.6%	10.4%	16.7%	4.2%	6.3%	2.1%	16.7%
20.Walking (97)	2.1%	8.2%	0.0%	1.0%	15.5%	8.2%	16.5%	26.8%

a) Mechanisms of injury for knees and ankles

A total of 49 different mechanisms were reported for ankle injuries and 52 for knees. Responses reflected direct mechanisms such as 'hit by ball', and indirect mechanisms such as 'overuse'. In addition, specific responses provided by injured respondents, such as 'brakes failed' and 'someone tripped me over', provided rich free text relating to both direct and indirect ankle and knee injury mechanisms. Over all activities, the average number of injury mechanisms reported for ankle and knee injuries was 1.6 and 1.7, respectively, a finding that was also consistent over specific activities. There were no significant differences in the number of injury mechanisms across year groups or gender. 'Landing badly' was the most common mechanism reported for both ankles and knees (24% and 22% of mechanisms, respectively).

The seven most frequently reported mechanisms found for both ankle and knee injuries represented 84% and 85%, respectively, of the total number of mechanisms of injury. These included: 'bumped into someone', 'fell', 'landed badly', 'tripped', 'don't know', 'just happened' and 'overuse'. While some differences were found in the rankings those differences were not considered to be significant. Equipment failure was reported in 2.0% of knee injuries (n=15) and 0.3% ankle injuries (n=2), primarily involving the failure of cycling and rolling equipment, for instance 'wheel on skates jammed'; and 'forks snapped on bicycle'. Indirect mechanisms such as 'don't know', 'just happened' and 'over-use' were investigated as possible indicators of overuse type injuries characterised by insidious onset. When all activities were combined, indirect injury represented approximately one quarter of all reported injury mechanisms for both ankles and knees. The proportion of indirect mechanisms within specific sports is reported in *Table 18*, and highlights differences between ankle and knee injuries within activities such as dance, hockey, jogging/running, netball, rolling, soccer and walking. Differences were also noted between similar court based large-ball sports, such as basketball and netball, for indirect mechanisms of injury to the knee.

Table 18. Proportion of ankle/ knee injury mechanisms representing indirect injury.

Sport	Indirect mechanisms		Indirect mechanisms	
	Ankle	N	Knee	N
Aussie Rules	91	29.7%	105	21.9%
Badminton	6	16.7%	2	0.0%
Basketball	99	15.2%	107	18.7%
Bicycling	17	17.6%	53	24.5%
Cricket (also Kanga)	12	25.0%	13	23.1%
Golf	0	0.0%	1	0.0%
Gym activities	3	100.0%	9	100.0%
Handball	0	0.0%	2	0.0%
Hockey (Minkey)	14	21.4%	24	0.0%
Jogging/running	29	41.4%	19	42.1%
Martial arts	6	50.0%	7	28.6%
Netball	96	12.5%	112	22.3%
Rollering	28	10.7%	53	1.9%
Soccer	78	17.9%	59	30.5%
Softball	4	0.0%	3	0.0%
Swimming	6	33.3%	13	53.8%
Tennis	6	66.7%	5	20.0%
Various dance	43	25.6%	29	44.8%
Volleyball	7	28.6%	6	0.0%
Walking	26	46.2%	11	63.6%
All Sports	658	22.9%	782	23.3%

b) Gender / age differences in mechanisms of injury

Reports of direct and indirect injury were also compared between gender and age to determine whether insidious onset ankle and knee injury was more prevalent in any particular strata. The findings are provided in Table 19. Overall, girls showed an elevated prevalence of indirect mechanisms of knee injury compared with boys, and this finding was related to the older age group of girls.

Table 19. *Prevalence of indirect mechanisms of knee and ankle injury per strata of gender and year level.*

	<i>Ankle</i>	<i>Knee</i>
Female	24.7%	28.0%
Male	25.8%	22.1%
Year 7 overall	22.8%	22.2%
Year 10 overall	27.9%	29.1%
Year 7 (female)	21.7%	22.8%
Year 7 (male)	24.6%	21.5%
Year 10 (female)	28.6%	34.9%
Year 10 (male)	26.9%	22.8%

c) Injuries per level of participation

Injuries were investigated according to level of participation to test the assertion that the more intensely students participated in their recreational activities, the more injuries would be incurred. This was found for Australian Rules football, basketball, cricket, hockey, netball and soccer. However, for eight of the top ten activities (all except netball or hockey) more than 20% of the injuries occurred when participating for fun, with over 90% injuries occurring in bicycling and walking. Again, this information supports the need for the education of young people with respect to safe practices in recreational injury. The proportions of injury reported for each level of participation are listed in Table 20 for the top 20 activities. Data across a particular row does not necessarily add to 100% which is indicative of occasional multiple responses chosen by students to indicate their participation at several levels. The small number of responses in the 'other' category have not been included here.

Table 20. Injuries per level of participation*NB Where a row does not add to 100% additional responses were given under the 'other' category*

	<i>Competition</i>	<i>Training</i>	<i>P.E.</i>	<i>For Fun</i>
Aussie rules	71.0	8.5	2.7	17.8
Badminton	26.3	21.0	26.3	26.3
Basketball	71.6	5.4	2.4	20.6
Bicycling	7.8	26.7	0.5	60.2
Cricket (also Kanga)	69.0	0.5	0.3	23.4
Golf	16.7	16.7	0.0	50.0
Gym activities	0.0	30.6	16.7	27.8
Handball	0.0	0.0	0.0	100.0
Hockey (Minkey)	87.9	1.7	10.3	0.0
Jogging/running	8.6	20.0	20.0	38.6
Martial arts	38.8	35.3	0.0	25.9
Netball	91.3	3.9	2.9	1.9
Rollering	17.0	3.5	0.7	78.7
Soccer	62.0	9.4	7.1	21.6
Softball	38.9	22.2	22.2	16.7
Swimming	6.5	48.9	13.0	31.5
Tennis	75.0	6.2	9.4	9.4
Dance (various)	35.8	30.0	13.9	15.6
Volleyball	63.9	13.9	22.2	0.0
Walking	0.0	4.2	4.2	52.8

3.8. Influence of parents' country of origin on participation

Students reported the country or countries in which their mother and father had been born. This was related to the total number of days of participation, in order to detect whether a difference in amount of participation could be ascribed to parental country of origin. Students could report participation in as many as three activities, and they could indicate up to seven days-a-week participation in each; therefore, the total possible number of days of participation could range from zero to 21 days.

For each country, the mean number of days of activity was calculated within gender and year level stratum. The information was initially provided per country but for the purpose of this report it is organised into regions to more clearly reflect trends. Thus the mean value that is reported is the mean (and Standard Deviation) for the region. The influence of father's country of origin is presented in Table 21, and other's country of origin in Table 22, per gender and year level.

The combined country regions reflected in Tables 21 and 22 comprise:

- Australia
- New Zealand
- Pacific Islands (Fiji, Samoa, Guam, Vanuatu, Tonga, Papua New Guinea)
- SouthEast Asia (Philippines, Malaysia, Hong Kong, Korea, Vietnam, Thailand, Singapore, Indonesia, Burma, Laos, Taiwan)
- Northern Asia (China, Japan)
- Subcontinent (India, Sri Lanka, Pakistan, Bangladesh)
- Middle East (Malta, Lebanon, Cyprus, Macedonia, Syria, Israel, Negro Brunei, Palestine, Iran)
- Africa (Eritrea, Zimbabwe, Ethiopia, Kenya, Zadar, Egypt, Africa, Angola, *Dar-es-salaam*)
- Eastern Europe (Ukraine, Bosnia, Serbia, Bulgaria, Slovakia, Lithuania, Siberia, Poland, Rumania, Yugoslavia, Czech Republic, Hungary, Croatia, Turkey, Afghanistan, Ukraine)
- Northern Europe (Norway, Denmark, Sweden, Finland)
- Western Europe (Greece, Italy, Belgium, France, Holland, Germany, Austria, Spain, Europe, Portugal)
- British Isles (England, Wales, Scotland, Ireland)
- North America (USA, Canada)
- Central America (Central America, Bermuda)
- South America (Chile, Argentina, South America, El Salvador)

Taking into account the different numbers reflected in regional groupings, there were few differences in mean days of activity within and between strata, across regions of origin of parents. This supports the 'multiculturalisation' of recreational activities in Australia.

Table 21. The influence on mean days of activity of father's region of origin

NB Standard deviation of the mean is reported under the mean in each stratum.

	Y7G		Y7B		Y10G		Y10B	
	Sum	Mean (SD)	Sum	Mean (SD)	Sum	Mean (SD)	Sum	Mean (SD)
Australia	488	8 0	452	8 0	530	8 0	589	8 0
British Isles	126	8.5 0.5	112	8.5 0.5	147	7.25 0.6	143	9 1.3
Western Europe	75	8.5 8.7	42	8.7 8.7	96	8.8 8.8	95	7.3 7.3
Africa	4	9 9	3	9.8 9.7	9	11.2 11.2	6	9 9.3
NZ	10	8 0	3	4 0	10	7 0	20	7 0
Pacific Islands	2	10 3	0		6	7.5 3.4	2	1.5 1.5
SE Asia	17	6.0 3.7	12	6.2 2.3	72	7.8 2.9	73	7.1 3.1
Middle East	8	7.4 1.1	12	8.0 4.9	19	4.0 3.8	23	5.1 4.4
Eastern Europe	18	9.25 4.7	15	3 5.1	20	5.6 2.7	47	8.1 4.9
Subcontinent	7	8.5 2.1	3	4 0	6	7 5.7	8	10 3
North Asia	3	9 0	2	10 0	6	9 0	20	8.5 3.5
Northern Europe	3	15.3 2.5	2	6 2.8	0		3	4.7 5.1
North America	3	7.0 0.0	3	5.0 2.0	5	11.0 1.0	7	7.5 0.5
South America	9	11.3 2.3	1	10	5	7	3	6.3 3.2
Central America	0		0		0		3	12 2.8

Table 22. The influence on mean days of activity of mother's region of origin

NB Standard deviation of the mean is reported under the mean in each stratum

	Y7G		Y7B		Y10G		Y10B	
	Sum	Mean	Sum	Mean	Sum	Mean	Sum	Mean
Australia	533	8 0	461	8 0	563	7 0	663	8 0
British Isles	125	9.3 1.1	125	9.3 1.8	151	7.0 1.4	141	7.8 1.5
Western Europe	42	7.9 2.4	27	9.1 5.2	70	7.9 2.0	68	7.9 2.5
Africa	4	10.0 0.0	4	8.5 0.5	4	2.5 3.5	4	8.7 3.1
NZ	8	8.0 0	4	6.0 0	7	5.0 0	11	7.0 0
Pacific Islands	1	8.0 0	0		3	7.0 1.4	0	
SE Asia	28	6.7 2.9	4	7.1 2.5	82	7.6 2.5	91	7.6 2.1
Middle East	6	8.3 1.3	12	7.8 3.5	19	7.8 1.1	21	6.1 4.0
Eastern Europe	18	12.0 3.4	13	9.8 4.0	21	5.7 2.4	41	8.1 4.1
Subcontinent	5	10.0 0.0	2	5.0 1.0	4	7.5 5.5	7	8.7 2.6
North Asia	3	9.0 0.0	3	8.0 0.0	2	5.0 0.0	12	6.0 0.0
Northern Europe	1	13.0 0.0	1	0.0 0.0	4	9.5 1.5	2	1.0 1.0
North America	5	8.5 1.5	4	8.5 2.5	3	11.5 3.5	4	10.5 0.5
South America	7	10.0 0.0	0		6	14.0 7.0	3	10.0 0.0
Central America	0		0		0		1	7.0 7.0

4. KNOWLEDGE OF SPORT SAFETY

Of all the students surveyed, 89% reported having learnt about sports safety, reflecting an astounding range of sports-safe activities. The most common activities were stretching (23.5%), warm up/ cool down (23.4%), the use of protective equipment (16.8%), codes of conduct (14.8%), the proper use of playing equipment (13.3%), and modified sport (7.3%). A number of other issues were recorded in smaller proportions, the most common being: maintaining fluid intake (0.3%), rules of sport (0.1%) and 'how to do the sport safely' (0.1%). Other issues mentioned even less frequently by respondents were:

- How to fall without getting hurt
- Not pushing yourself too hard
- No-harm throwing and catching
- Basic first aid/ injury care
- Relaxation
- Swimming survival
- Self defense
- Not to play on an injury
- Team work
- Drugs in sport
- Correct body alignment

Participants were asked about the way in which they had learnt about sports safety. A wide variety of responses were obtained, and students frequently nominated more than one medium of information exchange. The most common individuals involved in teaching sports safety were: PE teacher (21.3%), coach (16.9%), parent (10.7%), sports trainer (9.8%), friend (6.7%), other teacher (7.9%) and sports personality (4.6%). The most common mediums for learning about sports safety were TV (reported by 11.1% students), book (5%), shop where sports gear was purchased (3.5%) and computer (1.3%). The most thought-provoking responses were 'found out about it on packet of rollerblades', 'police station', 'billboard' and 'from a stranger'!

4.1 Injury associated with knowledge of sports safety

The injuries reported by young people were investigated, seeking evidence that young people with sports safety education were less likely to suffer injury. None of the findings were significant, and further investigation are required into the nature of injury and the protection that sports safety knowledge provides to adolescents.

Table 23. *Injury associated with knowledge of sports safety*

Activity	Injured?	Received safety instruction?		
		N	Y	Total
Aussie rules OR=1.6	N	43	423	466
	Y	12	187	199
	ALL	55	610	665
Badminton Not calculable	N	12	84	96
	Y	1	13	14
	ALL	13	97	110
Basketball OR = 1.53	N	60	664	724
	Y	12	203	215
	ALL	72	867	939
Bicycling OR=0.80	N	54	475	529
	Y	12	84	96
	ALL	66	559	625
Cricket (also Kanga) OR=0.82	N	24	284	308
	Y	8	78	86
	ALL	32	362	394
Golf OR=0.47	N	14	142	156
	Y	4	19	23
	ALL	18	161	179
Gym activities OR=0.84	N	21	191	212
	Y	3	23	26
	ALL	24	214	238
Handball Not calculable	N	11	105	116
	Y	.	11	11
	ALL	11	116	127
Hockey (Minkey) OR=0.97	N	23	206	229
	Y	4	88	92
	ALL	27	294	321
Jogging/running OR=1.59	N	36	351	387
	Y	4	59	63
	ALL	40	410	450
Martial arts Not calculable	N	2	39	41
	Y	1	9	10
	ALL	3	48	51
Netball OR=1.22	N	37	418	455
	Y	13	179	192
	ALL	50	597	647

Table 23 continued

Activity	Injured?	Received safety instruction?		Total
		N	Y	
Rollering OR=0.90	N	19	195	214
	Y	8	74	82
	ALL	27	269	296
Soccer OR=0.79	N	39	443	482
	Y	17	152	169
	ALL	56	595	651
Softball Not calculable	N	9	89	98
	Y	2	15	17
	ALL	11	104	115
Swimming OR=0.81	N	33	256	289
	Y	8	50	58
	ALL	41	306	347
Tennis Not calculable	N	30	240	270
	Y	1	30	31
	ALL	31	270	301
Various dance OR=1.04	N	32	316	348
	Y	8	83	91
	ALL	40	399	439
Volleyball Not calculable	N	10	163	173
	Y	1	28	29
	ALL	11	191	202
Walking OR=0.95	N	107	731	838
	Y	8	52	60
	ALL	115	783	898
Top 20 OR=1.20	N	616	5815	6431
	Y	127	1437	1564
	ALL	743	7252	7995
All other activities	N	86	977	1063
	Y	16	311	327
	ALL	102	1288	1390
Total all activities	N	702	6792	7494
	Y	143	1748	1891
	ALL	845	8540	9385

Table 24. Education about Sports Safety Issues

Sports safety issue	Number of Responses	Percent of Total
Stretching	3227	23.5
Warm Up/Cool Down	3208	23.4
Protective Equipment	2297	16.8
Codes of Conduct/Behaviour	2030	14.8
Playing Equipment	1829	13.3
Modified Sport	1003	7.3
Maintain Fluids Intake	28	0.2
The Rules	17	0.1
Other (unspecified)	16	0.1
How To Do A Sport Safely	10	0.1
Diet/Hydration	8	0.1
Basic First Aid	8	0.1
Injury Care	7	0.1
Swimming Survival	5	0.0
Not Pushing Yourself Too Hard	2	0.0
Relax	2	0.0
Avoiding Ankle/Knee Harm In Netball	2	0.0
Correctly Roll/Land/Tumble	2	0.0
Teamwork	2	0.0
Landing In Long Jump	1	0.0
How To Fall Without Getting Hurt	1	0.0
No-Harm Throwing and Catching	1	0.0
Self-Defence	1	0.0
Do Not Play On An Injury	1	0.0
Drugs In Sport	1	0.0
Correct Alignment Of Body	1	0.0
Total Responses	13710	100.0

5. HEALTH PROMOTION

This project provided a wealth of information to support health promotion activities targeted at activities currently participated in by young people, and aiming to minimise the injuries they sustain from them. The project provided much needed information on the reliability of reporting of young people, and established baseline data on two groups of young people – those finishing primary school and about to make decisions regarding subjects in high school, and those who were half-way through high school and making decisions about career choices. The study highlighted the range of levels of participation in recreational activity (from competition and training, to participation with family and friends), and clearly found that participation for fun was the most common motivator for young people. The range of activities undertaken by young people was astounding, and the list highlighted that non-organised, leisure-time activities ranked alongside organised sports in the top 20 activities.

Pleasingly, the study indicates that older girls and boys are as active as their younger counterparts. This contradicts current suspicions, that older girls in particular, are 'dropping out' of regular participation in recreational exercise. What this study showed was that if information is collected only on sporting participation, it will marginalise a large proportion of young people who are participating in non-traditional sporting and leisure-time activities. This may well be where the misconception has arisen that older girls are participating less than younger ones. The activities chosen by older girls would appear to be the ones that they can participate in with their friends, and can undertake in a 'fun' environment, rather than the structured organised sporting activities. The lack of impact of parents' country of origin on participation, particularly in girls, truly reflects the effect of a multicultural society.

The study found that the most commonly reported activities were not always the ones which were played every day. To promote general body fitness, it may be appropriate to target activities which can be undertaken on a daily basis for a short period of time, rather than once-a-week activities such as organised sport. This becomes particularly relevant when the injury rate for fun daily activities such as 'walking', 'bikeriding' and 'handball' are strongly protective of injury, compared with the more organised and less frequent activities such as netball and soccer.

It would seem that many of the non-organised recreational activities incur significantly less risk of injury than the organised activities. If injury, or the fear of it, are reasons for young people dropping out of sport (Sale 1995) then low risk activities which can be undertaken with little fuss, and expense may be ideal to promote for young people who are not committed to any particular recreational activity. However, while the majority of injuries reported in this study were not serious, the potential for serious injury, particularly to the lower limb was identified. Serious injury to the lower limb appeared to be associated with the jumping, turning, landing sports. However, it was worrying that there was a high prevalence of 'aches and pains' to the joints of the lower limb. While most adults would call aches and pains minor problems, the quality of such pain reports in adolescents has not been well explored. The frequency of this injury type suggests the potential for insidious onset and growth-related joint problems such as Osgood Schlatters Disease, or Chondromalacia Patella. On the basis of this study, such problems may be more frequent than suspected previously (van Mechelin et al 1996).

Further investigation of this issue is required. That such a high proportion of young people knew about sports safety issues was heartening, although further analysis needs to be undertaken to determine whether knowledge of sports safety was associated with sports-safe behaviours, such as wearing protective equipment. The range of mediums in which sports safe information was imparted suggests lots of opportunities to continue to 'sell' the message that safe sport is smart sport. The findings of this research project provide valuable information for the internet site www.smartplay.net. It is planned that specific modules will be produced for body parts, risky sporting and recreational activities, and common types of injuries. For instance, 'landing badly' was a common injury mechanism. That some young people have already been exposed to information on safe landing practices suggests that this could be a successful health promotion initiative via the site to teach young people to recognise unsafe situations, and to develop skills to avoid them.

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The total list of activities reported by students

Abseiling	Firefighting	Octopus	Training Horses
Aerobics	Fishing	Orienteering	Trampoline
Amateur Theatre (Acting)	Fitness	Para Sailing	Treadmill
American Football	Fleckball	Parachuting	Triathlon
A-Pact	Flying	Photography	Tuna Throwing
Aqua Aerobics	Four Square	Pidgeon Toe	Under Water Hockey
Aquatics	Freestyle	Pistol Shooting	Unspecified Sport
Archery	Futsal	Play / Listen To Music	Volleyball
Art	Gaelic Football	Play Drums	Walking
Athletics - Field	Games (Unspecified)	Play Guitar	Watching Me Play Sport
Athletics - Track	Gardening	Play Nintendo	Watching TV
Australian Rules Football	Going To Work	Play Piano	Water Netball
Badminton	Golden Child	Playstation	Water Polo
Ballet	Golf	Poison Ball	Water Skiing
Baseball	Greyhound Racing/Training	Punching Bag	Water Sports
Basketball	& Breeding	Racing	Water Taboganning
Bicycle	Grid Iron	Racket Ball	Water Volley Ball
Bike Riding	Gym (Goes To)	Reading	Weight Lifting
Bingo	Gymnastics	Recreational Studies	Weight Programme
BMX Racing	Ha-Ki-Sac (Hockey Sack)	Relays	Weight Training/Workouts
Board Games	Handball	Ring Of Death	Wheel Driving
Board Training	High Jump	Rockclimbing	Wheelchair Sports
Boating (Other Than Sailing)	Hockey (Minkey)	Roller Blading	White Water Rolling
Body Building	Horse Polo	Roller Hockey	Windsurfing
Body Surfing	Horseriding	Rounders	Woodwork
Boogie Boarding	Hydro Sliding	Rowing	Workouts
Bowling (Ten Pin)	Hydrotherapy	Rugby (League)	Wrestling
Bowls (Lawn)	Ice Hockey	Rugby Union	
Boxing	Indoor Cricket	Sailing	
Brandy	Indoor Hockey	Sandball	
Bungee Jumping	Indoor Soccer	School PE	
Bushwalking/Hiking	In-Line Hockey	Scootering	
Butch	Internet/Computer	Scouts	
Calithsenics	Jazz Ballet	Scuba Diving	
Camel Riding	Jet Skiing	Self Defence	
Camping	Jetty Jumping	Situps	
Canadian Floor Hockey	Jogging/Running	Skate Boarding	
Canoeing	Judo	Skating (Ice)	
Car Racing	Jujitsu	Skating (Roller)	
Carpet Bowls	Karate	Skin Diving	
Cart Racing	Kick Boxing	Skipping	
Catch	Kickball	Sky Diving	
Ceramics	Kite Flying	Sly Fox	
Chasey	Korfball	Snooker/Pool	
Cheer Leading	Kyaking	Snorkelling	
Chess	Lacrosse (Sofcrosse)	Snow Boarding	
Chopping Wood	Lead Lighting	Snow Skiing	
Circuit	League Ball	Soccer	
Cirkidz	Life Be In It	Soccer Lob Ball	
Clay Shooting	Life Saving	Softball	
Coaching/Umpiring	Line Dancing	Speed Ball	
Cooking	Little Athletics	Sprinting	
Craft Work	Longball	Square Dancing	
Cricket (Including Kanga)	Marathon Running	Squash	
Cross Country	Marching	Stairclimbing	
Cycling	Marks Up	Step Aerobics	
Dancing	Martial Arts	Surf Skiing	
Darts	Mat Ball	Surfing	
Dodge Ball/Mac Ball	Mats	Swimming	
Dog Showing	Meditation	Table Tennis	
Dog Training	Mini-Golf	Tobogganing	
Dragon Boat Racing	Model Boats	Tag	
Eightball	Model Planes	Tai Chi	
Ergo Cycle	Modelling	Tap Dancing	
Exercise	Motor Bike Riding	T-Ball	
Exercise Bike	Mountain Climbing	Teach P.E.	
Farm Work	Mud Wrestling	Team Games	
Fencing	Mugby	Tennis	
Field Events	Muscle Toning	Theatre Sports	
Fighting	Naval Cadets	Ti Kwan Do	
	Netball	Touch (Football)	

Grouped activities in which students reported participating, and which were used for analysis

1. Abseiling
2. Archery
3. Athletics
4. Australian rules football
5. Badminton
6. Baseball
7. Basketball
8. Bicycle riding
9. BMX racing
10. Boogie boarding
11. Boxing
12. Bushwalking / hiking
13. Canoeing
14. Coaching, umpiring
15. Cricket (including Kanga cricket)
16. Cross country
17. Fencing
18. Field/ PE activities
19. Go cart racing
20. Golf
21. Grid iron
22. Gym activities
23. Gymnastics
24. Handball
25. Hockey
26. Horse polo
27. Horseriding
28. Ice hockey
29. Ice skating
30. Indoor cricket
31. Indoor hockey
32. In-line hockey
33. Jogging/ running
34. Korfball
35. Kyaking
36. Lacrosse
37. Lawnbowls
38. Life saving
39. Martial sports
40. Minor games
41. Motor bike riding
42. Netball
43. Orienteering
44. Pistol shooting
45. Rockclimbing
46. Rollering
47. Rowing
48. Rugby League
49. Rugby Union
50. Sailing
51. Skateboarding
52. Snow sports
53. Soccer
54. Softball
55. Squash
56. Surf activities
57. Swimming
58. T ball
59. Table games
60. Table tennis
61. Ten pin bowling
62. Tennis
63. Touch (football)
64. Triathlon
65. Under water hockey
66. Various Dance
67. Volleyball
68. Walking
69. Water skiing
70. Weight lifting
71. Windsurfing

The way that activities were incorporated into broad categories for analysis purposes

Athletics	Athletics Track, athletics field, little athletics, high jump, sprinting, racing, relays, jetty jumping
Bikeriding	Bikeriding and cycling
Cricket (Kanga)	Indoor Cricket
Dance (Various)	Dancing, aerobics, calisthenics, 4 square dancing, line dancing, jazz ballet, cirkidz, aqua aerobics, cheer leading, tap dancing, ballet, freestyle
Indoor soccer	Indoor soccer, futsal
Martial Sports	Martial arts, self defense, wrestling, tai kwan do, jujitsu, karate, kick boxing, judo, fighting
Rollering	Roller blading, roller skating, In-line Hockey
Gym activities	Weight training/ workouts, exercise bike, situps, gym (goes to), workouts, fitness, trampoline, exercise, muscle toning, circuit, step aerobics, board training, ergo cycle, weight programme, weight lifting
Minor games	Poison ball, four square, marks up, soccer lob ball, pidgeon toe, chasey, sly fox, catch, tag, scootering, dodge ball/ mac ball, butch, speed ball, kick ball, brandy, ring of death, mat ball, long ball, octopus, fleckball, games (unspecified), ha-ki-sac, A-pact, mugby, play station, golden child, sandball,
Golf	Mini golf, golf
Surf activities	Surfing, surf skiing
Snow sports	Snow skiing, tobogganning
Field, PE events	School PE, life be in it, marching, racket ball, kite flying, team games, gaelic football, field events, recreational studies,
Table games	Eightball, snooker, pool
Deletions	Watching TV, farm work, unspecified sport, fishing, cooking, scouts, darts, playing/ listening to music, playing piano, clay shooting, amateur theatre, dog showing, chess, modelling, theatre sports, play drums, internet/ computer, dog training, playing guitar, model planes

Raw data for frequency of participation in sports and recreational activities

	<i>N reporting participation</i>				
	<i>totals</i>	<i>Y7G</i>	<i>Y10G</i>	<i>Y7B</i>	<i>Y10B</i>
Basketball	875	200	113	234	328
Walking	940	239	463	73	165
ARF	637	68	70	256	243
Soccer	587	121	75	217	174
Bike	631	142	82	180	227
Netball	609	323	243	19	24
Dance	537	176	277	31	53
Jogging	443	157	124	65	97
Cricket	349	36	41	137	135
Swimming	333	89	142	55	47
Hockey	103	33	11	34	25
Tennis	288	67	73	47	101
Rollering	269	97	54	64	54
Gym	226	27	85	17	97
Volleyball	203	57	74	22	50
Golf	190	6	18	34	134
Martial sports	133	13	38	25	57
Handball	131	56	15	36	24
Softball	109	47	34	4	24
Badminton	108	15	43	2	48
Minor games	85	29	4	38	14
Baseball	88	11	10	37	30
Skating ice	73	14	39	8	12
Table tennis	59	2	11	8	38
Athletics	60	13	12	20	15
Surfing	56	5	6	8	37
Gymnastics	50	29	13	4	4
Squash	48	3	11	6	28
Horseriding	51	23	22	5	1
Lacrosse	47	5	26	10	6
Touch	44	6	11	7	20
Indoor cricket	39	0	1	4	34
Weight lifting	39	3	9	2	25
Deleted	33	4	4	8	17
Skateboarding	36	0	0	11	25
Rockclimbing	35	2	2	7	24
T ball	23	4	1	10	8
Skipping	30	22	1	5	2

<i>N reporting participation</i>					
	<i>totals</i>	<i>Y7G</i>	<i>Y10G</i>	<i>Y7B</i>	<i>Y10B</i>
Rugby	26	2	2	9	13
PE & Field	20	5	4	7	4
Rowing	25	5	3	0	17
Cross Country	26	5	2	18	1
Sailing	22	3	3	5	11
Boxing	23	0	4	4	15
In Line Hockey	19	2	1	11	5
Boogie Board	19	1	2	2	14
Archery	20	5	4	5	6
Bowling (Ten Pin)	18	2	0	4	12
BMX Racing	15	0	0	6	9
Ice Hockey	15	1	2	5	7
Water Skiing	14	2	3	2	7
Snooker	12	1	1	0	10
Motor Bike Riding	10	2	0	4	4
Bushwalking	10	1	0	1	8
Korfball	10	4	3	2	1
Grid Iron	10	0	1	1	8
Go Carts	7	0	0	5	2
Snow Sports	9	0	1	6	2
Rugby Union	8	0	2	1	5
Eightball	6	1	1	1	3
Abseiling	7	1	2	0	4
Orienteering	5	1	2	0	2
Indoor Hockey	5	4	0	1	0
Life Saving	6	0	2	3	1
Lawn Bowls	6	0	1	1	4
Canoeing	4	1	0	0	3
Pistol Shooting	4	0	0	1	3
Surf Skiing	4	3	0	1	0
Coaching/ Umpiring	4	0	0	0	4
Kyaking	3	0	2	0	1
Fencing	3	0	0	0	3
Windsurfing	2	0	0	0	2
Horse Polo	1	0	0	0	1
Under Water Hockey	1	0	0	0	1
Triathlon	1	0	0	0	1

Hours per week, and days per week participation in sports and recreational activities

	<i>hours/wk</i>	<i>days/wk</i>	
<i>Yr7 Girls</i>			<i>N</i>
Aerobics	1.7	2.2	48
Aussie Rules	1.7	3.2	58
Basketball	1.9	3.1	200
Bikeriding	1.7	3.1	140
Cricket	1.2	2.3	36
Dancing	2.3	2.5	84
Golf	1.5	1.7	6
Handball	1.7	3.5	56
Hockey	2.2	2	33
Horseriding	2.9	2.4	23
Soccer	1	1.5	17
Jogging	1.3	3.4	157
Netball	2.1	2.3	323
Rollering	1.8	3	86
Ice Skating	4.1	2.6	14
Soccer	1.8	2.6	121
Softball	2.3	2	47
Surfing	1.4	1.4	5
Swimming	2.4	2.1	89

<i>Yr7 Boys</i>			
Aerobics	1	1	1
Aussie Rules	2.8	3.4	256
Basketball	1.8	3.9	234
Bikeriding	2.5	4.1	176
Cricket	3.4	3	137
Dancing	1.3	1	3
Golf	3	1.4	34
Handball	1.5	3.7	36
Hockey	2.2	2.1	24
Horseriding	1.5	3	5
Soccer	0.9	1.4	25
Jogging	1.5	3.7	65
Netball	1.3	1.7	19
Rollering	1.9	2.9	59
Ice Skating	2.5	1.2	8
Soccer	2.5	3.1	217
Softball	0.7	1.7	4
Surfing	3.1	2.2	8
Swimming	3.3	3	55

	<i>hours/wk</i>	<i>days/wk</i>	
Yr10Girls			
Aerobics	1.5	2.8	91
Aussie Rules	1.9	1.5	70
Basketball	2.2	3.5	113
Bikeriding	1.5	3.2	78
Cricket	2.2	1.6	41
Dancing	2.6	2.8	152
Golf	2.5	2.5	18
Handball	1.3	2.5	15
Hockey	2	2.7	11
Horseriding	3	3.4	22
Soccer	0.5	1.4	13
Jogging	1.1	3.1	124
Netball	2.2	2.2	243
Rollering	1.9	2.9	47
Ice Skating	3.5	1.4	39
Soccer	2	2.1	75
Softball	2.5	2.2	34
Surfing	4.1	1.8	6
Swimming	2.8	2.7	142

	<i>hours/wk</i>	<i>days/wk</i>	
Yr10Boys			
Aerobics	0.7	2.5	4
Aussie Rules	3.1	3.6	243
Basketball	2.5	3.4	328
Bikeriding	2.4	4.1	204
Cricket	3.9	3.1	135
Dancing	3.2	4.2	7
Golf	2.7	1.8	133
Handball	2.4	3.8	24
Hockey	3.1	3.4	25
Horseriding	2	1	1
Soccer	1	1.4	40
Jogging	1.4	3.4	97
Netball	2	2.8	24
Rollering	3.8	3.9	42
Ice Skating	2.6	1.3	12
Soccer	2.8	3.4	174
Softball	2.5	2.5	24
Surfing	4.6	2.5	37
Swimming	2.8	2.9	47

Gender and age-specific breakdown of information on level of participation per the top ten activities

	<i>competition</i>			
	<i>Y7G</i>	<i>Y10G</i>	<i>Y7B</i>	<i>Y10B</i>
Basketball	27.1%	31.2%	30.1%	27.2%
Walking	0.4%	0.2%	0.0%	1.8%
Aust. rules	16.7%	20.2%	29.7%	34.3%
Soccer	25.4%	28.4%	30.5%	27.9%
Bikeriding	0.0%	0.0%	0.5%	4.3%
Netball	47.0%	51.4%	35.5%	25.0%
Jogging	2.9%	4.9%	11.2%	4.5%
Cricket	2.3%	8.7%	31.3%	35.5%
Swimming	6.5%	5.8%	11.9%	12.5%
Hockey	22.9%	41.2%	39.2%	51.2%

	<i>training</i>			
	<i>Y7G</i>	<i>Y10G</i>	<i>Y7B</i>	<i>Y10B</i>
Basketball	17.3%	20.1%	16.9%	15.6%
Walking	3.9%	2.0%	2.6%	1.2%
Aust. rules	15.5%	8.3%	24.3%	21.8%
Soccer	21.4%	20.0%	25.3%	24.8%
Bikeriding	3.9%	9.4%	7.1%	14.8%
Netball	33.9%	28.0%	22.6%	10.7%
Jogging	18.5%	19.6%	29.2%	40.9%
Cricket	4.7%	4.3%	23.7%	25.3%
Swimming	32.7%	16.0%	31.3%	23.2%
Hockey	25.0%	29.4%	23.5%	31.7%

<i>Physical Education</i>				
	<i>Y7G</i>	<i>Y10G</i>	<i>Y7B</i>	<i>Y10B</i>
Basketball	11.2%	22.1%	12.1%	11.6%
Walking	7.0%	1.6%	9.0%	0.6%
Aust. rules	11.9%	36.9%	8.4%	3.7%
Soccer	18.9%	15.8%	9.8%	9.7%
Bikeriding	9.1%	0.0%	2.0%	0.0%
Netball	3.8%	7.4%	22.6%	42.9%
Jogging	30.7%	2.1%	23.6%	5.5%
Cricket	46.5%	65.2%	8.9%	7.0%
Swimming	7.5%	5.8%	4.5%	3.6%
Hockey	39.6%	11.8%	25.0%	7.3%

<i>For fun</i>				
	<i>Y7G</i>	<i>Y10G</i>	<i>Y7B</i>	<i>Y10B</i>
Basketball	42.4%	26.0%	39.2%	44.8%
Walking	57.0%	50.8%	59.0%	43.7%
Aust. rules	56.0%	33.3%	36.7%	39.6%
Soccer	34.3%	35.8%	33.0%	36.8%
Bikeriding	76.6%	76.5%	81.2%	66.4%
Netball	14.6%	13.0%	19.4%	17.9%
Jogging	41.5%	55.9%	32.6%	42.7%
Cricket	46.5%	21.7%	35.3%	32.3%
Swimming	49.5%	68.6%	49.3%	60.7%
Hockey	12.5%	17.6%	7.8%	9.8%

Gender and age-specific breakdown of information on injury per level of participation

The percentage reported is of the per-column total within each activity (i.e. the competition column reports the proportion of gender/ age specific groups who were injured in competition for each activity).

	Competition	Training	PE	For fun		Competition	Training	PE	For fun
Basketball					Jogging				
Year7G	19.0%	65%	0%	3.7%	Year7G	61.5%	14.3%	82.4%	11.5%
Year7B	20.5%	15%	28.6%	14.8%	Year7B	30.8%	14.3%	17.6%	30.8%
Year10G	26.2%	10%	71.4%	22.2%	Year10G	0%	42.9%	0%	46.1%
Year10B	34.2%	10%	0%	59.3%	Year10B	7.7%	28.6%	0%	11.5%
Walking					Cricket				
Year7G	100%	100%	35.9%	15.8%	Year7G	0.0	0%	33%	13.3%
Year7B	0%	0%	5.13%	10.5%	Year7B	47.2%	33%	0%	55.6%
Year10G	0%	0%	51.3%	63.2%	Year10G	0%	0%	67%	0%
Year10B	0%	0%	7.7%	10.5%	Year10B	52.8%	67%	0%	31.1%
Aust. Rules Football					Swimming				
Year7G	3.7%	6.5%	30%	11.8%	Year7G	50%	42.2%	66.7%	4.8%
Year7B	17.3%	12.9%	0%	47.4%	Year7B	0%	35.6%	33.3%	33.3%
Year10G	36.6%	0.0%	70%	19.7%	Year10G	0%	20.0%		42.9%
Year10B	42.4%	80.6%	0%	21.1%	Year10B	50%	2.2%		19.0%
Soccer					Hockey				
Year7G	40.5%	12.5%	38.9%	34.2%	Year7G	15.7%	0%	84.2%	100%
Year7B	36.3%	62.5%	27.8%	18.4%	Year7B	23.5%	100%	15.8%	0%
Year10G	7.8%	8.3%	22.2%	5.3%	Year10G	25.5%	0%	0%	0%
Year10B	15.5%	16.7%	11.1%	42.1%	Year10B	35.3%	0%	0%	0%
Bike riding					Netball				
Year7G	1%	1%	0%	98%	Year7G	52.7%	100%	30%	57.1%
Year7B	0%	1%	0%	99%	Year7B	0.7%	0%	10%	0%
Year10G	0%	1%	0%	99%	Year10G	45.9%	0%	40%	42.9%
Year10B	0%	0%	0%	100%	Year10B	0.7%	0%	20%	0%

Level of activity

<i>Activity</i>	<i>Year/ Gender</i>	<i>Competition</i>	<i>training</i>	<i>PE</i>	<i>for fun</i>	<i>for exercise</i>	<i>other</i>	<i>ALL</i>
Aussie Rules	Y7G	14	13	10	47		0	84
	Y10G	17	7	31	28		1	84
	Y7B	131	107	37	162		4	441
	Y10B	110	70	12	127		2	321
	Total	272	197	90	364	0	7	930
Badminton	Y7G	2	3	6	8			19
	Y10G	9	6	22	19			56
	Y7B	0	2	0	0			2
	Y10B	12	11	19	21			63
	Total	23	22	47	48	0	0	140
Basketball	Y7G	80	51	33	125		6	295
	Y10G	48	31	34	40		1	154
	Y7B	107	60	43	139		6	355
	Y10B	138	79	59	227		4	507
	Total	373	221	169	531	0	17	1311
Bicycling	Y7G	0	6	14	118	1	15	154
	Y10G	0	8	0	65	1	11	85
	Y7B	1	14	4	160	0	18	197
	Y10B	11	38	0	170	1	36	256
	Total	12	66	18	513	3	80	692
Cricket (also Kanga)	Y7G	1	2	20	20		0	43
	Y10G	4	2	31	10		0	47
	Y7B	72	55	20	79		2	228
	Y10B	89	52	23	63		0	227
	Total	166	111	94	172	0	2	545
Golf	Y7G	0	1	1	4		0	6
	Y10G	0	1	11	7		0	19
	Y7B	9	6	0	25		1	41
	Y10B	18	17	57	61		3	156
	Total	27	25	69	97	0	4	222
Gym activities	Y7G	0	10	7	16	0	1	34
	Y10G	1	29	4	48	3	16	101
	Y7B	0	8	4	10	2	1	25
	Y10B	0	64	27	48	0	7	146
	Total	1	111	42	122	5	25	306

<i>Activity</i>	<i>Year/ Gender</i>	<i>Competition</i>	<i>training</i>	<i>PE</i>	<i>for fun</i>	<i>exercise</i>	<i>for other</i>	<i>ALL</i>
Handball	Y7G	1	0	3	55		0	59
	Y10G	1	0	2	11		0	14
	Y7B	3	1	2	33		1	40
	Y10B	2	2	3	18		0	25
	Total	7	3	10	117	0	1	138
Hockey (Minkey)	Y7G	11	12	19	6		0	48
	Y10G	7	5	2	3		0	17
	Y7B	20	12	13	4		2	51
	Y10B	21	13	3	4		0	41
	Total	59	42	37	17	0	2	157
Jogging/running	Y7G	6	38	63	85	3	10	205
	Y10G	7	28	3	80	8	17	143
	Y7B	10	26	21	29	1	2	89
	Y10B	5	45	6	47	1	6	110
	Total	28	137	93	241	13	35	547
Martial arts	Y7G	2	10	0	4		0	16
	Y10G	6	30	2	9		0	47
	Y7B	6	13	3	10		1	33
	Y10B	18	47	1	15		2	83
	Total	32	100	6	38	0	3	179
Netball	Y7G	261	188	21	81		4	555
	Y10G	202	110	29	51		1	393
	Y7B	11	7	7	6		0	31
	Y10B	7	3	12	5		1	28
	Total	481	308	69	143	0	6	1007
Rollering	Y7G	1	3	1	97		2	104
	Y10G	2	2	0	52		2	58
	Y7B	15	6	1	61		1	84
	Y10B	10	7	2	51		2	72
	Total	28	18	4	261	0	7	318
Soccer	Y7G	51	43	38	69		0	201
	Y10G	27	19	15	34		0	95
	Y7B	106	88	34	115		5	348
	Y10B	72	64	25	95		2	258
	Total	256	214	112	313	0	7	902

<i>Activity</i>	<i>Year/ Gender</i>	<i>Competition</i>	<i>training</i>	<i>PE</i>	<i>for fun</i>	<i>ALL</i>
Softball	Y7G	24	19	9	15	67
	Y10G	10	14	16	7	47
	Y7B	0	0	1	3	4
	Y10B	2	1	17	5	25
	Total	36	34	43	30	143
Swimming	Y7G	7	35	8	53	107
	Y10G	9	25	9	107	156
	Y7B	8	21	3	33	67
	Y10B	7	13	2	34	56
	Total	31	94	22	227	386
Tennis	Y7G	31	33	4	31	99
	Y10G	31	30	13	29	104
	Y7B	22	25	1	18	66
	Y10B	46	34	33	31	144
	Total	130	122	51	109	413
Dance (various)	Y7G	45	78	36	67	233
	Y10G	29	103	45	141	343
	Y7B	6	5	20	8	40
	Y10B	17	11	15	17	61
	Total	97	197	116	233	677
Volleyball	Y7G	21	5	24	20	70
	Y10G	18	14	39	23	94
	Y7B	15	2	8	5	30
	Y10B	17	10	25	8	61
	Total	71	31	96	56	255
Walking	Y7G	1	10	18	146	256
	Y10G	1	10	8	254	500
	Y7B	0	2	7	46	78
	Y10B	3	2	1	73	167
	Total	5	24	34	519	1001
Top 20 Activities	Y7G	559	560	335	1067	2655
	Y10G	429	474	316	1018	2557
	Y7B	542	460	229	946	2250
	Y10B	605	583	342	1120	2807
	Total	2135	2077	1222	4151	10269