

A REPORT

from



to the

Victorian Health Promotion Foundation

Parental Perceptions of Sports Injury Risk Project



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1. EXECUTIVE SUMMARY

The Parental Perceptions of Sports Injury Risk Project is an initiative of the Victorian Health Promotion Foundation (VicHealth) conducted by the School of Human Movement and Sport Sciences (HMSS) at the University of Ballarat (UB).

With increasing numbers of children and adolescents in Australia becoming obese or overweight (Department of Health and Ageing, 2003), increasing physical activity behaviour in young people is an important health initiative. As a consequence, it is important to gain an understanding of barriers to participation for development of effective interventions. One potential barrier could be parental perceptions of sports injury risk. Parents may be reluctant to encourage children to participate in some sports because they (the sports) are perceived as being inherently dangerous, or that the risk of injury is greater than in other activities.

The project aimed to investigate the influence and extent of parental perceptions of sports injury risk as a barrier to young people's participation in sport. To explore the influence of these perceptions, the project was conducted in two phases: a quantitative survey of parents and a follow-up qualitative phase where selected parents were interviewed concerning their perceptions of sports injury risk.

In Phase 1 a survey was sent to parents of children who were participants in 46 of the 51 sports registered with VicHealth. In total, 5465 surveys were distributed, with 855 surveys returned, representing a response rate of 15.6%. Using the Health Belief Model (HBM) as a theoretical framework, the survey in Phase 1 investigated the impact of socio-demographic variables, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, modified sport, and self-efficacy on parental perceptions of sports injury risk.

Results of Phase 1 suggested that of the parents, the female parent was most often the major decision maker in their child's sport, but children were also the major decision maker in many families. Male parents were more often the major decision-maker for male children and female parents for female children.

Parents perceived that their child was susceptible to injury in sport, but this was not a very strong perception. In addition, parents generally felt that their child would not receive a serious injury. Greater perceived susceptibility and severity were reported by parents of children participating in contact and incidental collision sports. Perceived susceptibility was not influenced by the type of activity (training vs competition), level of sport participation or the amount of time spent participating. Selection of a sport was not based on perceived severity, but parents of children participating in non contact sports were more likely to consider the potential for serious injury when choosing a sport.

Parents were confident of taking preventative action to ensure safe participation, although parents of children in contact and incidental collision sports felt that they had less control than parents of children in non-contact sports. Parents normally did not rate the barriers to taking action very strongly, with cost of safety equipment, their understanding of sports injury risk, and inhibition of the spontaneity of sport from safety procedures not really seen as preventing them from taking action.

Cues to action had a very small impact on perceptions of sport injury risk. Parents perceived that they were not getting information from the media, that trained coaches were important, that officials were important in contact sports, that information from other parents did not influence perceptions, that parents' injury experience did not influence choice of sport for child, and that protective equipment use did influence choice of sport. Modified sport had little impact on parental perceptions of sports injury risk, with low perceptions of reduced injury susceptibility or severity due to modified sport. Generally, parents were not more likely to involve their child in a sport if it offered modified rules.

In Phase 2 a total of 55 phone interviews were conducted with parents of children who currently have children participating in sport and parents of children who participated but have now stopped, and parents who have children who have never participated in organised competitive sport. Interviews focused on the following demographic information, their child's sporting background and the decisions behind their participation, the effect on parent's perceptions, parent's knowledge of and thoughts on protective equipment, parent's knowledge of and thoughts on modified sports, parent's perceptions of injury risk level of sports and influencing factors, and parent's source of information on sport injury risk.

Results of Phase 2 suggested that in general, parents acknowledged and were worried about the risk of injury, but accepted the risks because the advantages of participation in sport were seen to outweigh the injury risks. Parents expressed strong support regarding benefits of playing sport, including social, health, enjoyment, fitness, and psychological development benefits. Parents were aware of the different injury risks in different sports and some parents did channel their children into or away from sports according to injury risk perceptions. Injury or injury risk was not seen as a major reason for stopping participation, with the most common reason reported being to pursue another sport or activity, such as work, relationship, or study. Parents perceived that the amount of contact and nature of the game, quality of sports surface and equipment, and coaching and officiating expertise were important in injury risk in sport.

Parents perceived that they had a sound knowledge of the personal protective equipment appropriate for the sport their children played. The main barriers reported to the use of appropriate protective equipment included hindrance of enjoyment and performance, and non-compulsory practices of clubs, coaches, and leagues. Many parents felt it was primarily their responsibility to ensure their child used appropriate protective equipment. Modified rules had little impact on willingness to allow participation and parents were generally not very aware of the modifications to the sport to ensure safe participation. They also perceived that the impact of rule modification on injury risk reduction was not promoted. The major source of information about injury risk level was the media, particularly television, but this related to football only. Other sources identified included other parents and their own observation of sport. They also reported that their child was often the major decision maker in sport choice. Other factors considered in their child's sport selection included availability of resources, sustainable sport participation, avoiding an unsafe environment, and catering to the peer pressure their child was experiencing.

Overall, the findings of both phases of the project supported that parents acknowledged and were aware of the injury risk of participation in sport and between different sports. However, parental perceptions of sport injury risk did not appear to be strong influences on parental actions regarding sports participation.

Parents were generally confident of their understanding of sports injury risk and their ability to take preventive action. Also, parents indicated that it was their responsibility to ensure participation was safe and that it was their primary responsibility to ensure their child used appropriate protective equipment. This perception of responsibility and control is interesting, given that in both phases of the project, parents reported that children were in the majority of cases the major decision makers on sport choice. In both phases, parents reported that modified sport had little impact on their perception of sports injury risk and parents did not really associate modifications with injury risk reduction.

Interestingly, there were some slightly contradictory findings between the findings from the two phases. For instance, in Phase 1 parents generally reported that sport choice was not based on perceived injury severity; however, parents of children in contact sports were more likely to consider the potential for serious injury in choosing a sport. In the interviews some parents reported channelling their children into or away from sports based on injury risk perceptions of those sports. In Phase 1, parents normally did not rate the barriers to taking action very strongly and most felt that safety procedures did not inhibit the spontaneity of sport. In Phase 2, however, parents expressed that barriers to the use of protective equipment included hindrance of enjoyment and performance, as well as non-compulsory practices of sports. Cues to action were described as having little influence on perceptions in Phase 1. However, in Phase 2, parents reported a large number of sources of information on injury risk and that their major source of information about injury risk level was the media, particularly television.

Recommendations based on the findings of the project include:

- Target children's perceptions of sports injury risk as well as parental perceptions
- Investigate children's perceptions of sports injury risk and the impact this has on sport selection
- Consider approaches to provide up to date information to parents to ensure they can take appropriate injury prevention measures
- Publicise modified sport to parents as a means of providing safer sport for their children, especially in relation to contact sports, which were perceived as having higher perceived susceptibility and severity
- Sports should publicise what modifications are made to their sport and a rationale for these modifications
- Consider how to effectively use information sources on injury risk in sport
- Support and promote good officiating, good coaching, and good sporting facilities
- Support parents in ensuring the use of protective equipment by providing guidelines and rules that are supportive of the use of protective equipment, and reinforce compulsory practices and compliance with sporting association guidelines, as well as making sure appropriate equipment is available
- Contact sports need to consider how to promote the safety aspects of their sport including the use of protective equipment, good coaching and officiating, and the impact of modified sport on reducing the susceptibility and severity of injury
- Continue to reinforce the advantages of sporting participation
- Continue to investigate aspects of discontinuation or non-participation in sport.

Research Recommendations

- Research should investigate children's perceptions of sports injury risk and the impact this has on sport selection and participation
- Coaches and officials perceptions of sport injury risk and the influence on injury prevention behaviours and practices
- Coaches and sporting bodies perceptions of modified sport and the influence of these perceptions on the practices
- The compliance with current guidelines of modified sport and how this affects injury risk.

2. BACKGROUND

The Parental Perceptions of Sports Injury Risk Project is an initiative of the Victorian Health Promotion Foundation (VicHealth) conducted by the School of Human Movement and Sport Sciences (HMSS) at the University of Ballarat (UB) that aims to investigate the influence and extent of parental perceptions of sports injury risk as a barrier to young people's participation in sport.

With increasing numbers of children and adolescents in Australia becoming obese or overweight (Department of Health and Ageing, 2003), increasing physical activity and sport participation in young people is an important health initiative. Participation in regular physical activity has also been shown to be associated with improved self esteem and body image and reduced stress levels (Sothorn, Loftin, Suskind, Udall and Blecker, 1999). A study by Steptoe and Butler (1996) demonstrated that emotional wellbeing of adolescents was associated with regular physical activity. Pate, Trost, Levin and Dowda (2000) and Escobedo, Marcus, Holtzman and Giovino (1993) also found that regular physical activity decreased the likelihood of adolescents undertaking activities that may be harmful to their health such as smoking and illegal drug use. As a consequence, it is important to gain an understanding of barriers to participation for young people so that effective interventions can be developed. There are numerous barriers, which inhibit young people from participation in sport. These range from gender issues, socio-economic status to parental encouragement (Stroot, 2002). An additional barrier to engaging in sport for adults is actual injury and fear of injury (Finch, Owen, & Price, 2001). However, for children and adolescents where sport and other physical activities are the leading cause of injuries (Michaud, Renaud, & Narring, 2001), little is known about the impact of injury fear and similar issues on children's participation in sport. Anecdotally, it is believed that safety concerns influence parental choices of sport for children, particularly in mothers, although some recent studies have focused on parental influence on children's use of pellet guns (Damore, 2000) and with involvement in outdoor activities (Soori, 2000).

The perception of activity risk is an additional factor that may discourage participation (Creyer, 2003) and may be further amplified in youth participation by parental attitudes. There are differences in risk perception between adults and adolescents (Cohn, 1995) and there is evidence that provides an insight into parents' perceptions of road safety (Lam, 2001) and childhood injury (Sellstrom, Bremberg, & Gärling, 2000). However, there is little current literature which provides significant insight into parents' perceptions of injury risk in sport, although recent studies have focused on children's use of pellet guns (Damore, 2000) and involvement in outdoor activities (Soori, 2000).

A comprehensive review of the correlates of physical activity of children and adolescents have shown that parental support and perceived barriers play a significant role in shaping children's physical activity patterns (Sallis, Prochaska, & Taylor, 2000). One Victorian study found that parents voiced concerns about their children's sporting involvement due to the perceived injury risks (Murphy & Kanost, 2002). Another recent study by Boufous, Finch, and Bauman (2004) found that their perceptions of injury and safety risks associated with discouragement of their children participating in sport were linked to the child's age and gender, language spoken at home, presence of disability and the respondent's relationship to the child.

Attempts to explain parental perceptions of their children's sports injury risk could be aided through theoretical frameworks. In the present project the Health Belief Model (HBM) was used as a theoretical framework for attempting to explain parental perceptions of children's sports injury risk. The HBM is a psychological model that has been used extensively to explain health behaviours (Rosenstock, Strecher, & Becker, 1988; 1994). It is a social-cognitive model that focuses on the beliefs and attitude of individuals. In essence, the HBM predicts that the likelihood of an individual engaging in preventive health behaviours depends on the person's perception of the susceptibility and severity of the potential injury as well as the appraisal of the costs and benefits of taking action. An outline of the HBM applied to parental perceptions of sports injury risk is provided in Figure 1.

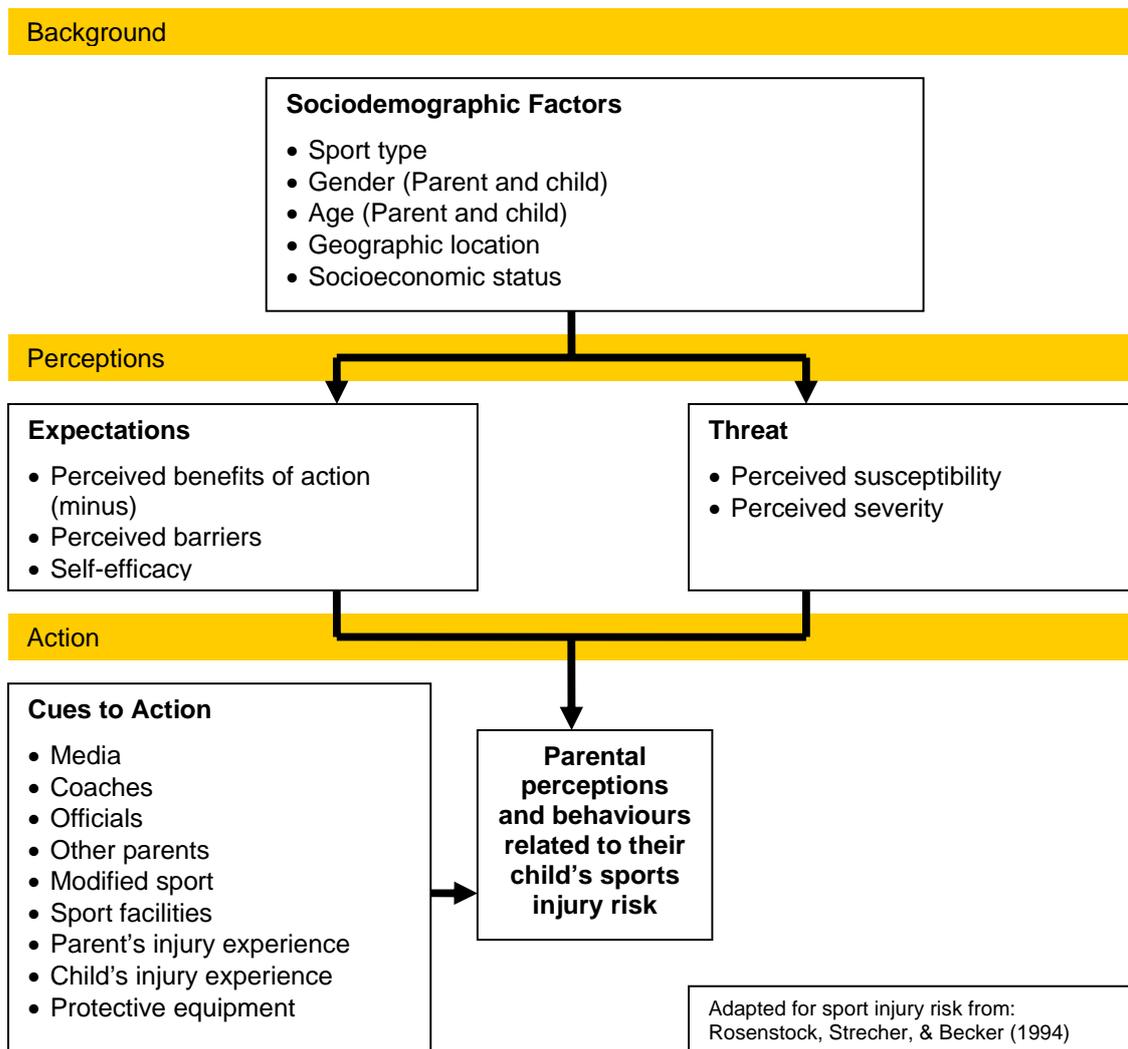


Figure 1. HBM in Relation to Parental Perceptions of Sports Injury Risk

When applied to parents' perceptions of sports injury risk, the key variables of the HBM are:

- Demographic, socio-psychological and structural variables – that may affect an individual's perceptions (e.g., age, gender, geographic location, socioeconomic status)
- Perceived susceptibility – parent's perception of the likelihood of injury (e.g. my child is likely to get injured in sport)
- Perceived severity – parent's perception of the seriousness of injury (e.g. my child's injury is likely to be serious)
- Perceived benefits – parent's perceptions of the benefits of taking action (e.g., my child will have fun if the sport is safe)
- Perceived barriers – parent's perceptions of the potential negative consequences of taking actions to ensure their child will be safe in sport (e.g. it is too costly for protective equipment)
- Cues to action – events that motivate a parent to take action to ensure the safety of their child in sport (e.g. media coverage, coaches, others' use of protective equipment)
- Self-efficacy – parent's belief in being able to perform the behaviour required to ensure safe participation for their child in sport (e.g. the confidence that the parent can do what is necessary to prevent injury)

The purpose of the project is to understand how parental perceptions of risk in sport affect children's participation in sport and whether modified sport has changed parents' perception of injury and injury risk. The project involved two phases: first a survey followed by a more in-depth qualitative approach. The specific objectives of the project are to:

1. contribute to the understanding of the parental perception of injury risk as a barrier to children's participation in organised community sport
2. identify critical factors which affect parental perceptions of injury risk related to children's participation in sport
3. determine parents' perceptions as to the extent to which rule modification has reduced injury/perceived risk of injury
4. identify potential strategies to alter misconceptions about injury risk in sports.

3. METHOD

The project was conducted in two phases: first a quantitative survey, and second a more in-depth qualitative approach. The link between two approaches has been documented by Tashakkori and Teddlie (1998) who provide a rationale for linking both research perspectives.

Phase 1: Survey

The quantitative survey was conducted first to gain information for assistance in answering objectives two and three (identify critical factors which affect parental perceptions of injury risk related to children's participation in sport and determine parents' perceptions as to the extent to which rule modification has reduced injury/perceived risk of injury) and to provide some guidance in the conduct of the subsequent qualitative phase. Current participation rates of Victorian children in sport in the 5 to 14 age range were reported to be 419,000 (Australian Bureau of Statistics, 2003). Based on an estimation of participation rates in the 15 -17 age range, a further 148,000 participants could be added to this total. As a sample, it was decided to select 1% of the estimated total Victorian sample which would amount to 5580 participants. The sample for the survey consisted of parents whose children were current participants in 46 of the 51 sports registered with VicHealth. The number of surveys distributed to each of the 46 sports was based on a proportion of the estimated participation rate. Fourteen of the sporting associations responded to our request to supply this information, figures for the other 32 sports were gained from various sources: VicHealth, VicSport, Sport and Recreation Victoria and 2001 Census. A questionnaire was constructed to seek insight into parent's perceptions of their children's injury risk through participation in their chosen organised sport.

As most questions on the survey were specific to the sport that the child was currently participating in, the survey wording was altered slightly for each sport to ensure relevance and understanding for the participant (e.g. Q18. Trained coaches are important to reduce injury risk to my child when participating in Gymnastics).

The survey (Appendix 1) was developed using the Health Belief Model (HBM) as a framework to explore the factors underpinning the participants' perceptions of potential sports injury risk to their child. When applied to parental perceptions and behaviours related to their child's sport injury risk, the HBM suggests that simply having knowledge and awareness will not necessarily result in preventative action. The HBM proposes that five variables must influence perceptions and actions related to injury risk and prevention. First, the parent must perceive that his/her child is susceptible to injury. Second, the parent must perceive that the injury is likely to be serious or have serious consequences. Third, the parent must believe that there are benefits to taking preventive action. Fourth, the parent must perceive that the potential barriers to taking preventive action are outweighed by potential benefits. The parent must also feel that they are able to perform the preventative behaviour required to ensure safe participation for their child in sport. A final variable is the presence of internal and external cues to action that might trigger or stimulate action. Based on this, perceived susceptibility, perceived severity, perceived benefits, and self-efficacy are likely to be positively related to preventative behaviours, whereas barriers are likely to be negatively related.

To measure these six variables, a survey was developed that contained 33 questions, six questions related to perceived susceptibility, six questions related to perceived severity, 10 questions on cues to action (including cues related to the influence of the media, previous injury history, quality of coaches, officials and facilities, use of protective equipment), three questions on perceived benefits of taking action, five questions on perceived barriers to taking action, and three questions on self-efficacy. Responses were made on 5-point Likert scales from 1= strongly disagree to 5 = strongly agree. To derive a sum of scale score for each variable (perceived susceptibility, perceived severity, cues to action, perceived benefits, perceived barriers, and self-efficacy) scores were added together for the questions on each scale and then divided by the number of items, to give an average scale score out of five.

The second phase of the survey provided demographic information about the parent and the child. The surveys distributed to each sport were proportionately determined according to the gender and geographical location (metropolitan, regional, rural) spread of the sport's participants.

Sporting associations were requested to respond to a letter outlining their preferred method of survey distribution:

1. Surveys sent to the association to distribute, or
2. Associations supply participant contact details to the researchers

This proved to be a lengthy process as many associations did not respond, so, numerous follow up emails and telephone calls were made. Consequently, the survey was distributed later than planned for some sports. Associations who mailed the surveys were asked to send an email when the surveys were distributed. Many did not do this and follow-up inquiries indicated that some sporting associations had not distributed the surveys, so, additional surveys were distributed. Associations with a poor return were contacted and requested to post the survey on their website and, if corresponding with parents (e.g. newsletter) to include a reminder to parents who had been sent a survey, to complete and return it despite the expired return date.

Survey Response Rates

The survey return rates for each of the 46 sports are presented in Table 1. The overall return rate was 15.6 %.

Table 1. The number of surveys sent versus the number returned for each sport.

Sport	Number of Surveys Returned	Number of Surveys Distributed	Sport	Number of Surveys Returned	Number of Surveys Distributed
Athletics	13	20	Swimming	27	120
Badminton	9	20	Table Tennis	4	15
Baseball	14	35	Tennis	69	320
Basketball	75	740	Triathlon	7	20
Bocce	0	10	Fencing	0	15
Boxing	1	10	Canoeing	1	20
Calisthenics	30	70	Croquet	2	10
Cricket	104	650	Golf	13	220
Diving	3	10	Ladies Bowls	1	15
Football	73	900	Little Athletics	67	300
Gymnastics	31	180	Orienteering	11	15
Hockey	15	30	Rugby League	0	20
Life Saving	7	155	Rugby Union	3	15
Lacrosse	6	15	Snow Sports	0	70
Motorcycling	4	15	Soccer	50	230
Netball	119	800	Softball	9	25
Petanque	0	10	Squash	16	60
Pony club	12	90	Touch Football	6	20
Pool	4	10	Water polo	1	15
Rowing	8	50	Weightlifting	2	15
Royal Bowls	2	15	Volleyball	13	30
Skating	10	15	Women's Golf	2	15
Shooting	4	15			
Surfing	7	15			
Total				855	5,465

The sample for the survey consisted of parents whose children were current participants in 46 of the 51 sports registered with VicHealth. This reduction in the number of sports was due to a variety of reasons: the Royal Life Saving Society Australia and Surf Life Saving Victoria amalgamated just prior to the survey being distributed forming one association, Life Saving Victoria; Handball Federation Victoria reported having no junior members; Taekwondo Victoria was difficult to contact and on a VicHealth recommendation was excluded from the project; Yachting Victoria expressed an opinion that this project was not relevant to yachting and thus, did not cooperate with survey distribution. As Indoor Sports Victoria includes a varied collection of sports, it was decided not to survey the participants' parents as it was difficult ascertaining the participant details.

The sports with a high number of survey returns are presented in Table 2.

Table 2. Sports with high numbers of survey returns.

Sport	# Surveys Returned	Contact Category	Participation Category
Basketball	75	Incidental Collision	High
Cricket	104	Non contact	High
Football	73	Contact	High
Netball	119	Incidental Collision	High
Tennis	69	Non contact	Medium
Little Athletics	67	Non contact	Medium
Soccer	50	Incidental Collision	Medium

Sports with a relatively high survey return, covering a range of contact and participation categories, were selected to analyse the data in more depth.

The sports were also divided into four contact categories as identified by VicHealth. The sports in each of the four categories are presented in Table 3.

Table 3. The four contact categories as outlined by VicHealth.

Contact (6sports)	Incidental Collision (10 sports)	Limited Contact (9 sports)	Non-Contact (21 sports)
Boxing	Baseball	Calisthenics	Athletics (Little & Senior)
Football	Basketball	Fencing	Badminton
Lacrosse	Hockey	Gymnastics	Bocce
Rugby Union	Motorcycling	Life Saving	Bowls (Ladies & Men's)
Rugby League	Netball	Pony Club	Cricket
Water Polo	Skating	Surfing	Croquet
	Soccer	Canoeing	Diving
	Softball	Squash	Golf (Men & Women)
	Snow Sports	Volleyball	Orienteering
	Touch Football		Petanque
			Pool
			Rowing
			Shooting
			Swimming
			Table Tennis
			Tennis
			Triathlon
			Weightlifting

The survey returns based on the four contact categories are presented in Figure 2.

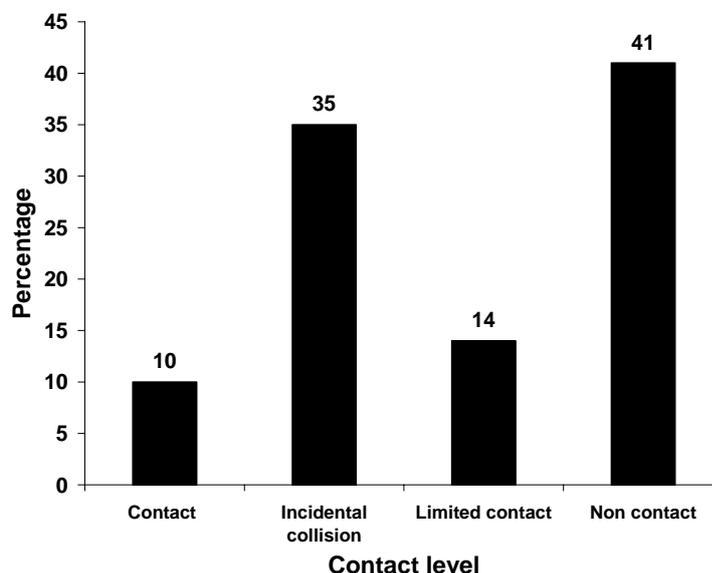


Figure 2. The percentage of survey returns for the four contact categories for sports.

Of the sports surveyed, 41% of the returns came from sports categorised as “non contact’. This was to be expected as 45% of the sports surveyed were non contact sports. Although only 22% of the sports were categorised as ‘Incidental Collision’, three of these were categorised as high participation, thus, the ‘Incidental collision’ category also had a high percentage of the returns.

Phase 2: Interview

The second phase of the project aimed to gain more in-depth insights into objectives 1, 2, 3 and 4 (contribute to the understanding of the parental perception of injury risk as a barrier to children’s participation in organised community sport; identify critical factors which affect parental perceptions of injury risk related to children’s participation in sport; determine parents’ perceptions as to the extent to which rule modification has reduced injury/perceived risk of injury; and identify potential strategies to alter misconceptions about injury risk in sports) and involved phone interviews with parents from each of the following three participation categories:

- Group A: Parents with children currently participating in sport
- Group B: Parents with children who had participated but have now stopped
- Group C: Parents with children who have never participated in organised sport

In order to reduce the sample to a representative group, eight sports were chosen to interview participants from groups A and B. These sports were chosen to cover a range of contact categories, participation levels, male and female dominant sports and geographical areas as outlined in Table 4.

Table 4. Sports chosen for interview phase from groups A and B.

Sport	Contact Level	Participation Level	Male/Female Dominant	Geographic Area
Football	Contact	High	Male	Metro/ Reg/ Rural
Lacrosse	Contact	Low	Male/Female	Metro
Netball	Incidental collision	High	Female	Metro/ Reg/ Rural
Hockey	Incidental collision	Med	Male/Female	Metro/Reg
Gymnastics	Limited contact	Med	Female	Metro/ Reg/ Rural
Squash	Limited contact	Med	Male/Female	Metro/ Reg/ Rural
Golf	Non-contact	High	Male/Female	Metro/ Reg/ Rural
Orienteering	Non-contact	Low	Male/Female	Metro/Reg

Interview Group A was sampled from the survey returns. On the survey, parents were asked to indicate whether they gave permission for the research team to contact them for an interview at a later date. The participants were randomly chosen ensuring a range of gender and geographical location proportional to the sport's demographics. Three interviews for each of the eight sports were conducted, resulting in a total of 24.

The assistance of the State Sporting Associations (SSAs) was sought to contact parents for Interview Group B. They were asked to identify parents whose child had dropped out of the sport, and seek permission for the research team to contact the potential interviewee. Once again this was a lengthy process as some of the SSAs did not respond or have ready access to this information and very few potential participants replied to the request. A variety of methods were used to secure the interviews, such as contacting local associations, clubs and in some cases individual coaches, parents and players. The snowballing approach was also used whereby interviewees were asked for other contacts. Numerous phone calls were made to survey respondents and those who reported their child had recently ceased participation were interviewed as Interview Group B participants. This process resulted in 22 interviews.

Finding participants who met Interview Group C criteria proved to be a challenge, thus, the criteria was altered to "Parents who have children who have never participated in organised, **competitive** sport". This was necessary as the majority of the children of potential interviewees had participated in swimming lessons. Various strategies were undertaken to contact participants such as, snowballing methods whereby colleagues and friends were asked to identify families who meet the criteria, emails to all university staff, emails to 200 schools requesting an attachment be placed in school newsletters, media release organised by VicHealth which resulted in two radio interviews and numerous newspaper articles. As a result, nine interviews were conducted.

The interviews lasted approximately 20 minutes and for each interview, the appropriate parent who felt that he or she had the most influence on the involvement or non involvement of the young person in question was identified. The interview involved asking questions related to seven key areas that built on information gleaned from the quantitative survey conducted in the first phase of the project. The seven key questions concerned:

- Demographics
- Child's sporting background and the decisions behind their participation
- Child's injury experience and the effect on parent's perceptions
- Knowledge of and thoughts on protective equipment
- Knowledge of and thoughts on modified sports
- Injury risk level of sports and influencing factors
- Source of information

Themes emerging from the interview analysis were identified using NVivo software.

Qualitative analysis methodology

The qualitative analysis methodology employed in this section involved the following stages:

- Compare Group A with the quantitative findings
- Compare each sport within each group A and B
- Compare the different contact categories within each group A and B
- Compare each sport between group A and B
- Compare the different contact categories between each group A and B
- An overall perspective of each individual group
- Compare the three groups – Participation/Stopped participating/Never participated

4. RESULTS AND DISCUSSION

This section of the report provides the major findings from the survey and qualitative interview phases of the project. First results from the survey are presented and interpreted, and then the results from the interview phase of the project are provided and discussed.

Phase 1: Survey

Information from the survey is reported in this section of the report. The data is reported according to the variables of the Health Belief Model (HBM). Included first is demographic information on respondents that might be associated with perceptions of sport injury risk, including age of parents, geographical location (rural, regional, and metropolitan), socioeconomic status, gender of parent and child, age of child, and children's activity level in the sport, and parent's sporting experience.

Information on perceived susceptibility is presented next, with information relating to the influence of training, competition, and amount of time spent in the activity on susceptibility provided. Perceived severity is described next, with analysis again including the influence of training, competition, and amount of time spent in the activity. Benefits of taking action are then described, followed by potential barriers, including cost of safety equipment, unsafe practices in sport, and knowledge of injury risk.

Self-efficacy to take action is analysed next, followed by an analysis of cues to action, including the role of trained coaches, the role of officials, the impact of information from other parents, and the use of adequate protective equipment. Although not a separate category of the HBM, an objective of this project was to determine parents' perceptions as to the extent to which rule modification has reduced injury/perceived risk of injury, so this information is presented. A summary of the major findings is provided and this is then related to aspects of the HBM.

Demographics

Demographic details collected in the survey that might influence parental perceptions of sports injury risk included age group of the parent, geographical location, language spoken at home, educational level, age of children, activity level of children in sport, and participation experience of parents.

Age Group of Parents

The age groups of the parents returning the survey are presented in Figure 3.

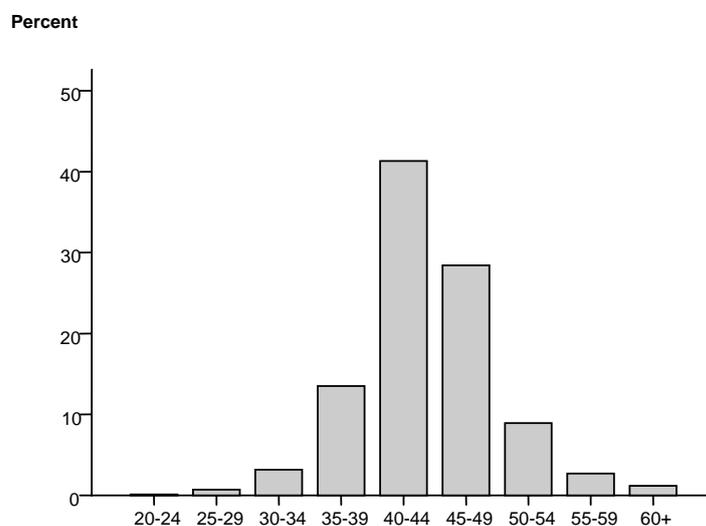


Figure 3. Age groupings of parents completing the survey.

The majority of parents (69.7%) fell into the 40 – 49 year age group. Of the parents who completed the survey, 73% were female and 37% male. Fathers were twice as likely to report on their son as on their daughter (24% vs 12%) and mothers reported on their son in 28% and daughter in 35% of the surveys.

Geographical Location

The postcodes of respondents were divided into categories based on Australia Post's classification of metropolitan, regional, and rural post codes. These results are presented in Figure 4.

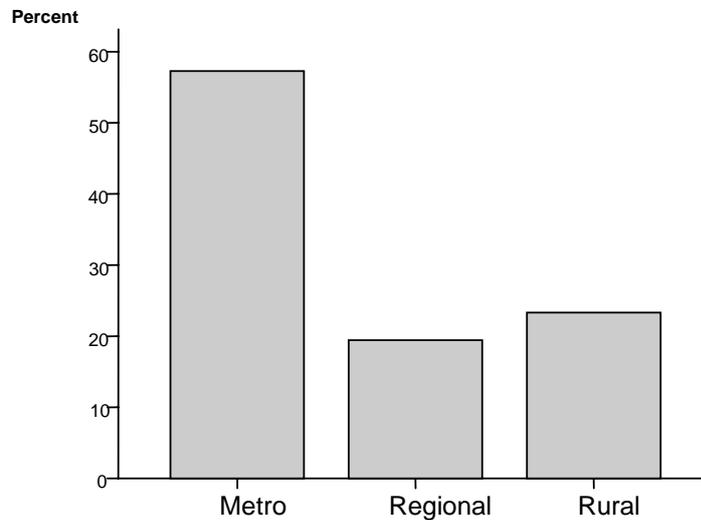


Figure 4. Postcode categories of respondents.

Figure 4 shows that the majority of respondents (57.3%) lived in the metropolitan area, compared to regional (19.4%) and rural (23.3%) respondents. A cross tabulation (chi-square analysis) was undertaken to determine whether the geographic location of a family had any bearing on the parent's perception of sports injury risk. No significant differences were found.

Socioeconomic Status

The survey results were categorised according to the participants' postcode using an index of relative socio-economic advantage/disadvantage, outlined in the Socio Economic Index for Areas (SEIFA) 2001 (Aust. Bureau of Statistics, 2003). A higher score on this index indicates that an area has attributes such as a relatively high proportion of people with high incomes or a skilled workforce and a low proportion of people with low incomes and relatively few unskilled people in the workforce. Conversely, a low score on the index indicates that an area has a higher proportion of individuals with low incomes, more employees in unskilled occupations and a low proportion of people with high incomes or in skilled occupations. The percentage of respondents in each of the SEIFA categories is presented in Figure 5.

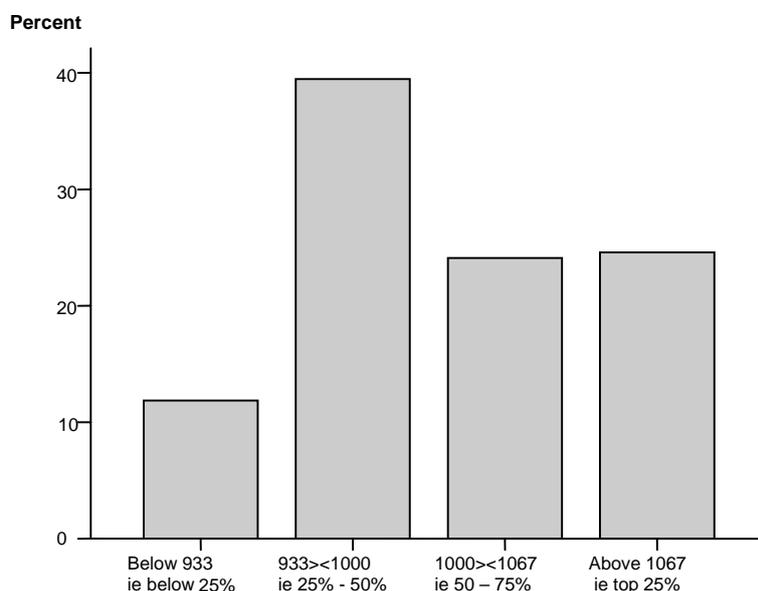


Figure 5. The percentage of respondents in each of the SEIFA categories.

A cross tabulation (chi-square analysis) was undertaken to determine whether the socio economic status of a family had any bearing on the parent's perception of sports injury risk. No significant differences were found between SEIFA category and parents' perceptions of injury risk.

Language Spoken at Homes

A total of 97% of survey respondents reported that English was the main language spoken at home. Boufous, Finch, and Baumann (2004) found that in a NSW study on parents' perceptions of sports injury risk to their children that Languages other than English (LOTE) parents were more likely to discourage their children from engaging in physical activity. The sample of LOTE parents was not reported but it appears that a different cohort of parents were respondents for this project. The numbers were too low (n=9) in this project to note statistical comparisons between language backgrounds and risk perceptions.

Educational Level

Over half of the survey participants (58.7%) reported having attained a TAFE qualification, a tertiary degree or postgraduate tertiary qualifications. No significant differences were found between levels of education and parents' perceptions of injury risk. These findings are in agreement of those of Glik, Knonenfeld and Jackson (1991) who found that socio-demographic variables were not significant predictors of parents' perceptions of risk of injury.

Decision Makers

Parents were asked to nominate the major decision maker responsible for choosing their child's sport. The mother was twice as likely to make the decision as the father (18.4% vs 9.3%); however, where a son was involved, the father was three times more likely to make the decision than the mother (6.9% vs 2.4%). The mother was twice as likely to make the decision for a daughter as a son (12.6% vs 2.4%). In 28% of the surveys, the parent completing the survey believed that their son had made the sport choice and in 23.5%, the daughter was identified as the major decision maker.

Age of Child

The ages of the children nominated by parents in the survey are shown in Figure 6.

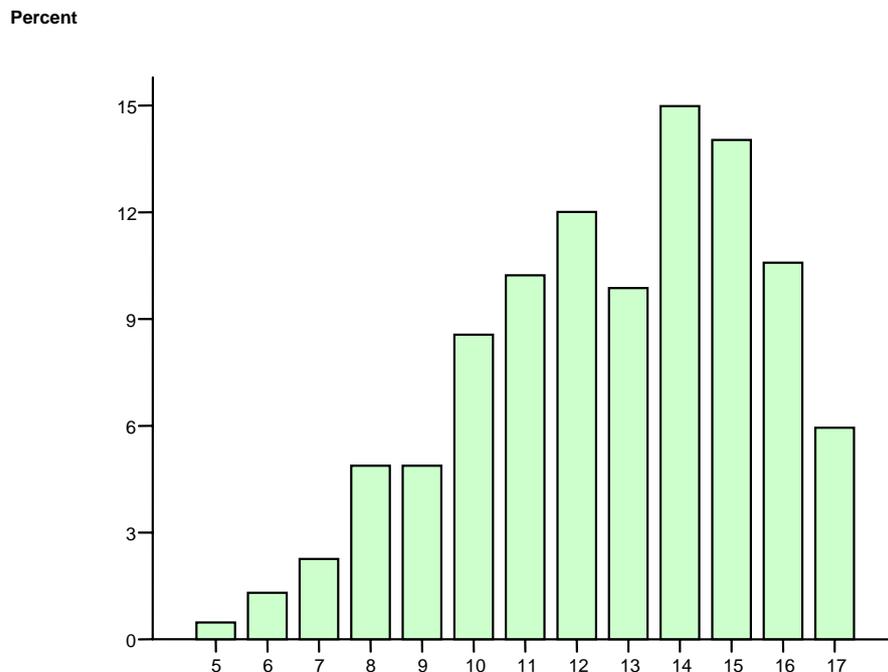


Figure 6. Age of children

The mean age of the children in this sample was 12.7 years (range 5 – 17 years) and 52% of the children were male and 48% female.

Parent and Child Participation in Sport

Male children were more likely to be involved in contact and non-contact sports and females participated more in incidental collision and limited contact sports. Only a few parents (3%) recorded choosing a sport to cater for their children's disabilities. Parents

reported the number of times that their child participated in a season to be a mean of 22.8 times (sd. 21.2 times) and number of hours that the child trains each week to be a mean of 5 (sd 6.9 hours). In the survey returns, 34% of parents reported that no parent, guardian or partner of a parent had participated in the particular sport, however, 96% of parents had personally experienced regular sport participation.

Summary

The demographic information provides an overview of factors in the sample that might impact upon perceptions of sport injury risk. Most of the parents surveyed were aged between 40-49 years of age, with more females than males completing the survey. Male parents were more likely to report on their male child than their female child, whereas, female parents reported at a similar rate on both genders. The largest proportion of parents surveyed were from a metropolitan area, but no differences were found on perceptions based on geographic location. Based on SEIFA index, socioeconomic status also had no impact on perceptions. English was the main language spoken at home by nearly all respondents (97%) and most parents had completed a TAFE or tertiary qualification. Parents reported that the major decision maker in their child's sport was the female parent, but male parents were more often the major decision maker for male children and female parents for female children. Children were also reported as being the major decision maker on sport choice in many families. The mean age of children was 12.7 years, with more male (52%) than female children (48%). Male children tended to participate more in contact and non-contact sports, female children tended to participate more in limited and incidental contact sports. Nearly all (96%) of parents reported that they had participated in some form of sport during their life.

Perceived Susceptibility

Perceived susceptibility relates to the parents' perceptions of the likelihood that their child may be injured during their sport. Low susceptibility means that there is little to no possibility of injury whereas a high susceptibility means that parents perceive that there is a high risk of injury to their child. The results will be reported both as individual questions and then combined to form a susceptibility index. There were a total of six susceptibility items included in the survey.

Perceived Susceptibility During Training and Competition

The first series of questions related to the susceptibility of their child to injury both in competition and training. The results of the parents' perceptions are presented in Figures 7 and 8.

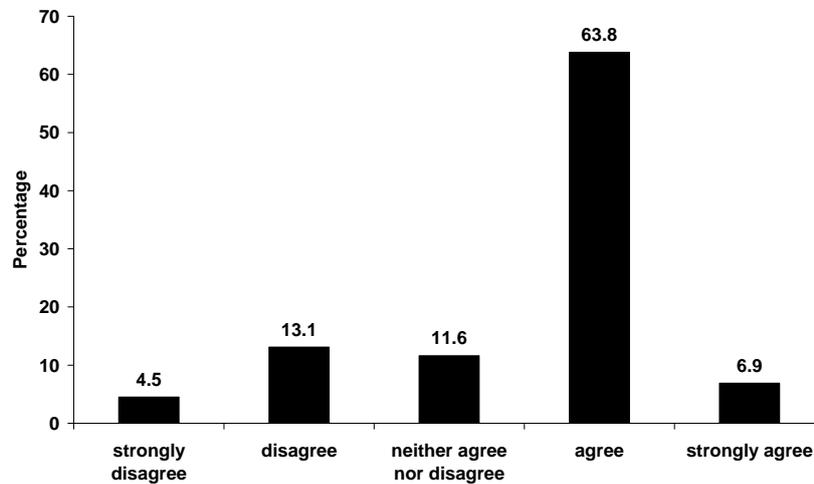


Figure 7. Perceptions of parents on the statement on survey question 2: *My child is at risk of injury during competition in their chosen sport.*

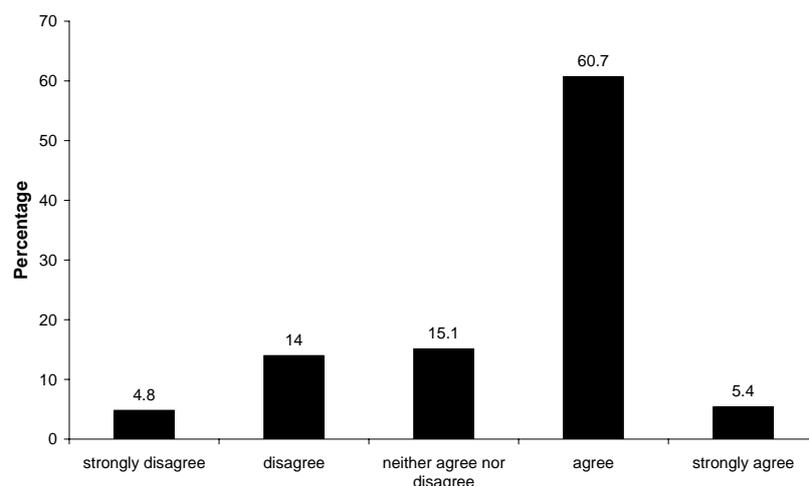


Figure 8. Perceptions of parents on the statement on survey question 3: *My child is at risk of injury during training in their chosen sport.*

Overall, parents were aware that their child was at risk of injury when training and competing in their particular sport, although, parents in general did not perceive a difference in injury risk between training and competition. The literature is very sparse in this area as little injury epidemiology is collected on training injuries versus competition injuries for children. Therefore, it is difficult to determine whether the parents' perceptions of similar risk in training and competition represents the true state of affairs.

Perceived Susceptibility and Sport Type

When comparing the sport contact categories, the non contact sports were seen to hold similar risks for the junior participants in training and competition. However, parents of children in contact sports perceived greater risk of injury in competition than training. There were significant differences found between sport contact categories and the findings indicated that the parents of children participating in contact and incidental contact sports perceived their children to be at greater risk of injury than parents of children participating in limited and non-contact sports.

Parents also indicated that they perceived their child was still at risk of injury even though they had been previously injured. In a US study, Mickalide (2000) found that parents have a low perception of the risk of sports injuries and that over one half of the parents did not worry much about their children being injured whilst playing sport. In fact Mickalide found that four out of five parents whose child had suffered an injury believed that the injury was just part of the game.

Perceived Susceptibility and Level of Sport and Time Spent Participating in Sport

The parents were asked to comment on their perceptions of susceptibility to injury at more elite levels of sport. These results are presented in Figure 9.

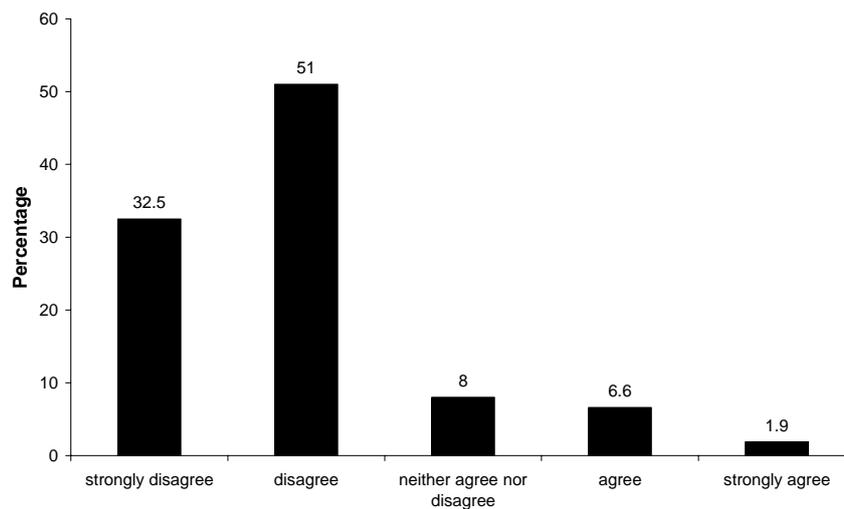


Figure 9. Perceptions of parents on the statement on survey question 5: *Unless my child participates in their chosen sport at the highest level, the potential for injury is minimal.*

Parents perceived that children were susceptible to injury regardless of the level of sport in which they were participating in. Parents who perceived that their child was at greater risk of injury when participating at a higher level were more likely to have children participating in non-contact sports.

The parents were asked their perceptions of the influence of time spent participating in their sport. These results are reported in Figure 10.

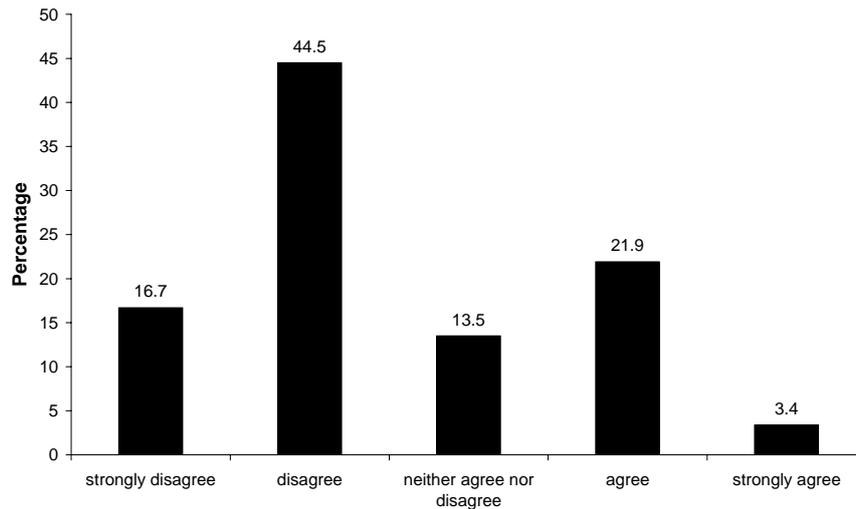


Figure 10. Perceptions of parents on the statement in survey question 8: *the less time my child participates in their chosen sport, the less likely my child will be injured.*

Generally, parents perceived that children were susceptible to injury regardless of how much time they were participating in sport.

Summary

The susceptibility items with adequate reliability were averaged to provide an indication perceived susceptibility of sports injury to their child to injury. Overall the average score for these items was 2.89 (SD = 0.51) on a Likert scale from 1 to 5, indicating that parents generally believed that their child was susceptible to injury while participating in their sport, but this was not a very strong perception. Parents of children participating in contact and incidental contact sports perceived their children to be at greater risk of injury than parents of children participating in limited and non-contact sports. Parents overall did not perceive a difference in susceptibility of injury risk between training and competition and did not perceive that the level of sport participation or the amount of time spent participating in sport influenced susceptibility.

Perceived Severity

The construct of perceived severity indicates the perceptions of the seriousness of potential injuries and the consequences of the injuries sustained. There was a total of six severity items included in the survey and three of these items were found to be reliable and these constructs are used in the severity totals at the end of this section.

Perceptions of Severity and Training and Competition

Figures 11 and 12 depict the results of parents' perceptions of the risk of their child receiving a serious injury during competition or training.

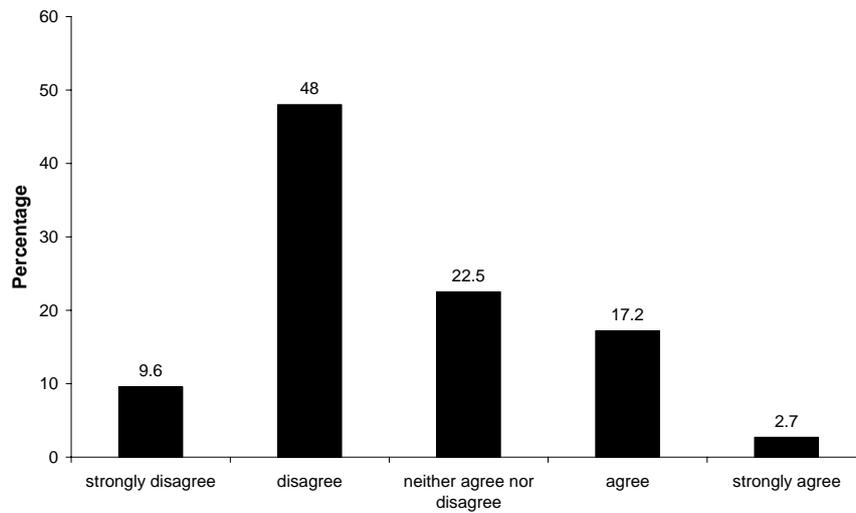


Figure 11. Perceptions of parents on the statement in survey question 15: *The risk of my child receiving a serious injury is high during competition in their sport.*

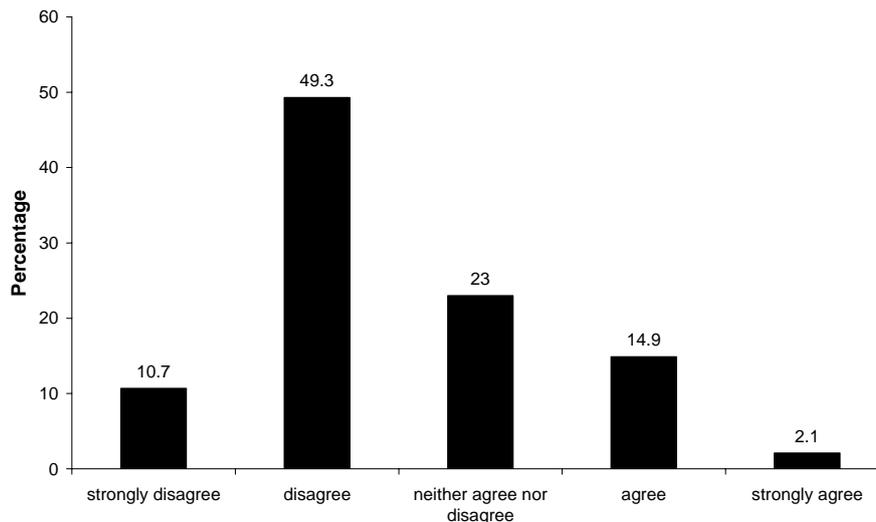


Figure 12. Perceptions of parents on the statement in survey question 15: *The risk of my child receiving a serious injury is high during training in their sport.*

Generally, parents did not perceive their child was at risk of incurring a serious injury whether training or competing in their particular sport. Again there were significant differences between sport contact categories for both training ($p < 0.000$) and competition ($p < 0.000$). The contact and incidental collision sport parents perceived that there was a higher risk of serious injury in competition compared to the parents of children in non-contact sports. In training though, the parents of children participating in incidental collision and limited contact sports felt that serious injuries were also likely to happen during training. It is interesting to note that parents in contact sports did differentiate between training and competition risks, with training being seen as less risky for a serious injury.

Perceptions of Severity and Sport Type

Figure 13 shows the parents' perceptions of the sport their child plays compared to other sport in terms of the potential for severity of injury.

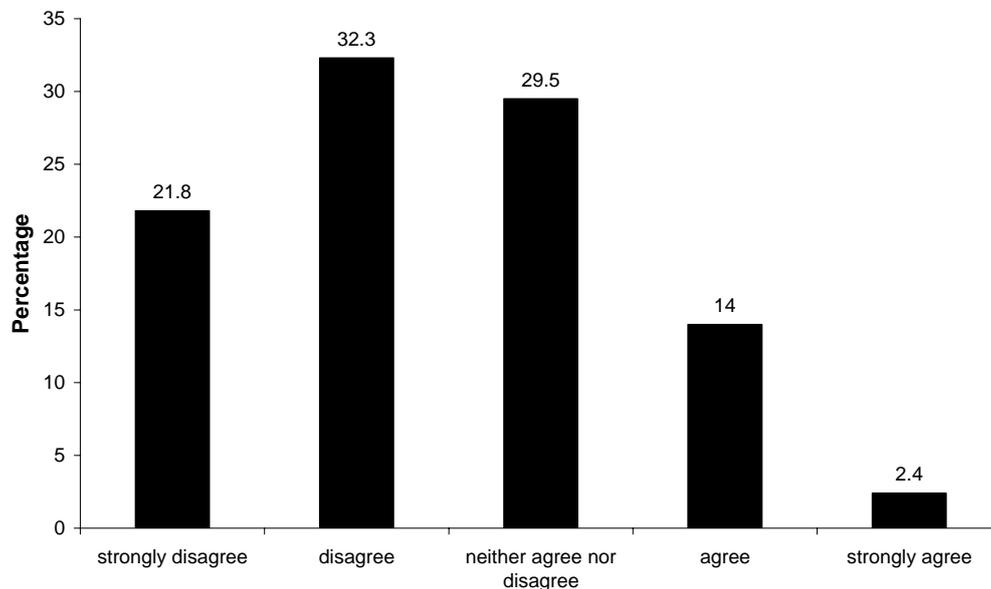


Figure 13. Perceptions of parents on the statement in survey question 1: *I chose this sport for my child because a serious injury is less likely to occur than in other sports.*

The selection of a sport for their children was not based on the potential severity of injuries when participating in the sport. There were significant differences found between the sport contact categories ($p < 0.017$). The results indicate that parents of children participating in non contact sports were more likely than parents of the other three contact category participants to consider the potential for serious injury when choosing a sport for their child. Parents of male children were more likely ($p < 0.000$) to have chosen their sons sport because a less serious injury would be likely to occur than in other sports. This may mean that parents were steering their children away from what they perceive to be high risk contact sports.

The results for the parents' perception of the risk of severity in their child's sport compared to other sports are presented in Figure 14.

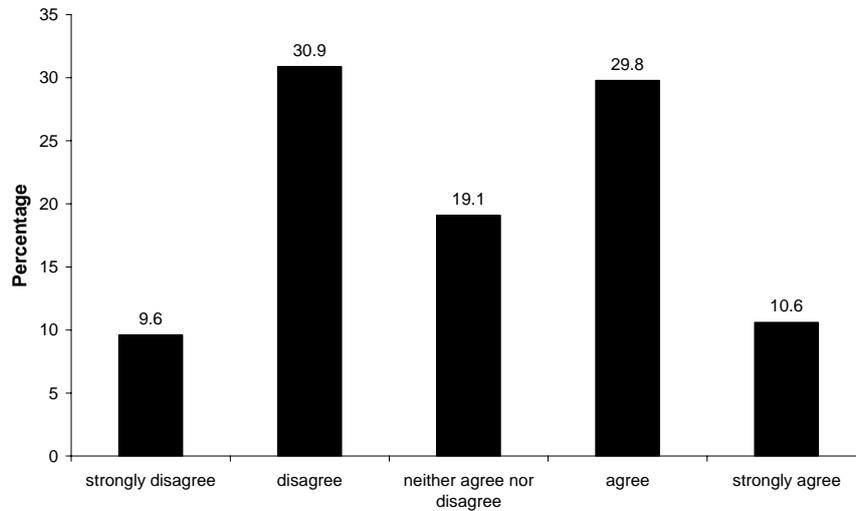


Figure 14. Perceptions of parents on the statement in survey question 7: *Serious injury is more likely to occur in other sports than in my child's sport.*

Figure 14 shows that there was a fairly even split between parents agreeing and disagreeing with the statement. However, significant differences were found between sport contact categories ($p < 0.000$). Parents of children who participate in contact and incidental contact sports such as football and netball, recognise the potential for serious injury in their sport. Non contact sports (in particular Little Athletics and tennis) see other sports as having greater risk of severity of injury to their child.

Perceptions of Severity and Time Spent Participating

Figure 15 presents the results for the parents' perceptions of the severity of injury possibilities depending on the time their child spends participating in their sport.

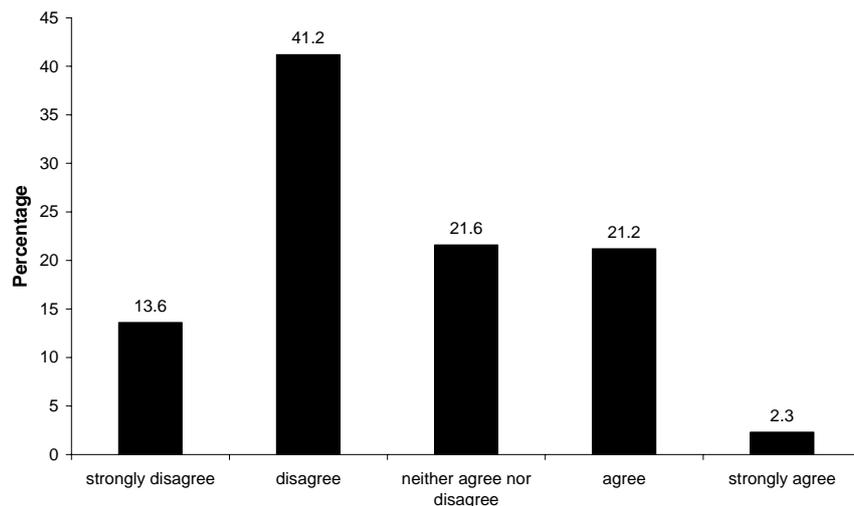


Figure 15. Perceptions of parents on the statement in survey question 9: *the more time my child participates in their sport, the more likely my child will receive a serious injury.*

As with susceptibility, the parents do not feel that increased time participating has any effect on the severity of possible injuries. There was a significant difference between contact categories ($p < 0.000$). Parents of children in contact and incidental contact sports believed that their children were at more risk of severe injury the greater the time spent participating in their sport. Of the high return sports, the parents of children participating in netball believed that their child was more prone to serious injury if they participated more frequently. In contrast to this finding, parents of limited and non-contact sports believed that time had no effect on the seriousness of injury sustained.

Summary

The three perceived severity items with adequate reliability were averaged to provide an indication of the parents' perceptions of the potential for serious injury to their child in their sport. Overall, the average score for these items was 2.53 (SD = 0.04) on a Likert scale from 1 to 5, indicating that parents generally felt that their child would not receive a serious injury while participating in their sport. However, parents of children participating in incidental and contact sports were more concerned about the severity of injuries than those parents of children who were participating in non-contact sports. In summary, parents did not perceive their child was at risk of incurring a serious injury whether training or competing in their particular sport, but contact and incidental collision sport parents perceived that there was a higher risk of serious injury in competition compared to the parents of children in non-contact sports. Parents of children participating in incidental collision and limited contact sports felt that serious injuries were likely to happen during training. The selection of a sport was not based on the potential severity of injuries, but parents of children participating in non contact sports were more likely to consider the potential for serious injury when choosing a sport. Contact and incidental contact sports, such as football and netball, recognised the potential for serious injury and non contact sports saw other sports as having greater risk of severity of injury. Parents did not feel that increased time participating had any effect on the severity of possible injuries, but parents of children in contact and incidental contact sports believed that their children were at more risk of severe injury the more time they spent participating in their sport

Perceived Benefits

Perceived benefits refer to parents' perceptions of the benefits of taking action. In regards to the benefits of taking action, the majority of parents (80.3%) agreed that they were happy for their child to participate in a sport if they considered that their child would be safe from injury. Parents were also asked to consider whether their child would only have fun if the sport they participate in is safe. These results are presented in Figure 16.

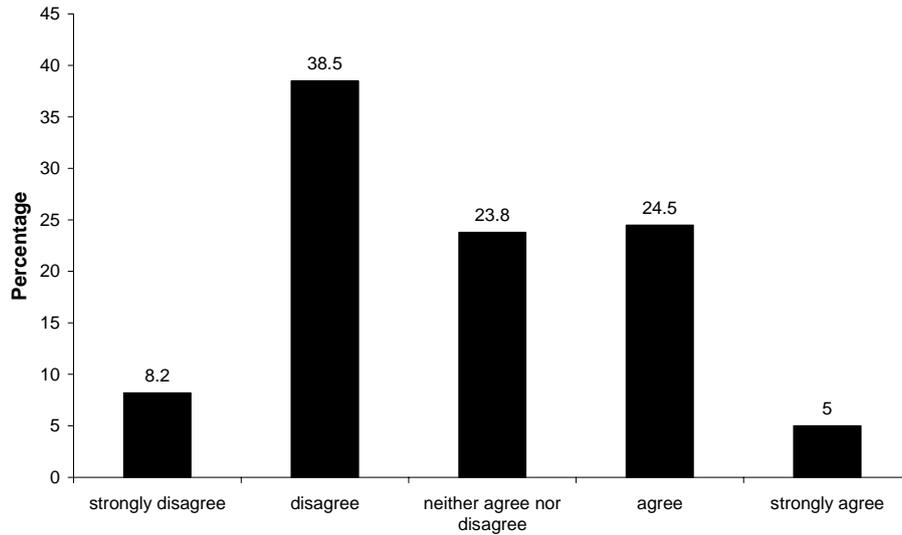


Figure 16. Perceptions of parents on the statement in survey question 24: - *I feel my child will only have fun in their sport if it is safe.*

Generally, parents believe that their child will have fun regardless of the safety factor of the sport.

Summary

The perceived benefit items were averaged to provide an indication of the parents' perceptions of the potential benefits of taking action. Overall, the average score for these items was 3.1 (SD = .82) on a Likert scale from 1 to 5, indicating that parents had neutral feelings towards the fact that they were happy to consider their child will be safe from injury. However, parents indicated that they believed that their child would have fun regardless of the safety factor of the sport.

Perceived Barriers

In this section the perceived barriers to taking action to ensure their child will be safe when participating in their chosen sport will be explored. Barriers investigated included cost of safety equipment, unsafe practices, knowledge of injury consequences and injury risk, and whether safety procedures reduced the spontaneity of sport.

Cost of Safety Equipment

When asked whether the cost of safety equipment was a barrier, the parents' responses are presented in Figure 17.

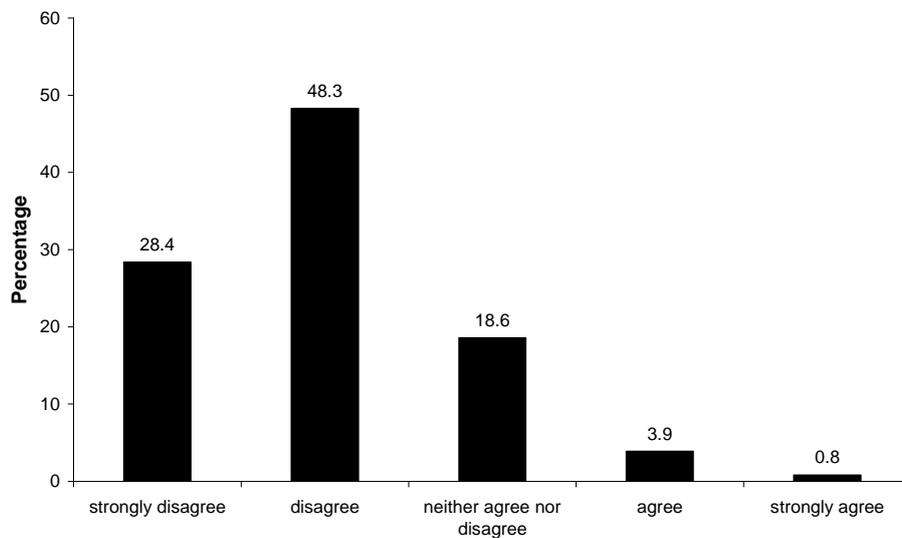


Figure 17. Perceptions of parents on the statement in survey question 27: *It is too costly to provide the safety equipment for my child.*

The cost of providing safety equipment for their child was not a perceived barrier to parents. Thus, parents were not discouraged from allowing their children to play a sport where safety equipment was required. The perceived benefits of the safety equipment outweighed the cost to parents.

Unsafe Practices

Figure 18 outlines the results of parents' perceptions of the results of unsafe practices in their child's sport.

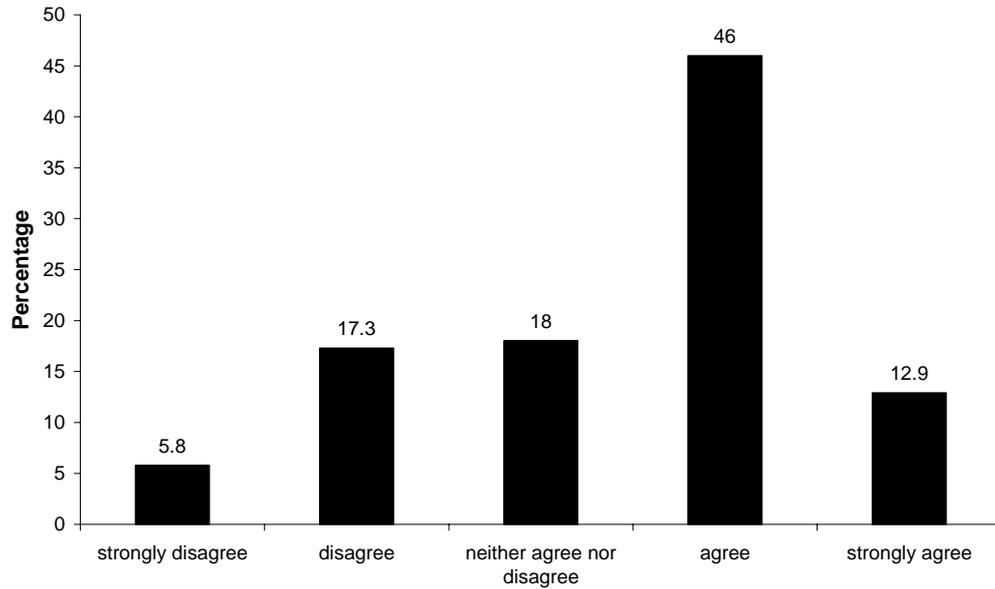


Figure 18. Perceptions of parents on the statement in survey question 28: *Unsafe practices in my child's sport would make it difficult for me to ensure my child is safe when participating in that sport.*

Generally, parents believe that it would be difficult to ensure the safety of their child if the sport did not follow safe practices. The question remains though, what can parents do to ensure safe practices are followed and in fact how do they know what the correct safe practices are?

Knowledge of Injury Consequences and Injury Risk

The parents were asked to indicate whether their knowledge of injury consequences would enable them to ensure their child was safe when participating in their sport. The results are presented in Figure 19.

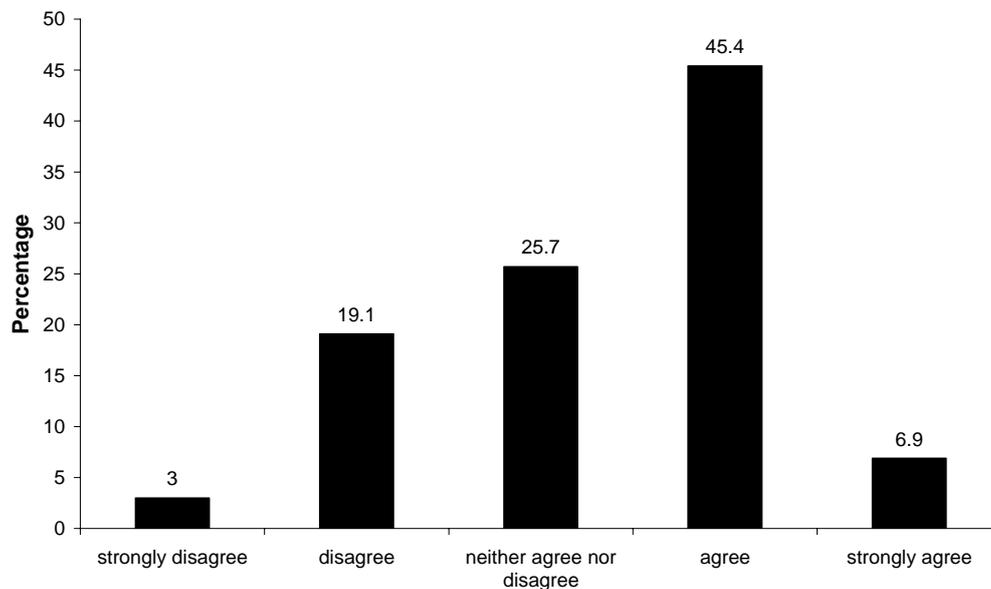


Figure 19. Perceptions of parents on the statement in survey question 29: *My knowledge of the injury consequences of my child's sport enables me to ensure my child is safe when participating in that sport.*

Overall, parents believed their understanding of sports injury risk enabled them to ensure their child was safe from injury when participating in their chosen sport. This was particularly the case with parents of children involved in non contact sports (cricket and Little Athletics). However, parents of children participating in higher impact sports, in particular netball, did not record the same level of confidence in their ability to ensure their child's safety when playing sport.

Spontaneity of Safety Procedures

On the question of whether safety procedures inhibit the spontaneity of sport for their child, the parents did not agree (63.9%) that this was the case.

Summary

The perceived barriers items were averaged to provide an indication of the parents' perceptions of the barriers to taking action. Overall, the average score for these items was 2.5 (SD = .58) on a Likert scale from 1 to 5, indicating that parents generally did not rate the barriers to taking action very strongly. In summary, the cost of providing safety equipment for their child was not seen as a barrier by parents. Parents believed that it would be difficult to ensure the safety of their child if the sport did not follow safe practices. Parents believed that their understanding of sports injury risk enabled them to ensure their child was safe from injury and that safety procedures did not really inhibit the spontaneity of sport for their child.

Self efficacy

Self efficacy is the person's perception of their ability to perform the behaviour required to achieve a certain outcome which in the case of this project is their child's safe participation in sport. There are three self efficacy items reported in this project, relating to self-efficacy to choose a sport to reduced injury risk, self-efficacy to assess sport injury risk, and self-efficacy to control injury risk.

Self-Efficacy and Sport Choice

The first item was the parents' perceptions of their ability to choose a sport that would allow their child to be safer from injury. These results are presented in Figure 20.

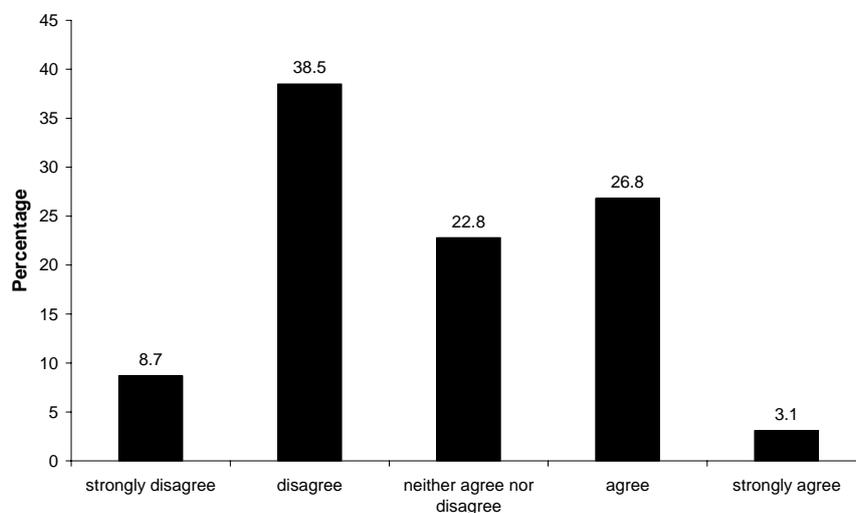


Figure 20. Perceptions of parents on the statement in survey question 26: *My child will be safer from injury if I am involved in my child's sport choice.*

Approximately 30% of parents thought that their child would be safer, but 47% did not think that their involvement in the choice of sport would make their child safe from injury. There were no significant differences found between sport contact levels, but, in the high return sports, parents of children participating in higher contact category sports (particularly netball) recorded less confidence in the effect of their involvement in their child's sport choice in ensuring their child is safe from injury than parents of children involved in non contact sports.

Self-Efficacy to Asses Sport Injury Risk

The parents were also asked whether they felt confident that they could assess the risk of injury to their child in the sport they played. These results are presented in Figure 21.

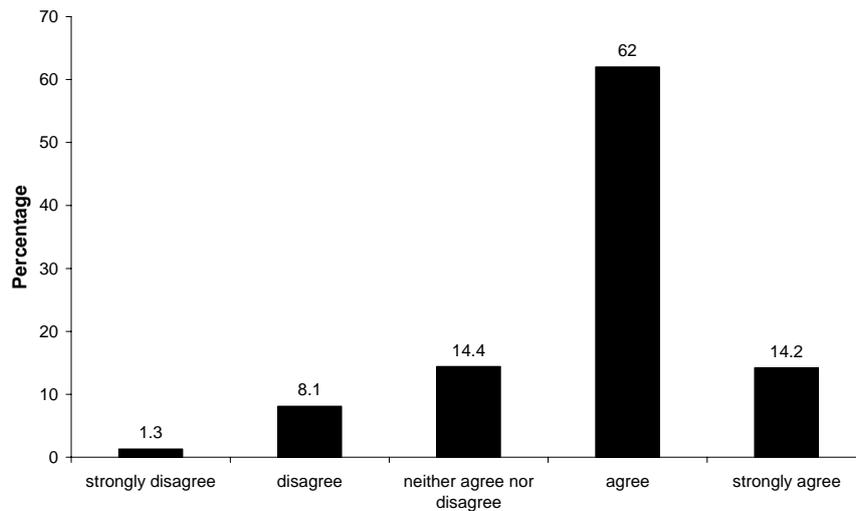


Figure 21. Perceptions of parents on the statement in survey question 32: *I am confident that I can assess the risk of injury in sport for my child.*

Parents believe they can assess the injury risk of their child’s sporting activity. As stated earlier, parents believe if they have the knowledge of the sports injury risk, they can then ensure their child is safe from injury.

Self-Efficacy to Control Injury Risk

Finally the parents were asked whether they felt that they had no control over the injury risk to their child in their chosen sport (Figure 22).

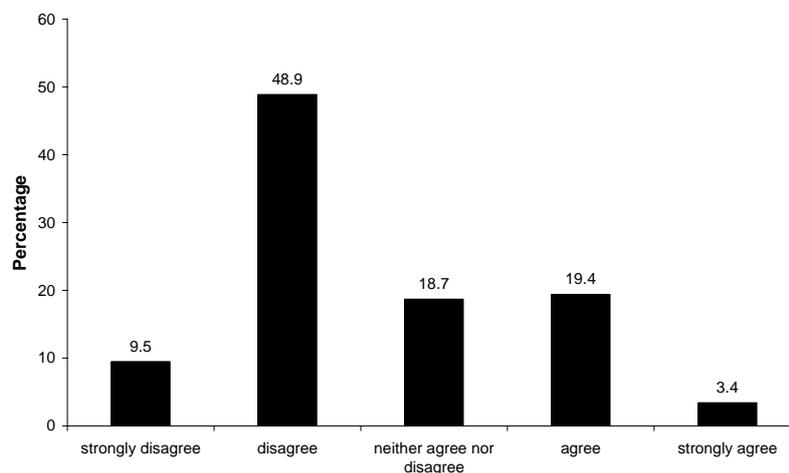


Figure 22. Perceptions of parents on the statement in survey question 33: *I feel I have no control over the injury risk to my child in their sport.*

Generally, parents believe they have control over the sport injury risk to their child. There was a significant difference ($p < 0.000$) between sports of differing contact levels. Parents

of children in contact and incidental collision sports felt that they had less control than parents of children participating in non-contact sports.

Summary

The self-efficacy items were averaged to provide an indication of the parents' perceptions self-efficacy for taking action. Overall, the average score for these items was 3.3 (SD = .52) on a Likert scale from 1 to 5, indicating that parents generally felt confident of taking action. Interestingly, parents were not confident that their involvement in choice of sport would make their child safe from injury, but parents believed that they could assess the injury risk of their child's sporting activity and that they have control over the sport injury risk to their child. Parents of children in contact and incidental collision sports felt that they had less control than parents of children participating in non-contact sports.

Cues to action

Cues to action refer to events that might motivate a parent to take action to ensure the safety of their child in sport. Examples of possible cues to action in parental perceptions of sports injury risk include media coverage, coaches, officials, other parents, sport facilities, parent's injury experience, and others' use of protective equipment.

Media

Media could be a cue to action by providing information to the parent about sports injuries and sport injury risk. Responses to the survey indicated that parents did not think that they were gaining information about the safety of sport from the media with male parents perceiving this significantly more ($p=0.017$) than female parents.

Coaches

The parents' perceptions of the role of trained coaches in reducing injury are presented in Figure 23.

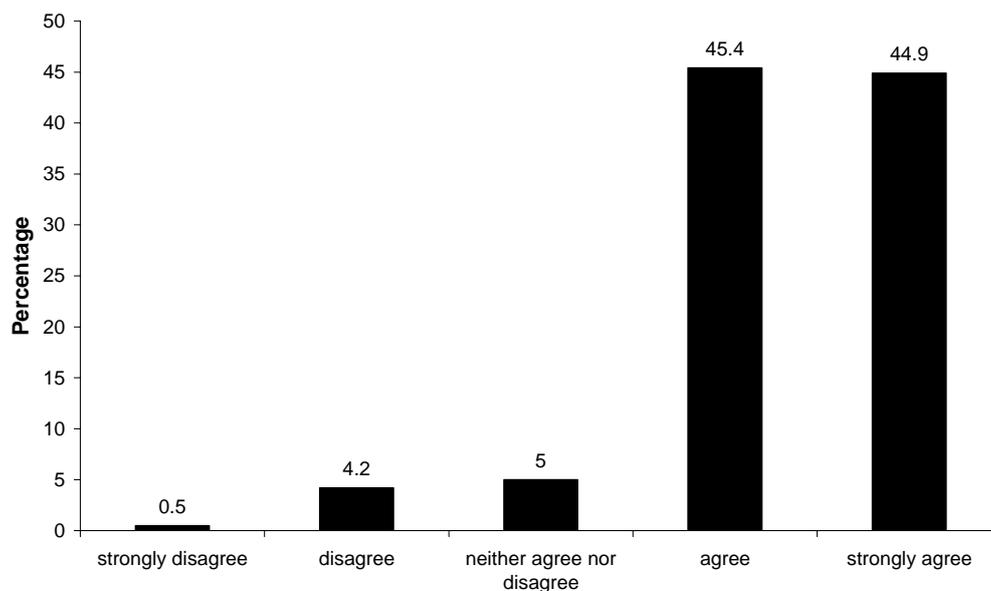


Figure 23. Perceptions of parents on the statement in survey question 18:
Trained coaches are important to reduce injury risk to my child when participating in their chosen sport.

Sports of all contact categories and high return sports recorded that parents perceived the importance of trained coaches in ensuring their child was safe from injury when participating in sport. The importance of the coach has also been found in other studies. Mickalide (2000) found that parents accepted a shared responsibility with coaches, schools and teams for their child's safety during sport. Murphy and Kanost (2002) found that the nature, philosophy and practices of the coach were regarded as more important than club-related health policies to parents. Those parents also saw the coach as being responsible for overseeing the health and safety of their children during sporting

activities. The importance of coaches is becoming a recurring theme in injury prevention research. There is very little information available regarding the knowledge of coaches in injury prevention practices and where the knowledge is obtained. As many coaching accreditation courses devote limited time to this issue in their syllabi, the perception of parents of the coaches' role in safety and the training of coaches in injury prevention may be at loggerheads. This issue is worthy of further investigation.

Protective Equipment

The parents' perceptions of how the use of protective equipment might influence their willingness to allow their child to participate in their sport is reported in Figure 24.

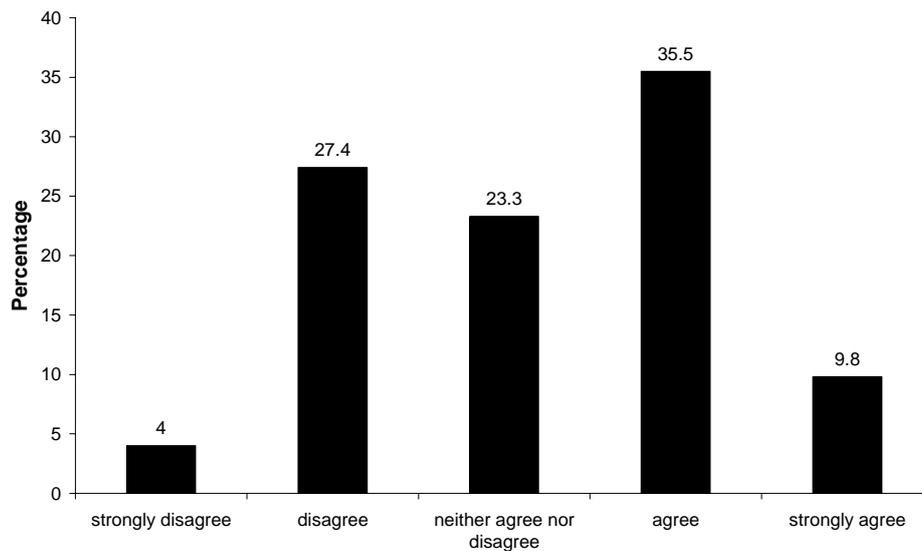


Figure 24. Perceptions of parents on the statement in survey question 22:
My willingness to allow my child to participate in their sport is influenced by the use of adequate protective equipment in their sport.

More parents agree with the statement than disagree, that is, the use of protective equipment does influence their choice of sport. Parents of children involved in incidental contact category sports (in particular basketball) were not as influenced by the use of protective equipment when allowing their child to participate in a sport as parents of children involved in the more limited contact category. Within the non-contact category, parents of cricketers were receptive to the use of protective equipment whereas parents of junior tennis players were not concerned. The differentiation between sports and contact categories can be explained by the different nature of the sports. Cricket has a long tradition of players wearing protective equipment to protect players from being hit by the ball, whereas in tennis, the wearing of protective equipment is not common. Each sport has its own culture surrounding the use of protective equipment.

Safe Environment

Internal cues to action relate to the perceptions of the parents in terms of safety within the respective sport. Figure 25 provides insight into the parents' perceptions of how safe an environment sport provides for their child.

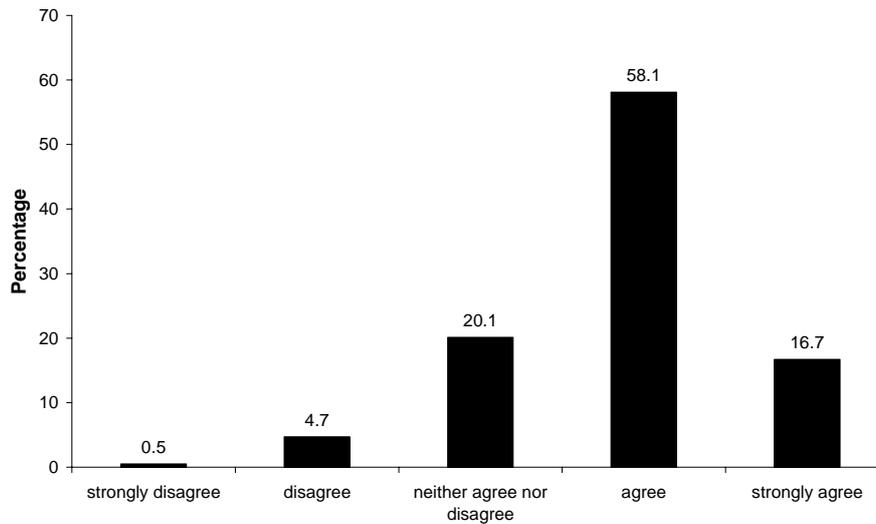


Figure 25. Perceptions of parents on the statement in survey question 11:
Sport provides a safe environment for my child.

Most parents believe that the sport their children participate in provides a safe environment for their children. The contact category was found to significantly alter the parents' perceptions ($p < 0.000$). The parents of children participating in contact and incidental collision sports were less likely to support this finding than parents of children involved in limited and non-contact sports.

Other Cues to Action (Officials, Other Parents, Sport Facilities and Parent's Injury Experience)

The main findings in relation to other cues to action were that:

- Parents of children participating in contact sports (in particular Australian Rules football) perceive that officials were important in reducing the risk of injury to their child.
- Information from other parents has not influenced parental perceptions of sports injury risk.
- Parents of children participating in sports involving no or limited contact were more concerned with the quality of the sport facilities than parents of children participating in higher level contact sports.
- The injury experience of parents has not had an influence on their choice of sport for their child.
- Generally, parents believed it was their responsibility to ensure their child is safe while participating in sport, whereas, parents of children involved in limited contact sports perceive less responsibility than parents with children participating in sports from the other three contact categories.

Summary

The cues to action items were averaged to provide an indication of the impact of these cues on parents' perceptions. Overall, the average score for these items was 2.9 (SD = .83) on a Likert scale from 1 to 5, indicating that cues had a very small impact on perceptions of sport injury risk. In general, parents believed that sport provides a safe environment. In relation to specific cues to action, parents did not feel that they were getting information from the media about the safety of sport. Parents perceived a high importance of trained coaches in sport participation, and parents of children in contact sports perceived that officials were important in safe participation. Information from other parents did not influence perceptions, and no-or-limited contact sports were more concerned with quality of sport facilities than higher level contact sports. Parent's injury experience did not influence on choice of sport for the child, but protective equipment use did influence choice of sport.

Modified Sport

Modifications to sports for junior participants have been in place in Australian sport since the late 1970s. The plethora of modified sports were developed to assist children in developing their skills in a more appropriate environment than adult sport, to lessen the physiological load on children by reducing playing area sizes and decreasing the playing time and potentially to have a positive effect on decreasing injury risks to young children.

The parents in this project were asked to comment on four statements in relation to the role of modified sport to the safe participation of their child in their chosen sport. Using the Health Belief Model (HBM) constructs these questions related to susceptibility to injury, the likely severity of injury, cues to action and the benefits of modified rules. The results of these four constructs are presented in Figures 26-29.

Modified Sport and Susceptibility to injury

The parents reported their perceptions of the effect of modified sport on their child's risk of injury and these are presented in Figure 26.

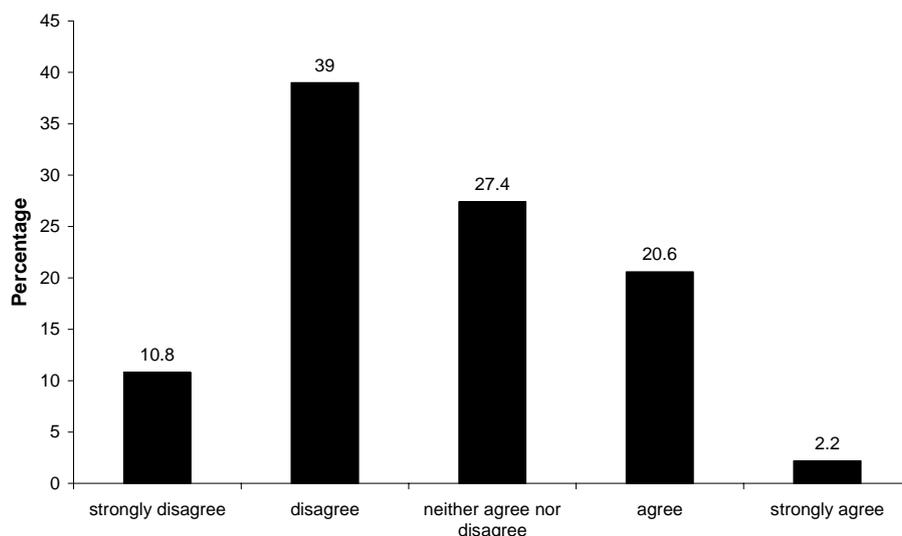


Figure 26. Perceptions of parents on the statement in survey question 6: *If my child were to participate in a modified form of SPORT, the risk of injury would be reduced.*

Generally, parents do not believe the risk of injury would be reduced if their child participated in a modified form of the sport. There was a significant difference found ($p < 0.013$) between contact levels of sports. Parents with children participating in contact sports only believed that the inclusion of their children in a modified version of the sport would lessen the risk of the child being injured. When comparing sports with a high survey return, parents of basketball players concur with the belief that a modified form of basketball will not reduce the risk of injury to their child however, parents of junior Australian Rules footballers perceived that risk would be reduced in modified forms of football. This latter perception is borne out in the literature with Gabbe and Finch (2000)

finding that in Australian rules football, modified rules has been proven to be effective in preventing injuries.

It appears that parents of children in the other three contact categories do not see modified rules as being important in reducing injury risk. If sports in these categories see modified versions of their sport as being useful in reducing injury risk, then that message is not getting out to parents.

Modified Sport and Severity of Injury

Parents were asked to comment on their perceptions of the role of modified sport in reducing the severity of injury. These results are presented in Figure 27.

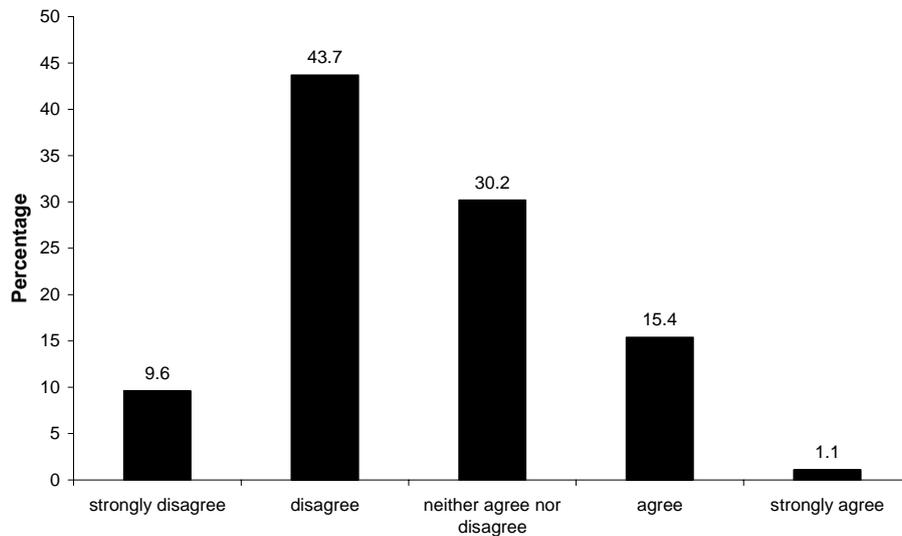


Figure 27. Perceptions of parents on the statement in survey question 12:
An injury would be less serious if my child were to participate in a modified form of their chosen sport.

Overall, parents do not feel that a modified form of the sport would reduce the severity of an injury. There were no significant differences found between sport contact categories or between the high return sports.

Modified Sport and Cues to Action

The third construct relating to modified sport asked the parents to comment on whether they thought that modified rules in their child's sport had positively impacted on their decision to allow their child to participate in their sport. These results are reported in Figure 28.

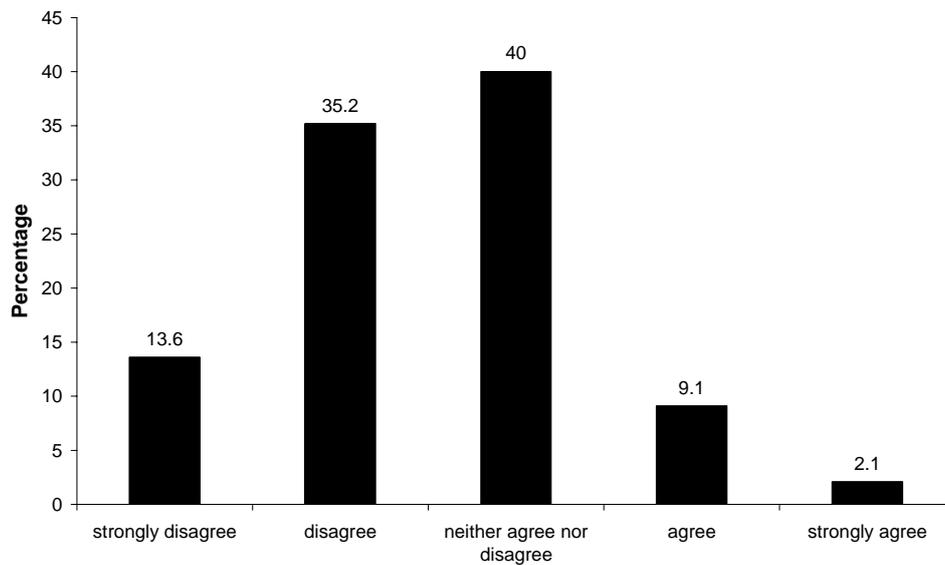


Figure 28. Perceptions of parents on the statement in survey question 20: *Modified rules in my child's sport have positively impacted on my decision to involve my child in this sport.*

Generally, parents were not more likely to involve their child in a sport if it offered modified rules. A significant difference ($p < 0.002$) was found between levels of contact and parents of children participating in contact sports agreed more with the statement than any other contact category. Parents of football participants were more likely than other parents surveyed, to be influenced by the existence of modified rules when choosing their child's sport.

Benefits of Modified Rules

The final construct asked the parents their perceptions on whether modified rules in their child's sport would make it easier for their child to participate safely in their sport. These results are presented in Figure 29.

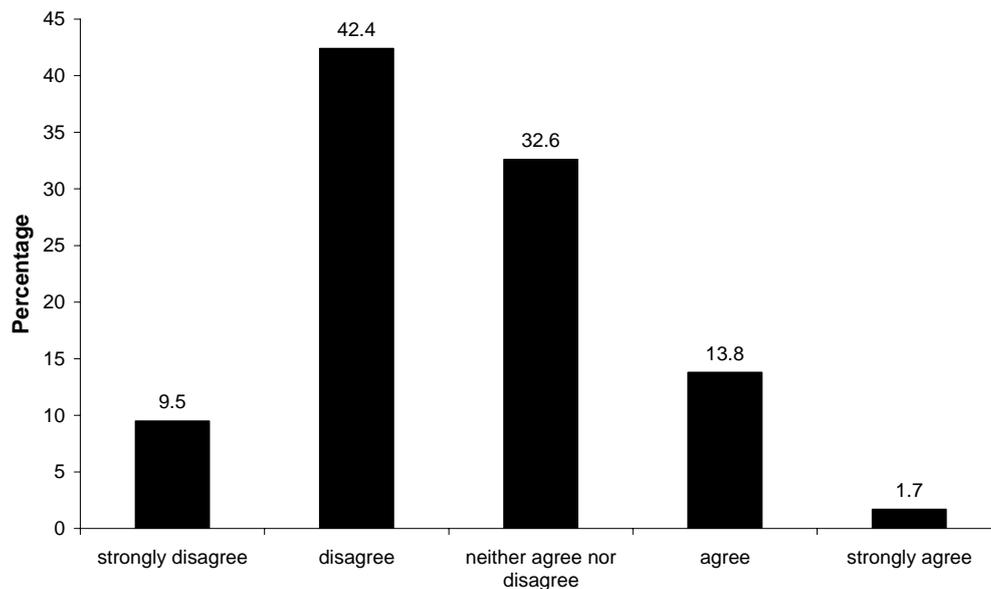


Figure 29. Perceptions of parents on the statement in survey question 25: *I feel that my child's sport with modified rules would make it easier for my child to participate safely.*

The majority of parents felt that modified rules would not assist their child in participating safely in their sport. Again, there was a significant difference ($p < 0.000$) found between sport contact levels, with more parents in contact sports than expected supporting the notion that modified rules would allow safer participation for their child. In the high return sports, parents of Australian Rules footballers were more likely than expected to agree that modified rules would allow safer participation for their child.

Summary

In summary, parents did not believe the risk of injury would be reduced if their child participated in a modified form of the sport or that a modified form of the sport would reduce the severity of an injury. Generally, parents were not more likely to involve their child in a sport if it offered modified rules. Parents also felt that modified rules would not assist their child in participating safely in their sport. Parents of children in contact sports seemed to perceive the impact of modified sport more than other sport categories.

Summary of Findings from Phase 1

Overall, parental perceptions of sport injury risk did not appear to be not strong influences on parental actions regarding sports participation. Parents were generally aware that their child was at risk of injury while participating in sport, but perceptions of susceptibility and severity were not strong. Greater perceived susceptibility and severity were reported by parents of children participating in contact and incidental contact sports. Parents were confident of taking preventative action, although parents of children in contact and incidental collision sports felt that they had less control than parents of children in non-contact sports. Parents normally did not rate the barriers to taking action very strongly, and cues to action had a very small impact on perceptions of sport injury risk. Modified sport had little impact on parental perceptions of sports injury risk, with low perceptions of reduced injury susceptibility or severity due to modified sport.

Main Findings

A summary of the main findings of the survey in relation to the variables of the HBM is provided below.

Demographics

1. The geographic location of a family had NO bearing on the parent's perception of sports injury risk.
2. No significant differences were found between SEIFA category and parents' perceptions of injury risk.
3. The mother was twice as likely to make the decision as the father (18.4% vs 9.3%),
4. Where a son was involved, the father was 3 times more likely to make the decision than the mother (6.9% vs 2.4%).
5. The mother was twice as likely to make the decision for a daughter (12.6%: vs 2.4%).
6. Parents believed that 28% of the time their son had made the sport choice, and 23.5% of parents identified the daughter as the major decision maker.

Susceptibility

1. Parents were aware that their child is at risk of injury when training and competing in their particular sport.
2. The parents in general though did not perceive a difference in injury risk between training and competition.
3. Significant differences were found between sport contact categories - the parents of children participating in contact and incidental contact sports perceived their children to be at greater risk of injury than parents of children participating in limited and non-contact sports.
4. Parents perceived that children were susceptible to injury regardless of what level of sport they are participating in.
5. Generally parents perceived that children were susceptible to injury regardless of how much time they were participating in sport.
6. Overall susceptibility showed that parents believed their child was susceptible to injury while participating in their sport. However parents of children participating in incidental and contact sports were more concerned about the susceptibility of their child to injury, than parents of children who were participating in non-contact sports.

Severity

1. The selection of a sport for their children was not based on the potential severity of injuries when participating in the sport.
2. There were significant differences found between the sport contact categories ($p<.017$). Parents of children participating in non contact sports were more likely to consider the potential for serious injury when choosing a sport.
3. Significant differences were found between sport contact categories ($p<0.000$). Contact and incidental contact sports such as football and netball recognise the potential for serious injury. Non contact sports see other sports as having greater risk of severity of injury to the child.
4. Parents do not feel that increased time participating has any effect on the severity of possible injuries.
5. Significant difference between contact categories ($p<0.000$). Parents of children in contact and incidental contact sports believed that their children were at more risk of severe injury the greater the time spent participating in their sport.
6. Parents did not perceive their child was at risk of incurring a serious injury whether training or competing in their particular sport. Again there were significant differences between sport contact categories for both training ($p<0.000$) and competition ($p<0.000$). The contact and incidental collision sport parents perceived that there was a higher risk of serious injury in competition compared to the parents of children in non-contact sports. In training though, the parents of children participating in incidental collision and limited contact sports felt that serious injuries were also likely to happen during training.
7. Overall Severity index showed that generally parents feel their child will not receive a serious injury while participating in their sport. However parents of children participating in incidental and contact sports were more concerned about the severity of injuries than those parents of children who were participating in non-contact sports.

Benefits

1. Generally, parents believed that their child would have fun regardless of the safety factor of the sport.

Barriers

1. The cost of providing safety equipment for their child was not a barrier to parents.
2. Generally, parents believed that it would be difficult to ensure the safety of their child if the sport did not follow safe practices
3. Overall, parents believed their understanding of sports injury risk enabled them to ensure their child is safe from injury when participating in their chosen sport.
4. On the question of whether safety procedures inhibit the spontaneity of sport for their child, the parents did not agree (63.9%) that this was the case.

Self-efficacy

1. Approximately 30% of parents thought that their child would be safer, but 47% did not think that their involvement in the choice of sport would make their child safe from injury.
2. Parents believe they can assess the injury risk of their child's sporting activity.
3. Generally, parents believed they have control over the sport injury risk to their child. There was a significant difference ($p<0.000$) between sports of differing contact levels. Parents of children in contact and incidental collision sports felt that they had less control than parents of children participating in non-contact sports.

Cues to Action

1. Most parents believed that the sport their children participate in provides a safe environment for their children. The contact category was found to significantly alter the parents' perceptions ($p < 0.000$). The parents of children participating in contact and incidental collision sports were less likely to support this finding than parents of children involved in limited and non-contact sports.
2. The injury experience of parents has not had an influence on their choice of sport for their child.
3. Parents believed it was their responsibility to ensure their child was safe while participating in sport. However parents of children involved in limited contact sports perceived less responsibility than parents with children participating in sports from the other three contact categories.
4. Information from other parents has not influenced parental perceptions of sports injury risk.
5. Parents of children participating in sports involving no or limited contact were more concerned with the quality of the sport facilities than parents of children participating in higher level contact sports.
6. Parents of children participating in contact sports (in particular Australian Rules football) perceived that officials were important in reducing the risk of injury to their child.
7. Sports of all contact categories and high return sports recorded that parents perceived the importance of trained coaches in ensuring their child was safe from injury when participating in sport.
8. The use of protective equipment did influence their choice of sport.

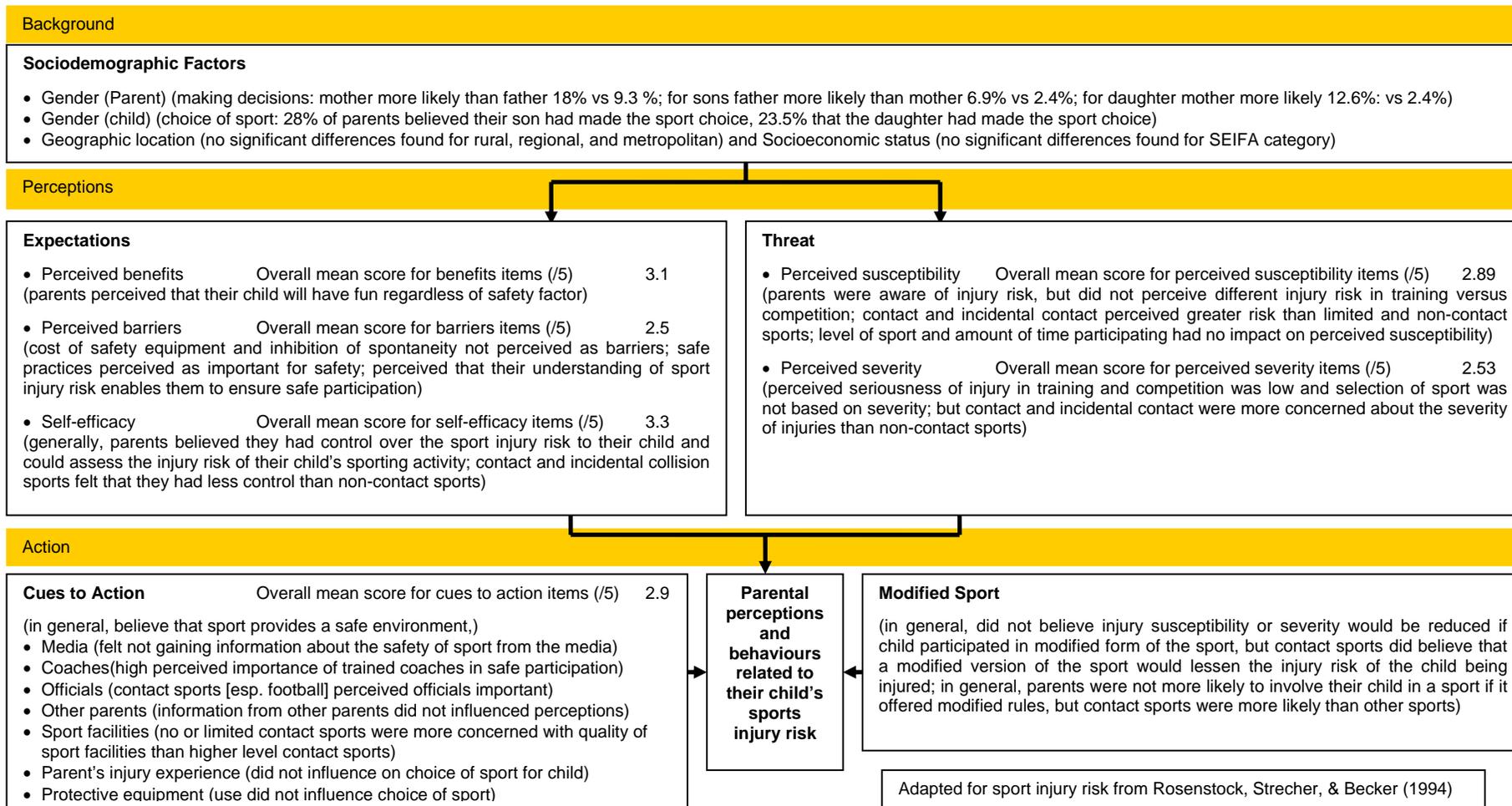
Modified Sport

1. Parents did not believe the risk of injury would be reduced if their child participated in a modified form of the sport. There was a significant difference found ($p < 0.013$) between contact levels of sports. Parents with children participating in contact sports only believed that the inclusion of their children in a modified version of the sport will lessen the risk of the child being injured.
2. Overall, parents do not feel that a modified form of the sport would reduce the severity of an injury.
3. Generally, parents were not more likely to involve their child in a sport if it offered modified rules. A significant difference ($p < 0.002$) was found between levels of contact and parents of children participating in contact sports agreed more with the statement than any other contact category.
4. The majority of parents felt that modified rules would not assist their child into participating safely in their sport. Significant differences ($p < 0.000$) were found between sport contact levels, with more parents in contact sports than expected supporting the notion that modified rules would allow safer participation for their child.

Parental Perceptions and the Health Belief Model (HBM)

The major findings of the survey in relation to the key variables of the HBM are presented in Figure 30. This figure indicates that parent and child gender had an impact on decision making in relation to sport involvement. In addition, self-efficacy, perceived benefits, and perceived susceptibility had some impact on perceptions. Cues to action had a weak overall impact on action taken in relation to sport injury prevention.

Figure 30. Major Findings of Survey in Relation to HBM of Parental Perceptions of Sports Injury Risk



Phase 2: Interview

Information from the interview phase of the project is reported in this section of the report. The methodology employed in the interviews involved comparing three groups of parents: group A – parents of children currently participating in the sport, group B – parents of children no longer participating in the sport, and group C – parents of children who have never participated in organised sport. The parents in these groups were asked for information on their perceptions of sports injury risk, how this perceived risk has influenced willingness to allow participation in sport, the critical factors that affect these perceptions of sports injury risk, how rule modification has influenced parental perceptions, and potential strategies to influence misconceptions about sports injury risk. The results of these interviews are described here.

Demographics

Where possible, interview participants were randomly chosen to include a range of demographic characteristics such as parent and child gender, geographical location, and child age and experience in the sport. For some sports, the selection pool was limited due to low response rate or a restricted range of geographical locations due to sports not being played in all areas, for example, lacrosse is only played in metropolitan areas. Details of the demographics of the interview participants can be found in Tables 5, 6 and 7 in the Appendix.

Influence of Parental Perception of Sports Injury Risk on Children's Participation in Organised Sport

The influence of parental perceptions of sports injury risk on participation in sport was investigated. First, parents were asked about their perceptions of the level of injury risk in sport, and then information was gathered on the impact of this perception on children's participation in sport.

Perceptions of Injury Risk in Sport

Parents were asked about their perceptions of the level of injury risk in sport, including those sports perceived as high and low risk, the type of sport and sports injury risk, and their child's injury history.

Parent's Perceptions of Sports Injury Risk

As can be seen in Table 8 in the Appendix, parents from all interview groups overwhelmingly acknowledged and accepted the risk of injury to their children. This is clearly seen in the comment of a group B parent who noted that, "*there is always some risk of injury somewhere.*" The advantages of participation were viewed strongly and seen as a potential antidote to societal issues with a group A parent stating, "*I think kids in sport is absolutely fantastic in keeping them away from drugs and alcohol and other things, so I guess we look at the risk of sport (injury) as overall better.*" Another parent whose 5 year old son is yet to participate in sport expressed that "*...you can't protect your kids completely; I think everyone has to accept that there is a level of injury risk no matter what you are doing...*"

Across contact, incidental contact, limited contact and non contact sports the views were similar with parents noting that each sport has its own inherent risk of injury. Attitudes to injury were quite accepting and the management of risk was viewed as being related to fitness, availability of coaches, nature of the game and experience.

Sports Perceived as High Risk

Overwhelmingly, football (35) was the most frequently identified high risk sport across all interview groups, contact categories and sports. It is the only sport identified as high risk by a parent who had a child participating in that sport; an interviewee from both group A and group B made this identification. Other sports that were identified by a number of parents as high risk were rugby (12), netball (9), hockey (8), basketball (6), horse riding (4), soccer (3) and cycling (2). (See Table 9 in the Appendix)

Sports Perceived as Low Risk

As demonstrated in Table 10 in the Appendix, swimming (20) was the most commonly identified low risk sport by interviewees from all interview groups, contact categories and sports. Other sports that were identified by a number of parents as low risk were tennis (11), golf (6), cricket (5), athletics (4), basketball (4), soccer (4), badminton (3), netball (3) and lawn bowls (3). Gymnastics, orienteering and golf are the only sports identified as low risk by a parent whose child had participated in that sport.

Sports identified as being both high risk and low risk are basketball, soccer and netball. Amongst group C parents, soccer and netball were described as high risk sports whereas other group C parents listed them as low risk. This conflicting opinion may reflect a lack of understanding of the sports within the group of parents with limited experience in organised, competitive junior sport.

Perceptions of Injury Risk Level and Type in Own Child's Sport

As reported earlier, parents of footballers perceived the game as a high injury risk level sport. This perception is described in Table 11 in the Appendix by a group A parent as "...the nature of the game". Golf and squash are generally perceived to have a low injury risk level by the parents of participants of these sports. There is a range of reported perceptions within group A and B interviewees in the following sports; hockey (very low – high), netball (low – varies – high), gymnastics (minimal – terrible). Two parents who perceive gymnastics to be a high risk level have daughters who have competed at a national level and report numerous injuries, one who left the sport due to injury. Conversely, the netball parents who reported perceiving netball to be low injury risk have younger daughters just out of the Netta (junior modified) program indicating that the child's level of commitment and experience in the sport may influence the parent's perceptions.

Surprisingly, a non contact category sport orienteering is generally perceived by parents of junior orienteers to have a high injury risk level. However, one group A parent described orienteering as having a high risk of low severity injuries and a low risk of high severity injuries.

Child's Injury History

As detailed in Table 12 in the Appendix, injuries severe enough to potentially put the participant out of physical activity were received in netball (9), football (3), running (3), gymnastics (3), men's lacrosse (2), skateboarding (2), orienteering (2), basketball (2), hockey (1), recreational skiing (1), running (1) recreational bike riding (1), and taekwondo (1). Of the children currently participating in the surveyed sport, 42% have never received an injury when participating in that sport and this was a similar percentage (41%) for children of interview group B parents. Eight out of the nine interview group C parents reported that their child had never received an injury from participating in physical activity. Many of the interviewed parents had not experienced a sporting injury to their child and few have witnessed his or her child receiving a serious injury. Inexperience may have some effect on the parent's perception of sports injury risk.

Influence of Perceived Risk on Participation

Although it is important to understand the perception of the level of sports injury risk, it is equally important to understand the impact of this perception on participation. This section of the report describes findings from the interviews related to the influence of injury risk on the decision to encourage or discourage participation in sport and the reasons for discontinued or non-participation in sport.

Influence of Injury Risk on Decision to Encourage/Discourage Participation

Table 13 (Appendix) illustrates that parents from all participation groups recognised the inevitable risk of injury as a consequence of sports participation. However there was evidence from parents with children participating (current and previously) in limited contact or non contact sport that they had channelled their children's participation away from sports with high contact, particularly football. One parent noted, *"I did not want him to play Australian Rules football.... He has got a light frame.... I sort of encouraged my boys away from it."* In a similar vein a parent stated, that *"we have never encouraged football. I wouldn't disallow it but..."* The parental group with children that had not played sport predominantly viewed Australian Rules football as high risk. The following quotes exemplify this.

"I see the professional level providing the role model and allowing tackling and violence and I don't feel I wish to encourage..." and, *"I am hoping that they don't develop an interest in the contact sports"* and most definitely, *"I don't want him playing football."*

There were other concerns about Australian Rules expressed by parents with children participating in sport in terms of children being mismatched and the lack of protective equipment. Those parents who accepted the risk of injury also believed the benefits outweighed the risk offered, and that good officiating, proper coaching and first aid, and good training were essential.

It is clear that parents worry about injuries to their children but that the majority know and accept the risks of particular sports. A parent with a child playing squash noted that, *"I was a bit concerned that he might lose teeth,"* and a netball parent was worried about *"the risk of knee and ankle injuries."* Severe injury was acknowledged as a grave concern of parents.

In summary there was a spread of issues. The clear themes emerging were:

- Parents were aware of the risk profile of particular sports: predominantly football
- Parents were worried about injuries occurring to their children
- Some parents did channel their children into and away from sports according to injury risk perceptions
- Parents did not stop their children participating in sport because of injury risks generally.

Reasons for Discontinued or Non-Participation

Table 14 in the Appendix shows that overwhelmingly, the most common reason given for children of Group B parents ceasing participation in their sport was to pursue another sport or activity such as work, relationship or study. A number of parents reported that their child had simply lost interest in the sport. A Group B parent explained that because the *"...nature of orienteering has changed...less bush events, which is what we enjoy doing..."* her sons had lost interest in the sport. She went on to predict their future participation in orienteering as *"...is an intermittent sport; they may go again any time..."* The major reason Group C parents believed their child had never participated in organised, competitive sport is that the child was not interested. A Group C parent believed his three girls (7, 10 and 12 years) *"...have no interest...some children have no*

interest in sport”, and a mother explained that her daughter had “...*tried the general stuff at school...didn't like it*”.

Five Group B parents reported their child had ceased participation in the sport because of an injury sustained while participating in the sport. Two of these injuries were netball knee injuries, two falls from the bars in gymnastics and one from a football incident. Parent BGY1 was the only parent to confidently predict that his daughter would not return to the sport by stating, “*Never in gymnastics or any activity that relies on her left arm or supporting her body weight.*”

The majority of Group B and C parents predicted their child would participate in some sport in the future, in fact three parents reported their child was about to commence participation in some form of organised physical activity. A Group C parent of a 7 year old enthusiastically explained “...*we were looking around and listening to their feedback and we decided on tennis and netball as a starting point. So this is the term that we were able to kick start that.*” Similarly another Group C parent spoke of her intentions for her 5 year old son's participation in organised sport, “*Yes, definitely. I have been looking at Auskick and Goal Kick...*”

Factors Affecting Parental Perceptions of the Sports Injury Risk

There are a number of factors that might increase or decrease the perception of sports injury risk for parents. In this section the factors described by parents as influencing their perceptions are described and discussed. The factors discussed included the amount of contact, the quality of the sports surface and the equipment, coaching and officiating expertise, specific injury prevention strategies (such as warm-up, cool-down, modified sport, ground checks), and protective equipment. In terms of protective equipment, parent's perception of their knowledge of recommended protective equipment, responsibility for ensuring the use of protective equipment, and factors influencing the effective use of protective equipment are reported. The interviewees' responses are detailed in Tables 15 and 16 in the Appendix.

Factors Increasing the Injury Risk Level of Sports

Three major groups of factors were discussed by parents and seen as likely to increase the injury risk level of sports. These were the amount of contact and nature of game, the quality of sports surface and equipment, and coaching and officiating expertise.

Amount of contact and nature of game

The amount of body contact was seen as a key factor across all parental groups that increases injury risk level. Tackling in Australian Rules football was singled out. One parent felt that, *"you allow players to get away with basically an assault."* Whilst another noted that *"they go in so hard and often it is not for the ball."* In sports like hockey, netball and basketball where body contact is penalised, it was noted that the risk of injury was still high as a result of the contact. A parent stated that *"Netball was called a non contact sport but it isn't."*

Parents recognised how the nature of the particular sport influenced the injury risk level. Hockey was where you might get hit with stick or ball, *"they swing the stick for a big hit and they don't even know someone is tackling them,"* or squash where, *"the racquets are being swung rather wildly around the court,"* and orienteering where you could fall down a mineshaft. A parent whose child had participated in netball was concerned with, *"the sudden starting and stopping, after a while it just wears out their joints."* It is clear that parents are acutely aware of specific sport related injury risks.

Quality of Sports Surface and Equipment

Parents with children participating in junior sport were keenly aware of poor grounds (hard, uneven, paddock like) in football. Parents of netballers spoke of slippery, gravel, holes and the like surfaces. These factors were seen to increase the injury risk level significantly. Whilst parents noted the importance of protective equipment, it was clear that the lack of it was seen as increasing injury risk level. One parent noted that, *"you can go onto the court without wearing protective eyewear,"* and another noted that in football, *"they don't have any protective (helmets) gear on."* Most of the concerns over equipment related to ideas of being struck by bat and ball or the danger of heading a soccer ball. It appeared a sign of parental concern for their child, rather than a concern of the equipment used in junior sport, was predominant.

Coaching and Officiating Expertise

All parent groups made comment about coaching as a factor that could increase the risk of injury. In particular sports, such as gymnastics, the focus was on coaches pushing the children too hard. One parent stated that, *"I think they are trying to push them. The (coach) used to say you do this at that level, but now they accelerate certain ones."* Whereas a parent of a netballer was concerned that, *"I have no official training, yet I am taking a netball team. I think that is a risk. I am not aware of any coaching training being given to any coach my children have had"* It was felt that umpires and other officials were important in junior sport and that it was important that they were qualified.

Overall parents were perceptive to the environment their children participated in, the role of training and coaching, in managing injury risk, and the exact risks of particular sports.

Factors that Decrease Sports Injury Risk

As can be seen from Table 16, twenty one factors were discussed by the parents. Many of these are the converse of those factors that were seen to increase injury risk level. However the broad categories of factors were supervision (coaching, officiating, parental involvement) and strategies to reduce injury (rule and game modifications, warm up, fluid replacement and cool-down, ground checks, protective equipment).

There was little response from parents with children who had not participated in sport except in the area of supervision. Clearly it is generally acknowledged that well organised competition is important, *"with coaches, kids, helpers all doing the right thing."* Parents with children currently participating in sport were keen to discuss how to decrease the risk of injury.

Supervision

The role of accredited coaches was seen to be decreasing the risk of injury in many ways. Qualified coaches were seen to, *"develop safe attitudes in children"* and to *"go through the skills progressively,"* to *"set the standards and ensure a safe environment."* Perhaps the following passage best exemplifies all this, *"encouraging, teaching the children to think about their sport, that they play intelligently rather than brutally teaching them skills"*.

Umpires were acknowledged as being important to set the tone of games and to teach and coach whilst they are umpiring. A parent of a squash player argued that, *"it can be controlled by good umpiring; the players need to be encouraged to call for a let."* Other parents saw the need for qualified first aiders and that parents could actively participate in supervision and ensuring a safe environment.

Strategies to Reduce Injury

Injury prevention practices of stretching and warm up, taping, fluid replacement and cool down were seen as important factors to actively decrease injury risk level. Active wearing and enforcement of protective equipment use was also discussed. A parent noted that, *"The U10s and U12s are made to wear helmets; they can't play unless they have one on."*

Ground and surface checks were seen as having a role to play to decrease the risk of injury with comment such as *"We sweep the courts before the game,"* and *"it is done by a safety officer at the start of the match, padding around the goal posts, the grounds can't be too hard."*

Protective Equipment and Sports Injury Risk

In this section of the report, parents' perception of their knowledge of recommended protective equipment, responsibility for ensuring the use of protective equipment, and factors influencing the effective use of protective equipment are described.

Parents' Knowledge of Recommended Personal Protective Equipment

Most interviewees displayed a sound knowledge of the personal protective equipment appropriate for the sport their child played. This awareness reflects promotion of the equipment within the sport and would thus increase the probability of its effective use.

Mouthguards were the most commonly reported personal protective equipment as all interviewed parents of incidental and contact category sports football, hockey and women's lacrosse players were aware of its use. Most parents reported that the mouthguard was effective in protecting their child's teeth as was indicated by category A hockey parent *"...one son got hit on the mouth...because he had a mouthguard he was ok."* However, two parents expressed doubts about the effectiveness of mouthguards, category A hockey parent had *"...recently heard of a kid who had a mouthguard on, got hit in the mouth with the ball and damaged teeth which required capping."* A possible cause of the ineffectiveness may be as described by a Group B football parent *"...it is not compulsory to wear properly fitted mouthguards...chemist ones can be more dangerous..."*

The use of head protection gear was reported by parents of football and male lacrosse players. Belief in the effectiveness of the lacrosse helmet in reducing injury risk was expressed by a Group A parent who stated that because male lacrosse players wear the helmet *"...injury risk is probably quite low...I've seen it and they are not exposed."* An informed interview Group B parent expressed concerns about the effectiveness of the lighter football headgear when she asserted *"I am a sports trainer and I have just finished this big thing on concussion and they say the helmets don't do much at all."* This difference of opinion may have been due to the variation in structure and purpose of the helmets and how well institutionalised its use is in the respective sporting environment.

All interviewed parents of junior squash players expressed confidence in the effectiveness of the compulsory eye protection wear. One Group A parent believed that squash had a *"...low injury risk because they make juniors wear eye guards and that would be the major problem with injuries."* When commenting on the effectiveness of the eyewear, a Group B squash parent replied, *"Well it must be because I didn't see any eye injuries..."*

Responsibility for Ensuring Use of Protective Equipment

A significant number of parents expressed a belief that the prime responsibility lay with them to ensure their child used appropriate protective equipment when playing sport.

One Group C interview participant predicted that if her child plays sport, it is *“...my responsibility that I would insist that she took it (protective equipment) with her...If I wasn’t going to be there, then whoever was the responsible person on the day...the coach or someone like that.”* Although many parents agreed the coach played an integral role in ensuring the child used protective equipment more parents, particularly from Group B, believed the individual should be responsible for their own protection. An interview Group A parent summed up this thought by stating *“I think the responsibility comes back on the person...”* Across a range of sports and contact categories, the club, venue or organising body were also believed to be responsible for ensuring children use protective equipment and as explained by a Group A hockey parent *“...where he plays no one is allowed on the ground without those things”*. This expectation of using protective equipment may be developing a culture within some of the sports as explained by another Group A hockey parent *“...they just wear them...part of the culture...”*

Factors Influencing Effective Use of Protective Equipment

As displayed in Table 18 of the Appendix, parents reported some negative factors affecting their child’s use of adequate personal protective equipment. With regard to wearing a mouthguard, one Group B hockey parent agreed with a Group A parent of a junior footballer who explained that when he played football *“...I couldn’t talk properly so I didn’t wear one”* Group B parents of lacrosse and squash concurred that protective equipment can affect vision and *“...hinder the game a bit...”*

Some parents expressed a disappointment with coaches, clubs and leagues for not reinforcing the use of personal protective wear. A parent whose child no longer participated in gymnastics explained that when her son played basketball, the coach *“...encouraged parents to buy a mouthguard but didn’t enforce it...”* A Group A parent of a junior footballer described a similar experience whereby *“...the club had helmets but he was the only one that wore one...it would have been good if more had...”* and one Group B parent expressed disappointment because the *“...League won’t make helmets compulsory...”* Many parents agreed that compulsory compliance, as suggested by hockey parent, *“...Association doesn’t allow to play without mouth guard and shin pads...”* was important and a Group A lacrosse parent reinforced the role of the coach by explaining, *“...coaches ensure that the players wear protective gear...”*

Another factor in influencing the effective use of personal protective equipment is to ensure it is readily available. A parent of a junior squash player illustrated the ease of obtaining protective eyewear because *“...you can buy them at any of the squash courts.”* And a Group B hockey parent was impressed with the Minkey hockey promotion to provide a mouthguard and shin pads with registration *“...your starter pack you got that equipment.”*

As stated earlier, sports and clubs with a culture of expectation to use protective equipment positively influence juniors to effectively wear personal protective equipment. Other reported factors that influence the effective use of personal protective equipment were its effect on enjoyment, correctly informing the child and parent, and environmental and cost issues.

Suggestions for Additional Protective Equipment

Only two parents from interview Group A suggested additional protective equipment to ensure children's safe participation. One football parent's suggestion of knee pads for his daughter reflected his high injury risk concern with football and his daughter's injury history of grazes. A parent of a junior hockey player suggested a bike helmet and plastic face shield, which may seem extreme considering he perceived hockey to be a low risk sport and reported no injury history for his daughter. His suggestion may have come from his belief that balls to the head are the predominant injury type in hockey and his recent concerns about the game, *"I have seen a number of injuries last year and this year and it disturbs me especially at the State Hockey Centre."*

Three Group B parents with children who participated in the contact sports of football and women's lacrosse and incidental contact sport hockey, suggested initiating protective headgear. However, one Group B hockey parent stressed that protective head gear was not necessary by explaining *"The rules of the game protect balls and sticks buzzing around the head..."*

Although one Group B squash parent perceived squash players to be at medium risk of incurring an injury, and her son did not suffer an injury when he participated in squash, she suggested a mouthguard as additional protective equipment useful for junior squash players.

No suggestions were made by parents of children who had recent or current experience in non contact sports or parents of children who have never participated in organised, competitive sport.

Perceptions of Rule Modification in Sports Injury Risk

The influences of modified sport on parental perceptions of sports injury risk were investigated in the interviews. Awareness of modified rules, the influence of modified rules on willingness to allow participation in sport, and suggestions for further modifications were discussed with parents.

Awareness of Modified Rules

Approximately one third of the parents from interview category A and B had no awareness of any modifications that had been made to their child's sport to ensure the safe participation of juniors. Of the modifications listed by Group A and B parents in Table 19 in the Appendix, less than a half of the modifications were aimed at injury prevention with the major focus being ease of participation and maximising participation.

Generally it was the parents of children with experience in the incidental and contact sports who cited rule modifications aimed at minimising contact. A Group B parent appeared knowledgeable from her seven years of parenting a junior footballer by stating *"In under 10s it's not bad, you are not allowed to tackle...but when you finish under 10 its open slather..."* Another Group B parent's comment about modified rules, *"...Not sure...assume less tackling..."* reflected her lack of experience and knowledge of junior football competition since her children had participated only in the Auskick program. This may reflect a lack of promotion of modified rules for junior football in the feeder program.

Gymnastic parents expressed an awareness of recent modifications to equipment and the monitoring of skills to ensure the safety of gymnasts.

Almost half of the parents whose children have never participated in organised, competitive sport expressed a vague awareness of modified rules in junior football aimed at reducing contact.

Modified Rules and Willingness to Allow Participation

Most parents from interview Groups A and B, who illustrated knowledge of an injury prevention modification to junior sport, expressed a perception that the modified form was safer. A parent of a junior hockey player explained that the modified 'Hockey 7' skills disallow *"big hits...all push passes"* is *"...helpful in reducing the risk of injury..."*, and a Group B parent believed the Minkey Hockey rule modification only allowing *"1 on 1 to defend"* ensured *"...less chance of rising ball and being hit at a close range"*.

However, only three parents declared that the modified rules had any impact on their willingness to allow their child to participate in the sport. One Group B parent was more comfortable when her daughter played lacrosse because the rules disallowed a *"stick check"*. Although a Group B parent of Auskick footballer was not aware of any modifications to junior competitive football, she stated she probably would be more encouraging of her children to play junior football if she knew of the modifications.

Suggestions for Further Modifications

All interviewees were asked to suggest any further modifications to their child's sport to reduce the injury risk level. Many parents, particularly of children participating in the non and limited contact sports responded similarly to parent of junior golfer who stated, *"I don't see how you can...injury risk is low...all the things that are put in place are right..."*. As indicated in Table 20, three parents suggested rule changes to football aimed at reducing contact between players and Group B netball parents agreed that junior players should be *"...allowed to take a couple of extra steps...to eliminate the stop..."*

It appears that overall, parents were not aware of many modifications that have been made to junior sport and did not perceive the prime focus of rule modifications to be reduction of injury risk. Knowledge of modifications had little or no influence on whether parents allowed their child to participate and parents had few suggestions of further modifications.

Sources of Information on Sports Injury Risk

Parents were asked about their sources of information on sports injury risk. This is similar to the category of cues for action in the HBM. Also, included were perceived benefits of sport and any other factors that influenced choice of sport activity.

Sources of Information on Sports Injury Risk

Overwhelmingly, the majority of parents agreed that their major source of information about the injury risk level of sports is the media, in particular television and the sport they received the most information about was football. This finding contrasts with the discovery from the Phase 1 survey that the media does not play a significant role in providing information or cues to action.

Another common source of sport injury risk information was personal playing experience (see Table 21 in the Appendix). Surprisingly, only one parent believed that personal injury experience had sourced her knowledge about the injury risk of sports.

Many parents from all interview groups believed they gained information from others, in particular other parents. Parents whose children had some experience in organised, competitive sport also referred to observation of children's sport and sport in general as an important source of information on the injury risk level of sport.

Promotion of the Benefit of Rule Modification on Sports Injury Risk

A Group B hockey parent was the only parent who commented on the focus of the promotion of rule modification within the sport. He explained that "...*there was never any attempt to try to educate why the modifications were there...*" and that Minkey Hockey "...*wasn't necessarily promoted as "this as a safer version for your kids"*"

Benefits of Playing Sport

Parents from all interview categories expressed an assortment of benefits their child could gain from participating in sporting activities. These can be found in detail in Table 22 in the Appendix. In expressing the most abundant benefit, the social gains, a Group B parent suggested football is "...*more as a social, participation thing...being dependent on someone else, that it is all right...to develop that team work that you don't have to be in control of every facet...*" and one Group A parent felt of his son's experiences in golf "...*the social skills that he has learnt...because he plays with a lot of adults...*"

A number of interview Group A parents suggested a healthier lifestyle can be gained from participating in sporting activities. Parent of junior netballer explained her belief about sport, "...*it's a great healthy lifestyle...*" and hockey parent expressed, "*I think kids in sport is absolutely fantastic in keeping them away from drugs and alcohol and other things...*"

Other suggested benefits of participation in sporting activities were having fun, training effects, psychological development, and as conveyed by a Group A orienteering parent, being exposed to risks.

Other Factors that Influenced Choice of Sport

Availability of resources was another factor reported to influence a parent's willingness to allow their child to participate in a sport. As listed in Table 23 in the Appendix, one Group A parent stated that the "...*main factor is the resources of time and money...*" and one Group C parent explained that her children "*used to have swimming lessons...still do at school but I cut it out because I wasn't able to attend...I am relying more on the school...*".

A number of parents perceived that their child had the major influence over their participation in sport. This finding corresponds with the quantitative survey in Phase 1 that children were often the major decision makers in their sport choice.

Sustainable sport participation was of consequence to some parents. This belief was expressed by parent of junior golfer when he explained "*...I encouraged them to play a sport that they could do when they left school, and that they could play well into adult life.*"

Other factors that parents considered in their child's sport selection were: avoiding an unsafe environment, the influence of peers on their child's sport selection and helping their child to develop life saving skills.

Summary of Findings from Phase 2

In general, in the interviews parents acknowledged and accepted the risk of injury to their children, but the advantages of participation in sport were seen as outweighing the injury risks associated with participation. The major findings of the interviews were:

- Parents were aware of the risk profile of different sports
- Parents were concerned about their children being injured when participating in sport
- Injury risk was seen as related to contact level, fitness, availability of coaches, nature of game, experience, good officiating, good coaching, first aid, good training
- Football was most frequently identified as a high risk sport
- Swimming and tennis were most frequently identified as a low risk sports
- Parents of children in netball reported the highest incidence of injuries severe enough to keep the child out of physical activity
- Many children currently participating (42%) and no longer participating (41%) had never received an injury
- Some parents did channel their children into or away from sports according to injury risk perceptions
- Parents did not stop their children participating in sport because of injury risks generally
- The most common reason for stopping participation was to pursue another sport or activity, such as work, relationship, or study
- Other reported reasons for non-participation were, the child was not interested or had lost interest in the sport, and an injury was sustained while participating in the sport
- Overwhelmingly, the presence of contact in a sport was perceived to be the most significant factor in increasing the injury risk level in a sport
- Other factors perceived to have a significant effect on the injury risk level of a sport were:
 - quality of facilities and equipment
 - level of player preparation – fitness, skills and knowledge of the game
 - attitude of players
 - use of protective equipment
 - effectiveness of coach and official supervision
- Parents had a sound knowledge of the personal protective equipment appropriate for the sport their children played
- Many parents felt it was primarily their responsibility to ensure their child used appropriate protective equipment
- Parents reported some barriers to the use of appropriate protective equipment including hindrance of enjoyment and performance, non-compulsory practices of clubs, coaches, and leagues
- Incentives to use identified protective equipment included compulsory compliance and availability
- Parents were generally not very aware of sport modifications and tended to perceive the modifications were in place for reasons other than to ensure safe participation
- Modified rules had little impact on willingness to allow participation

- The major source of information about injury risk level was the media, particularly television. Other sources identified included other parents and their own observation of sport
- Parents perceived that rule modification in sport, as a benefit in injury risk reduction, was not promoted
- Parents expressed strong support of the benefits of playing sport, including social, health, enjoyment, fitness, and psychological development
- A number of parents reported that their child was the major decision-maker in choice of sport
- Parents suggested reasons other than perception of injury risk for the choice of sport for their child. These included availability of resources, their child's desire, sustainable sport participation, and catering to the peer pressure their child was experiencing.

Discussion and Recommendations

In both the quantitative survey phase and the qualitative interview phase of this project, parents acknowledged and accepted the injury risk of participation in sport. Parents perceived differences in the risk level between sports, with contact and incidental collision sports generally being rated as higher in injury risk than non-contact sports. Overall, parental perceptions of sport injury risk did not appear to be strong influence on parental actions regarding sports participation. It did not appear that perceptions were different across geographic location (rural, regional, and metropolitan) or socioeconomic status groups (based on SEIFA category).

Parents considered that they had good understanding of sports injury risk, allowing them to have some control over their child's safety. Parents indicated that it was their responsibility to ensure participation was safe and that it was their primary responsibility to ensure their child used appropriate protective equipment. In Phase 1, parents reported that they were confident in their ability to take preventative action and were confident that this would be effective.

This perception of responsibility and control is interesting, given that in both phases of the project parents reported that children were often the major decision makers on sport choice. In Phase 1, female parents were also more often the major decision-maker than the male parents, but this was often split along gender lines, with male parents more often the major decision maker for male children and female parents for female children. In Phase 2, parents reported that factors that they considered in their child's sport selection included availability of resources, sustainable sport participation, avoiding an unsafe environment, and the influence of peers on their child's sport selection. This peer influence again emphasises the importance of the child and their perceptions on the selection of sport.

In both phases, parents reported that modified sport had little impact on their perception of sports injury risk and parents did not really associate modifications with injury risk reduction.

Interestingly, there were some slightly contradictory findings between the two phases. For instance, in the survey, parents generally reported that sport choice was not based on perceived injury severity, but, parents of children in contact sports were more likely to consider the potential for serious injury in choosing a sport. In the interviews some parents reported channelling their children into or away from sports based on injury risk perceptions of those sports.

When looking at the barriers to taking preventative action in Phase 1, parents normally did not rate the barriers to taking action very strongly. Parents reported that the cost of providing protective equipment was not a barrier and most felt that safety procedures did not inhibit the spontaneity of sport. In Phase 2, however, parents expressed that barriers to the use of protective equipment included hindrance of enjoyment and performance, as well as non-compulsory practices of sports. Incentives to use protective equipment included compulsory compliance and availability.

Cues to action were described as having little influence on perceptions in Phase 1. Injury experience of parents, information from other parents, protective equipment, and the

media were not seen as strong impacts on perceptions. However, in Phase 2, parents reported a large number of sources of information on injury risk and that their major source of information about injury risk level was the media, particularly television, but this was true for football only. In addition other parents and their own observation of sport were identified as sources of information. In both phases parents generally acknowledged that officials, trained coaches, and sport facilities were important in reducing injury risk.

Other important findings included that good coaching, good officiating, the nature of the game and contact level, the quality of sports surface and equipment, experience, and fitness were seen as important in minimising sports injury risk. A perception of injury risk was not the major factor in non-participation or discontinued participation in sport. The most common reason for discontinuing participation was to pursue another sport or activity, such as work, relationship, or study. Other reported reasons for non-participation included that their child was not interested, their child had lost interest, or an injury sustained while participating in the sport prevented further participation in that sport.

Recommendations

Based on the findings of the Perceptions of Sports Injury Risk Project a number of recommendations can be made concerning future initiatives in relation to perceptions of injury risk and children's participation in sport and physical activity as well as for future research in this area. Recommendations include:

- Because the child is often major decision-maker in terms of sport choice
 - Initiatives to influence perceptions of sports injury risk or increasing children's participation in sport should consider targeting children as well as parents
- As female parents were more often the parent who was the major decision-maker, initiatives need to consider how to influence the perceptions of the female parent
- Parents felt that they had good understanding of sports injury risk and that it was their responsibility to ensure participation was safe, therefore, initiatives should consider approaches to provide up to date information to parents to ensure they have good information, for taking appropriate injury prevention measures
- Modified sport had little impact on perception of sports injury risk and parents did not really associate modifications with injury risk reduction, therefore, it is recommended that modified sport is publicised to parents as a means of providing safer sport for their children. This might be especially important in relation to contact sports, which were perceived as having higher susceptibility and severity to injury
- Cues to action were described as having little influence on perceptions in Phase 1, but in Phase 2 a large number of sources of information were reported, with the major source of information about injury risk level being the media, particularly television. Consequently, it is recommended that the effective use of information sources be considered especially how to use the media effectively to promote the safety message in sport
- Parents generally acknowledged that officials, trained coaches, and sport facilities were important in reducing injury risk, therefore, these aspects of sport need to be adequately supported
- In terms of protective equipment, parents saw themselves as responsible for their children using protective equipment and did not really see cost as a barrier. The main

barriers to their effective use were non-compulsory practices and compliance. As a result it is important that parents are supported in their responsibility of ensuring use of protective equipment. Sporting associations could provide guidelines and rules that are supportive of the use of protective equipment. Officials and coaches also need to reinforce compulsory practices and compliance with sporting association guidelines, as well as making sure appropriate equipment is available

- There was some evidence that parental perceptions influenced sport choice, with some parents channelling their children away from sports perceived as higher in risk, especially contact sports such as football. Consequently, contact sports need to consider how to promote the safety aspects of their sport: including the use of protective equipment, good coaching and officiating, and the impact of modified sport on reducing the susceptibility and severity of injury
- Although parents are aware of injury risk in sport, the advantages of participation are seen to outweigh the disadvantages, as a result, it is recommended that the advantages of sporting participation continue to be reinforced
- Aspects of discontinuation or non-participation in sport aside from perceptions of injury risk should continue to be investigated, given that reasons for discontinuation and non-participation included a range of factors including pursuing another sport or activity, such as work, relationship, or study and that the child was not interested or had lost interest in the sport.

Research Recommendations

- Research should investigate children's perceptions of sports injury risk and the impact this has on sport selection and participation.
- Coaches and officials perceptions of sport injury risk and the influence on injury prevention behaviours and practices.
- Coaches and sporting bodies perceptions of modified sport and the influence of these perceptions on sport practices.
- The compliance with current guidelines of modified sport and how this affects injury risk.

In summary, the main recommendations are:

- Target children and their perceptions of injury risk in sport
- Provide up to date information to parents on safe participation
- Promote modified sports as a means of reducing injury risk in sport, especially in contact sports
- Consider how to effectively use information sources to promote safety messages
- Ensure good coaching, good officiating, and good sports facilities
- Sporting associations, officials, and coaches should support compliance and compulsory practices in regard to the use of protective equipment
- Contact sports should promote the safety initiatives in their sport, such as protective equipment, modified rules, good coaches and good officiating
- Continue to reinforce the advantages of sporting participation for children
- Continue to investigate other reasons for non-participation and discontinuation.

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Appendix 1

Parental Perceptions of Sports Injury Risk

The purpose of this survey is to understand your perceptions of sports injury risk with respect to your child participating in athletics.

Please read each statement below and decide how much you agree or disagree with that statement.

Circle the response that corresponds to your answer using the following key.

NA = Not Applicable **D** = Disagree **A** = Agree
SD = Strongly Disagree **N** = Neither Agree nor Disagree **SA** = Strongly Agree

1. I chose athletics for my child because a serious injury is less likely to occur than in other sports	NA	SD	D	N	A	SA
2. My child is at risk of injury during competition in athletics		SD	D	N	A	SA
3. My child is at risk of injury during training in athletics		SD	D	N	A	SA
4. Since my child has previously been injured in athletics, there is little risk of injury occurring again	NA	SD	D	N	A	SA
5. Unless my child participates in athletics at the highest level, the potential for injury is minimal		SD	D	N	A	SA
6. If my child were to participate in a modified form of athletics, the risk of injury would be reduced		SD	D	N	A	SA
7. Serious injury is more likely to occur in other sports than in athletics		SD	D	N	A	SA
8. The less time my child participates in athletics, the less likely my child will be injured in athletics		SD	D	N	A	SA
9. The more time my child participates in athletics, the more likely my child will receive a serious injury		SD	D	N	A	SA
10. The media provides me with information about safety in sport		SD	D	N	A	SA
11. Athletics provides a safe environment for my child		SD	D	N	A	SA
12. An injury would be less serious if my child were to participate in a modified form of athletics		SD	D	N	A	SA
13. The injuries I have incurred myself in sport have influenced my choice of athletics for my child	NA	SD	D	N	A	SA
14. I believe it is my responsibility to ensure my child is safe while participating in athletics		SD	D	N	A	SA
15. The risk of my child receiving a serious injury is high during competition in athletics		SD	D	N	A	SA
16. The risk of my child receiving a serious injury is high during training in athletics		SD	D	N	A	SA
17. Information from other parents has not influenced my views on safety in sport		SD	D	N	A	SA
18. Trained coaches are important to reduce injury risk to my child when participating in athletics		SD	D	N	A	SA
19. If I consider athletics to be safe, I am generally happy for my child to participate	NA	SD	D	N	A	SA
20. Modified rules in athletics have positively impacted on my decision to involve my child in athletics		SD	D	N	A	SA

21. The quality of athletics facilities had no influence on my decision to involve my child in athletics		SD	D	N	A	SA
22. My willingness to allow my child to participate in athletics is influenced by the use of adequate protective equipment in athletics	NA	SD	D	N	A	SA
23. The quality of officiating in athletics influenced my decision to have my child participate in athletics		SD	D	N	A	SA
24. I feel my child will only have fun in athletics if it is safe		SD	D	N	A	SA
25. I feel that athletics with modified rules would make it easier for my child to participate safely		SD	D	N	A	SA
26. My child will be safer from injury if I am involved in my child's sport choice		SD	D	N	A	SA
27. It is too costly to provide the safety equipment for my child		SD	D	N	A	SA
28. Unsafe practices in athletics would make it difficult for me to ensure my child is safe when participating in athletics		SD	D	N	A	SA
29. My knowledge of the injury consequences of athletics enables me to ensure my child is safe while participating in athletics		SD	D	N	A	SA
30. It is difficult to ensure my child is safe when people running athletics do not listen to my safety concerns	NA	SD	D	N	A	SA
31. Safety procedures inhibit the spontaneity of athletics		SD	D	N	A	SA
32. I am confident that I can assess the risk of injury in sport for my child		SD	D	N	A	SA
33. I feel I have no control over the injury risk to my child in athletics		SD	D	N	A	SA

INFORMATION ABOUT YOUR CHILD

Please indicate the following information about **your child** by circling or entering your response.

34. Gender **Male** **Female**

35. Age in years

36. During the regular season, what is the approximate **total number of times** your child **competes** in athletics?

37. During the regular season, approximately how many **hours each week** does your child participate in **organised training** in athletics?

38. Have you chosen this sport because your child has a disability or medical condition (e.g. asthma, arthritis)? **Yes** **No**

Appendix 2

Table 5. Demographics of Interview Group A

Group A										
		Gender of Parent	Gender of Child	Age of child	Geographical location - Metropolitan Regional Rural	Commitment to SPORT			Other Physical Activities	Decision maker to play SPORT
						Years played	Hours per week	Level of comp.		
Football	AF1	Male	Female	17	Metropolitan	1	1		Basketball, surfing	Child
	AF2	Male	Male	8	Metropolitan	2	1	Auskick	Little Athletics, swimming lessons	Father
	AF3	Male	MaleX3	14	Regional	4	2	U15	Occasional shooting	Both
Lacrosse	AL1	Female	Male	18	Metropolitan	10		State	Recreational skiing, Tennis	Both
	AL2	Female	Male	16	Metropolitan	4	3	Club	Recreational swim & gym	Child
	AL3	Female	Female	17	Metropolitan	3	4	State		Child
Hockey	AH1	Female	Male	14	Regional	5	3	U15 & U18	Sailing, Windsurfing	Both
	AH2	Male	Female	16	Metropolitan	3	2	Club	No other sports	Child
	AH3	Female	Male	16	Metropolitan	5	5	Club	Basketball, surfing	Child
Netball	AN1	Female	FemX2	17,11	Regional	7	2	Club	No	Both
	AN2	Female	FemX3	14,12	Metropolitan	4	2	Club		Child
	AN3	Female	Female	8	Metropolitan	4	3	Club	Swimming lessons	Mother
Squash	AS1	Female	Male	14	Regional		5	Club		Child
	AS2	Female	Male	15	Regional		6	Club	Summer hockey	Parent
	AS3	Male	Male	18	Metropolitan		3	State grade		Child
Gymnastics	AGY1	Female	Male	7	Regional	1	1.5	Recreation	Swimming Auskick, Basketball	Parents
	AGY2	Female	Female	10	Regional	4	1	Recreation	Dancing, Swimming lessons	Child
	AGY3	Female	Female	14	Metropolitan	10	17	NatL8	Swimming lessons	Parent
Orienteering	AO1	Male	Female	15	Regional		4.5	School Champ	Triathlon, Swimming, Hockey	Child
	AO2	Male	Male	17	Metropolitan	10	50km	Club	Lawn bowls, Hockey	Child
	AO3	Female	MaleX3	15, 13, 7	Metropolitan	6	3	Club	School sport	Child
Golf	AGO1	Female	Male	15	Regional	5	7X	Pennant		Child
	AGO2	Female	Male	16	Metropolitan	7	3	Club	Basketball, Tennis	Both
	AGO3	Male	MaleX2	15,2	Rural	3,2		Men's, junior	Recreational cycling	Parent

Table 6. Demographics of Interview Group B

Group B										
		Gender of Parent	Gender of Child	Age of child	Aged when stopped SPORT	Commitment to SPORT			Other Physical Activities	Decision maker to play SPORT
						Years played	Hours per week	Level of comp.		
Football	BF1	Female	Male	9	8	1	1	Auskick		Child
	BF2	Female	Female / Male	6, 8	6, 8	2	1	Auskick	Swimming	Child
	BF3	Female	Male	14	14	7	5	U15		Child
Lacrosse	BL1	Female	Female	18	15	3	2	Club	Injury	Both
	BL2	Female	Female	17	16			Club	Rowing heavy commitment	Child
	BL3	Female	Male	20	16	6	2	Club	Indoor soccer, Golf	Child
Hockey	BH1	Male	Male	17	16		4	Club		Unsure
	BH2	Male	Female	9	9	2	2	Minkey	Gymnastics	Both
	BH3	Female	Male	10	9	3	2	Club		Both
Netball	BN1	Female	Female X 2	16, 13	16, 13	2	2	Clinic, Club	Knee injury	Both
	BN2	Female	Female	20	15	3	2	Club	Running	Child
	BN3	Female	Female	10	9	1	2	Club	Swimming	Child
Squash	BS1	Male	Female	18	15	2		Pennant	None	Child
	BS2	Female	Male	20	20	5	5		None	Both
	BS3	Female	Male	15	12	5	2	Club	None	Both
Gymnastics	BGY 1	Male	Female	13	12	5	14	L7Nat	Netball, Tennis	Both
	BGY 2	Female	Male X 2	12	11	4	1.5	L1		Both
	BGY 3	Female	Female	15	14	7	16	L7Nat	Sports aerobics, Tennis	Child
Orienteering	BO1	Female	Male X 2, Female x 1	26, 23, 22	Go intermittently	10	8x per year	Club	Athletics	Parent
	BO2	Male	Female	15	14	5	0	Club	Horse riding	Parent
Golf	BGO 1	Male	Male	17	17	3	4	Pennant	Study	Child
	BGO 2	Female	Male	15	14	2	6	Club	Lawn Bowls	Child

Table 7. Demographics of Interview Group C

Group C					
	Gender of Parent	Gender of Child	Age of child	Physical activity background	Other involvements outside of school
C1	Male	FemaleX3	12, 10, 7	Swimming lessons, Dance, sport at school	Drama, Singing
C2	Male	Female	7	Starting Netball clinic & Tennis lessons	Nothing formal
C3	Male	MaleX3	19, 17, 14	19 - lessons swimming, gym, martial arts, Auskick. 17 - Swimming & gym lessons, Swimming & gym lessons, riding bike	Acting, debating, public speaking, computers
C4	Female	Female	5	Girl's "Come & Try Sports Day"	
C5	Female	Male	5	Swimming lessons	No
C6	Female	Female, Male	19,17	Dancing, Recreational Cycling	
C7	Female	Female, Male	10 (twins)	Dancing lessons	Piano, drama
C8	Female	Female	21	Ballet for 2 weeks only	Nothing as yet
C9	Female	Female, Male	21	Irish Dancing	No

Table 8. Parent's Perceptions of Sports Injury Risk

Sub Theme	Interview Group A	Interview Group B	Interview Group C
Other benefits out weigh injury risks	<p>AH1 – "...it is their fitness levels and the training...that would override the risk of being injured."</p> <p>AGY2 – "...I think it is terrific for kids to be involved in sport and I would really encourage them to do it...the benefits out weigh the risks."</p> <p>AS2 – "I want him to experience all the things that there are there in life..."</p> <p>AH3 – "I think kids in sport is absolutely fantastic in keeping them away from drugs and alcohol and other things, so I guess we look at the risk of sport as overall better..."</p>	<p>BO1 "I would rather see children...take a risk than not participating in sport at all."</p>	<p>C2 - "...although I have got a bit of a concern about the risk injury in football, I would prefer that he would be doing some physical activity."</p> <p>C4 - "...if it is risky or not that doesn't matter to me...if she is going to enjoy it...more important."</p> <p>C5 - "I don't think as parents we should be too protective otherwise they are never going to have the opportunity to do anything, they are never going to experience the competitive nature of sport, the benefits they get from playing in a team and the benefits of physical exercise."</p>
Inherent risk in all sporting activities	<p>AO3 – "I don't think there is any sport that has no risk of injury"</p> <p>AN3 – "I am comfortable with the fact that whatever she does there is a risk level associated with it and I think it is manageable"</p>	<p>BF2 "...if you look at all sports there is some danger for an injury occurring ...there is always that inherent risk of injury."</p> <p>"any sport has an element of risk"</p> <p>BGY1 "...if you look at all sports there is some danger of an injury occurring"</p> <p>BS2 "...there is always some element of risk of injury somewhere..."</p> <p>BO1 "I think they all seem to have a risk"</p> <p>BH2: "...I think every sport is inherently risky ..."</p>	<p>C4 - "Everyone I think of, I think there is a risk involved with them"</p> <p>C5 - "...you can't protect your kids completely; I think everyone has to accept that there is a level of injury risk no matter what you are doing..."</p>
Parents accept risk	<p>AGY2 – "...I recognise there are risks..."</p> <p>AO1 – "I tend to think that the protection goes a bit too far, that people actually have to take risk in their life and be exposed to these sorts of things and even though people get injured and you would rather they didn't, in some ways its good that they do."</p> <p>AO2 – "No we are pretty hard hearted because we played the sport ourselves, so we accept that risk for ourselves and we impose it on our children."</p>	<p>BN3 "I think you have got to have the ability to be able to protect yourself in most games"</p> <p>BH2: "...there are various measures you take to guard against those risks and that's what we should be doing."</p>	<p>C4 - "I don't think that risk is much of a factor. I always think that risk can be managed fairly well."</p> <p>C8 - "...the fear of getting hurt is not is not a huge thing"</p> <p>"I would rather that she learnt that herself..."</p>
Benefits of risk	<p>AO1 – "...people actually have to take risk in their life and be exposed to these sorts of things..."</p>	<p>BS1 "Football makes a man out of people, it helps them to stand up for themselves, it teaches you reliance...on your team mates...have a go, get up and work in that environment, you must be a better person when you come out of it."</p>	<p>C5 - "They need the exercise and it gets the aggression out of them sometimes."</p>

Table 9. Sports Perceived as High Risk

Group A		Interview Group B		Interview Group C	
Football – 15	All contact sports	Football - 12	Contact sports	Football – 8	Athletics
Rugby - 6	Cricket	Netball - 5	Croquet	Netball – 3	Basketball
Hockey - 4	Deep sea diving	Rugby - 3	Arial skiing	Rugby - 3	Cycling
Basketball - 3	Extreme sports Ice	Basketball - 2	Athletics	Any contact sports	Extreme skiing
Cycling - 2	Hockey	Gymnastics - 2	Sports played on	– 2	Gymnastics
Horse riding 2	Netball	Hockey - 2	a hard surface	Hockey – 2	Mountain boarding
	Rock fishing	Horse riding – 2	Taekwondo	Soccer - 2	Swimming
	Roller blading				Trail/ dirt bike
	Skate boarding				
	Soccer				
	Surfing				
	Water skiing				

Table 10. Sports Perceived as Low Risk

Interview Group A		Interview Group B		Interview Group C	
Swimming – 9	Athletics	Swimming - 6	Badminton	Swimming - 5	Athletics
Tennis - 5	Chess	Golf - 4	Baseball	Basketball - 3	Cricket
Lawn bowls - 3	Golf	Tennis 4	Basketball	Netball - 2	Golf
Badminton - 2	Gymnastics	Athletics - 2	Bowls Chess	Soccer - 2	Running
Cricket - 2	Marbles	Cricket - 2	Cross country	Tennis - 2	
	Netball		running		
	Rowing		Darts		
	Running		Indoor soccer		
	Soccer		Lawn Bowls		
	Table tennis		Orienteering		
			Soccer		
			Table tennis		

Table 11. Perceptions of Injury Risk Level and Type in Own Child's Sport

Sport		Interview Group A			Interview Group B		
		Risk level	Injury Type		Risk level	Injury Type	
Contact	Football	High Varies Auskick 10%, U11 50%, tackling 75% Med High "it's the nature of the game"	Graze Bruising	Shoulder Lower leg	High Extremely high	Cramping Knocks	Head Leg Teeth Face
	Lacrosse	Less than Football Low Medium	Bruise Sprain Cut	Ankle Eye	Low X2 (girls) Med	Broken Hit with sticks	Lower arm Knees
Incidental Contact	Hockey	Very low X 2 Medium	Cut Bruising Graze	Body Head Eye Finger	High Minkey - low	Abrasions Contact injuries	Mouth Nose
	Netball	High X 2 Varies	Sprain Broken	Ankles Knees Arm Wrist	Med high High Low : varies	Sprain Poke	Ankle Eye
Limited Contact	Squash	Low X3	Muscle injuries Hit wall or racquet	Head	Med Low with eye wear	Hit by ball or racquet Muscles sprains	Head Legs groin Ankle Knee
	Gymnastics	Minimal Mod High Terrible	Sprain Stubbed toe Muscle soreness	Ankles Toe Knee Wrists	High X2 Med	Muscle sprains Broken bones Sprain	Wrist Heels Ankle
Non Contact	Orienteering	High X 3 High - low severity, Low - high severity	Sprain Cuts	Ankles Entire body Hand	Low High	Twisted Stabbing with stick	Ankle
	Golf	Low X 3	Pulled muscles Hit by ball	Shoulder Back Body	Low X2	Strain	Arm Shoulder Elbow

Table 12. Child's Injury History

Sport		Interview Group A		Interview Group B		Interview Group C
		SPORT	Other	SPORT	Other	
Contact	Football	AF1 Graze AF2 Ball in face AF3 No	AF1 Basketball – grazes AF2 No AF3 No	BF1 No BF2 Knocked over - graze BF3 Broken bones – tackle. Hip	BF1 No BF2 No BF3 No	<ul style="list-style-type: none"> • No • No • No • No • No • Knee – school netball • No • No • No
	Lacrosse	AL1 Dislocated shoulder AL2 Arm – 1 week AL3 Pulled calve	AL1 Hockey – stitches, Soccer – kicked in leg, Skate boarding – broken collar bone AL2 No AL3 Netball - knees	BL1 No BL2 Bruises BL3 Minor bruising	BL1 Recreational skiing – broken leg BL2 No BL3 No	
Incidental	Hockey	AH1 Bruises AH2 No AH3 No	AH1 No AH2 No AH3 No	BH1 Bruising BH2 No BH3 No	BH1 No BH2 No BH3 No	
	Netball	AN1 Knee – 1 year AN2 Groin and wrist muscle strain AN3 Grazed knees	AN1 No AN2 Cross country running – groin – no warm up AN3 No	BN1 Knee BN2 Knee BN3 Twisted ankle	BN1 No BN2 Running – shin splints BN3 No	
Limited Contact	Squash	AS1 None AS2 No not really AS3 No	AS1 No AS2 No AS3 Basketball – broken tibia & fibula, Football – broken finger, Scheuermann's disease	BS1 No BS2 No BS3 Achilles problem – not caused by squash	BS1 No BS2 Taekwondo – Sprain BS3 No	
	Gymnastics	AGY1 No AGY2 No AGY3 Heaps of nigging injuries	AGY1 No AGY2 No AGY3 No	BGY1 Broken elbow – fall from bars (permanent), Sever's – heel, cut ankle – required stitches, bruises and grazes, muscle strain BGY2 No BGY3 Neck – fall from bars	BGY1 Netball fell on wrist - sprain BGY2 Recreational bike riding-dislocated shoulder BGY3 No	
Non Contact	Orienteering	AO1 "...the usual runner's knee and ankle" AO2 Strained leg muscle – 2 weeks AO3 Gashed leg – ran into a barbed wire fence	AO1 Hockey – stress fracture to spine – genetic – not related to hockey AO2 No AO3 No	BO1 Bit of bruising BO2 Twisted ankle	BO1 Running injuries – over training, under training then competing BO2 Horse riding – falls - bruising	
	Golf	AGO1 Couple of small ones AGO2 No AGO3 No	AGO1 Cricket – bruising, fingers AGO2 Football – knee, broken finger, Knock to head – damaged eye muscle. Basketball – knees AGO3 Soccer – bruising, winded.	BGO1 No BGO2 No	BGO1 No BGO2 Skateboarding- broken leg	
		No injury – 10/24	No injury – 15/24	No injury – 9/22	No injury – 14/22	No injury 8/9
		No injury from any sport – 7/24		No injury from any sport – 5/22		

Table 13. Influence of Injury Risk on Decision to Encourage/Discourage Participation

Sub Theme	Interview Group A	Interview Group B	Interview Group C
I wouldn't discourage from playing any sport because of injury risk x 20 references	<p>AF2 – none if umpire takes action “...if he chose a sport I would support him.”</p> <p>AF3 – None –“as long as trainers and first aiders are all there, it is all very well organised” “No I don't think I would discourage the boys from playing any sports, so long as it is safe”</p> <p>AN2 – “No. I haven't disallowed my children from trying any sport...”</p> <p>AN3</p> <p>AGY2 – “No, anything that she expresses an interest in involving physical activity I would be happy for her to do...”</p> <p>AO3 – “No...I don't think there is any sport that has no risk of injury.” “...the kids themselves weren't keen on those sports.”</p>	<p>BF2 – “I wouldn't actually discourage them really from anything because I think it is important that they have some physical activity and I think it is really good for socialisation and stuff.”</p> <p>BH1</p> <p>BH2 – I don't think our decision to whether Annie played or not would be based on risk of injury</p> <p>BH3 – “No, if he wanted to give it a shot, I would certainly let him.”</p> <p>BN1 – “I don't think so unless it was an expense issue as to what protective gear they needed...”</p> <p>BS1 – “No, I think you have to have a go and enjoy what you are doing.”</p> <p>BS3 – Never discouraged</p> <p>BGY3 – ‘No...whatever she wanted she could do’</p> <p>BO1</p> <p>BGO1 – “Not actively discouraged, no”</p>	<p>C1 - “No...I am not a sportsman myself...I have no idea what the injury risks are...”</p> <p>C2 - “No...if anything I would have encouraged rather than discouraged”</p> <p>C4 - “None...I do a high risk sport myself and so does my husband.”</p> <p>C8 - “...the fear of getting hurt is not is not a huge thing” “I would rather that she learnt that herself...”</p>
I have concerns about the injury risk of a particular sport x 8 references	<p>AS2 – Squash “I was a bit concerned that he might...lose teeth...that worries me but it is par for the course”</p> <p>AGY1 - “...bit unsure as to encourage him to participate in football because of that belief that he may get injured.”</p> <p>AGY2 - “...if they were really passionate about rugby I would let them do it but I would probably prefer another sport.”</p> <p>AGO2 - “He played football...I was quite pleased when he decided to play basketball”</p>	<p>BL2 – “Maybe football, I would have some concerns, maybe netball, I would be concerned....about knee injuries...”</p> <p>BGY1 – “...I suppose those sports where a mistake could cause a loss of life...extreme and motor sports”</p> <p>“ it is not actually the occurrence of an injury; it is the severity of it that would be the concern”</p> <p>BGY2 – “...my boys play football...they know I am worried...”</p> <p>BO2– “I don't think it was ever an issue in dissuading her from competing”</p> <p>“I grew up on horses myself and I know that it can be quite dangerous and when she goes out riding in the bush I am always quite concerned about that.”</p> <p>“...we feel too guilty to discourage her from pony club, but we certainly make her aware of the consequences...limit the number of events...”</p>	
I wouldn't encourage to play a particular sport x 14 references	<p>AL1 – “I would much rather have him playing Lacrosse than football or soccer or hockey.”</p> <p>AL3 “...if I had boys, I don't think I would like them playing football or lacrosse...”</p> <p>AH1 “If he had chosen to play football we were going to support him...but from what I had seen of the injuries...on TV I don't think I would like that.”</p>	<p>BF1 – “I thought it was a good idea for him to a bit of a go for backyard footy...I wasn't going to encourage him to playing competitively...I have got an idea of the injuries that we see...”</p> <p>BN2 – Football - “After he got his first injury I was not happy...well I more or less said if you are going to go and play football at least you have to attend the training nights properly and</p>	<p>C2 “I would probably have some reservations about football at the local level, I think sometimes that can be a little more brutal than as you go higher up in the ranks.”</p> <p>C3 - Yes very much...I am hoping that they don't develop an interest in the contact sports.”</p> <p>“...if you avoid the interest at a</p>

	<p>AGY3 – Football – "...I am not going to stop him...not be too enthusiastic to encourage him...even though I do think AO1 - '...we didn't encourage football...Because of the injury risk... only a small boy."</p> <p>AO2 – "We were less encouraging...body contact sports such as football..."</p>	<p>things like that..."</p> <p>BO2 – "From my experience, I haven't actually encouraged...rock climbing...I don't believe children have the capacity to exercise sound judgement."</p> <p>BG02 – "We have never encouraged football...I wouldn't disallow it...but we did when he was wearing braces...told by the orthodontist not to play contact sports..."</p>	<p>young age then hopefully it doesn't take hold and become an interest when they are a bit older and more prone to injury...we are hopefully steering them away from football...that is the one I'm most concerned about."</p> <p>C5 - "With Aussie rules I have a concern...I think I will be okay while he is doing the non contact level...but I don't think I would stop him"</p> <p>C7 - Football "...I see the professional level providing the role modelling and allowing tackling and violence and I don't feel like I wish to really encourage them."</p>
<p>I would discourage from playing a particular sport x 10</p>	<p>AH3 - "...rugby is the only sport that my husband and I have ever discouraged our children from..."</p> <p>AH3 – "...mind you if one of them got a bad injury we might think differently..."</p> <p>AS2 - "I don't turn him off playing anything other than rugby...I would very much deter that."</p> <p>AGO3 - I did not want him to play Australian rules footy...he has got a light frame...I sort of encouraged my boys away from it."</p>	<p>BL1 – "Probably I wouldn't be happy about...extreme sports...I would try and discourage them, yes."</p> <p>BL3 – "...possibly something like motocross or something like that...risk of being injured...could be head, neck..."</p> <p>BN2 - Netball "...it her choice to stop playing...with encouragement..."</p> <p>BO2 "...motocross... I would be very apprehensive of my kids getting involved in that..."</p>	<p>C7 – Football "...I am not discouraging them...but I might do that if they become interested as teenagers."</p> <p>C9 - I didn't want him playing football</p>
<p>I wouldn't allow to play a particular sport x 4</p>	<p>AL2 "Football...because they don't have any protective gear on."</p> <p>AO1 - "...cycling...I didn't let them get out on the road until I can go with them."</p>	<p>BF3 – "I don't let my little girl play netball because everyone I know who plays...have had shocking ankle and knee injuries"</p> <p>'...I would never let any of my kids play rugby, there's no way, no way."</p> <p>BG02 – "We have never encouraged football...I wouldn't disallow it...but we did when he was wearing braces...told by the orthodontist not to play contact sports..."</p>	
<p>I would encourage to play a particular sport due to low injury risk level x 5</p>	<p>AS1 – Yes low risk level of squash leads to encouraging</p> <p>AS3 – Squash - Probably it has</p> <p>AGY1 – Gymnastics "So it was one of the reasons in the back of my mind, that at least if he goes to gym he can do the same activities, but in a safe environment rather than in the back yard."</p> <p>AO37 – Low risk is an influence... the fact that it is not going to happen with golf is always something for me that is important."</p> <p>AGO3 – Golf - Low risk is an influence</p>		

Table 14. Reasons for Discontinued or Non-Participation

Sub Theme	Interview Group B	Interview Group C
Child's interest in other activities x 14 references	X6 Sport X6 Other activities including work, relationship and studies	X1 ballet X1 music
Child's lack of interest x 9 references	X5 BO1 – "...nature of orienteering has changed...less bush events which is what we enjoy doing..."	X4 C1 - "They have no interest...some children have no interest in sport" C9 - "She tried the general stuff at school...didn't like it"
Injury x 7 references	X5 injury incurred in the SPORT X1 Medical condition apparent when playing sport	C6 - Broke his arm playing lunchtime footy..."was not willing to put...anything at risk"
Socialisation x 3 references	X2 no friends in team	C4 - "She is quite shy, and she is over whelmed in social groups ...so we thought we won't force her to do it..."
Parent believed child was too young x 3 references		X3 5 - "Mainly because I didn't want to do too much with him until he had settled in at school and he got used to mixing with the kids...I thought if he starts doing a lot he is going to get exhausted."
Parent concerned about injury risk x 2 references	X1 Worried about injury risk as daughter is small and boys much larger	X1
Organisational / convenience x 2 references	Mother stopped	C8 Time constraints, Shared custody between parents causes organisational difficulties
Child's perceived lack of ability x 2 references		2 - "I think it is the perception of lack of ability." 6 - "From my experience when people get to a stage when they are not capable of competing and possibly winning then the reason for competing disappears..."
Other concerns x 1 references		C7 - Swimming lessons – "I was concerned for their safety...in the paedophile type of area..."

Table 15. Factors Increasing the Injury Risk Level of Sports

Sub Theme	Interview Group A	Interview Group B	Interview Group C
<p>Body contact x36 references</p>	<p>AF3 - "...it's the nature of the game." "...avoided only if they change the rules" AL3 - "...football...the element of body contact concerns me..." AH2 - "Football...body contact...should be an order off rule...you allow players to get away with basically, to ma assault. I find a lot of that stuff in AFL football to be offensive and almost criminal." AN1 - AS1 AS2 AGY1 - "...football...as he becomes older...lot more physical contact..." AGY2 - "...contact is an element that makes sports more risky..." AGY3 - "...football...a pretty full on game and a fair bit of tackling which is not meant to be...The contact is the element definitely." AO1 AO2 AO37 - "Football...the higher up you go the more likely it is, the more pressure..." AGO2 - "...the contact element of football and basketball that make it more risky...they go in so hard and often it is not for the ball..." AGO3</p>	<p>BF2 - "...mainly the contact element" BF3 - "I can't believe they don't come out with brain damage...when we are playing the football...tackling and throwing to the ground...the contact element" BL1 - "...football and hockey where you can cop a hockey stick in the face..." ML3 - "...netball...normally called a non contact sport but it isn't." BH1 BH3 BN2 BS3 BGY1 BGY2 BGY3 BO1 BO2 BGO2 BGO1</p>	<p>C2 - "football...at a young age it is not too serious...early teens the weight of each others bodies and I suppose the lack of mature thinking, the injuries can be quite severe." C4 - "...sports that do have contact do have a higher risk element." C5 - "...contact is the major factor..." C6 - "Any contact sort of sports..." C6 - "I see the professional level providing the role modelling and allowing tackling and violence..." C8 C9</p>

<p>Facilities x 12 reference</p>	<p>Junior inferior to senior x2 Too hard AF1 - "...junior grounds ...not as closely scrutinised...as it would be for the senior level." AF2 - "...I know because I have coached the senior club ...and I know the oval they have given us to do Auskick on is, out of about 4 available ovals...least safe as far as a ground...uneven when it rains...it gets really bogged down." AF3 – Grounds – “too hard...because of the drought...” 2 - “Dreadful because no one is interested in lacrosse and you only get it after the cricket...the ground isn’t always even...but the kids learn to cope.” AL2 - vary – “...if it’s really hard and rocky then it influences his game.” “...rolling of the ankles could be avoided...” AL3 - “...the grounds that they have got are pathetic...” “They change seasons with cricket...cricket pitch...just cover with sand...so you can be running and next minute have your knees up under your chin, so I find that a big risk factor for injury...” “...a lot of training is done at night so it is under lights...risk there of them not seeing the ball because of the light properly and hitting them in the face.” AH1 - “ ...it’s like a paddock to play on, there’s no such thing as turf or real grass...a factor in the injury risk because the ball flies differently, and depends on whether we have had rain.” AH2 - “...at the State Hockey Centre. The most injuries I have seen have been there, because it is a water based ground and it is extremely fast and kids ...sort of hit it and lift it...” “...artificial turf at some grounds very worn out...” AN2 - indoor wooden floor slippery - “...playing on gravel and they fall, they could be more seriously injured.” AS2 - slippery court AS3 – ‘...any kind of slipping on courts is fairly dangerous.”</p>	<p>BGY1 - “...diving...inherent risk of slipping on the floor...”</p>	
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<p>Dangerous skills innate in the sport x 11 references</p>	<p>AH1 - "...high balls that the kids flick off stick because they don't have the control of the ball..." AH2 - "...running with the ball...think it is clear...swing the stick for a big hit and don't realise there is someone actually tackling them." AS2 - "...racquets being swung...rather wildly around the court and that is a matter of skill..." AO1 - "...if your not well versed in the reading of maps and knowing what is difficult to run through and what isn't...mining terrain maps..." AGY2 "...things that involve them being off the ground, working on high bars and things AGO3 - "...twisting and the swinging of the golf club..."</p>	<p>BF3 - "...netball...sudden stopping and starting, after a while it wears out their joints." BL3 - "...netball...the stop/start..." BH2 - Complexity of the skills – "...jumping in the air...greater chance of falling on your head than running in a straight line..." BGY1 - "...sports that are ballistic in nature...soccer, netball where there is a problem turn or there is jumping..." BGO1 - "...the muscle injury type...It's just a fast running game, turning, stopping, starting, jumping."</p>	
<p>Player attitude x 10 references</p>	<p>AL1 - "...goes in with his body..." AL2 - "...some suburbs are quite rough and therefore their players are quite aggressive." AH3 - "...very competitive...puts the team first before own safety..." AF1 - Player attitude – "...she is pretty full on...she would be a danger to others..."</p>	<p>BF3 - "...some nationalities are really competitive and that can cause problems." BL3 - Player attitude BN3 - "...it depends...how competitive you are going towards getting goals as in the game itself." BS2– "He probably wasn't concentrating...should have been more responsible..." BO2 - Croquet "...it is the most frustrating, it has the greatest potential for getting someone angrier than any other sport I have ever seen" BGO1 –</p>	
<p>Equipment x 7 references</p>	<p>AN2 - Games that involve throwing of the bat and ball AN3 - Equipment – failure AGY2 - "...hockey...can get whacked with a ball or stick..." AO37 - "...cricket is always a problem...impact with the ball..."</p>	<p>BO1 - Where there are sticks involved</p>	<p>C6 - Contact with the ball – Soccer – "...the way they hit their heads against the ball..." C8 - anything that's got some form of bat can cause problems...any sort of contact with a bat or hard ball..."</p>

<p>Coach/ supervision inadequate/ ineffective x7 references</p>	<p>AL2 - "...needs to be the right person." AGY3 - "I think they are trying to push them...used to say "you do this at this level" but now they seem to accelerate certain ones."</p>	<p>BF1 –Inadequate, pushing players too much "...there is a risk if the instructor is not watching them." BGO1 –"The situation occurred because of ineffective coach control, basically that student was against other students, but the coach hadn't taken any action." BF3 - Swimming "...there is only a risk if the instructor is not watching them..." BL2 - "...if the supervision wasn't adequate there would be more risk of injury." "...went to a few gymnastics classes...I was aware it wasn't good when kids were poking and prodding and unorganised and not being disciplined and focused..."</p>	<p>Ratio - C5 - "if there is only one coach and about 30 or 40 kids I think it might be a bit difficult."</p>
<p>Frequency of activity x7 references</p>	<p>AGY3 - "...the hours the extent of the training..."</p>	<p>BF1 - repetitive exercises BL1 - Repetitive action – "...tennis is an absolute non contact and yet there is a high risk of injury playing tennis." BH2 - Amount of time – "when you are jumping up in the air a number of times the chance of you falling on your head are greater..." BGY1 - Overuse injury</p>	<p>C2 - Frequency – "...the more you do it the higher likelihood of an injury." C9 – Higher level of competition – "...because of the extra hours they are putting in...with swimming and athletics particularly...overuse injuries"</p>
<p>Surface impact x 5 references</p>	<p>AN1 - impact with concrete floors AN3 - "I think it is the hard surface, I think it is the asphalt..."</p>	<p>BF1 - "...basketball...on a hard surface." BL3 - "...netball...the surface it is played on..." BGY1 - "...sports that are played on very hard surfaces..." "...jumping and falls particularly on hard surfaces...landing..."</p>	
<p>Level of competition x 5 references</p>	<p>AH1 - Uneven competition – "That was probably my main concern with the injury level because he plays...against a much more qualified team..." AN3 - Skill level and age – "...when you have children of differing standards that poses a risk." AL3 - Juniors playing with seniors – "...put the same boy into the men's open age, they would get killed...because the difference of the game is the body checking...like 'oh there's a young one we could get him.'"</p>		<p>C2 - Football – "...at a local level I think...more brutal than as you go higher up the ranks." C9 - Higher level of competition – "...when people compete at a higher level there is a greater risk of being injured</p>

Umpire x3 reference	AF2 - "...I don't think the ball players and the nicer players are looked after as well as they should be." "...more interested in not wanting to go to the tribunal." AL3 - "...the rules are adequate as long as the...referee can interpret them correctly and get on top of things...that is a huge concern because if they are not taught how to umpire properly...get out of hand..." AN1 - Umpiring – Inadequate in helping to reinforce the rules to make the game safer - given help when training but not when they are out umpiring games -		
Training x 3 references	AL3 - "...you probably get more injuries at training than you do at playing," AGO2 – Warm up – "...not a formal kind of warm up"	BN2– "...more sense about where you should be and what you should be doing, a bit more training..."	
Presence of motor vehicle x 3 references	AO1 - Collision with Car – "...risk of getting injured in cycling is a death risk...collision with a car and the car wins."	BO2	C2 - Cycling: "...if you are out on the road and cars about..."
Rough terrain x 3 references	AO1 - nature of the sport AO2 – mine shafts AO3 –uneven, mineshafts not marked on maps		
Speed x 3 references	AH3 - – "...even on bike paths you can have pretty nasty accidents because you are going so fast..."	BS1 - "...football, because of the speed they are travelling..." BO1 - Going fast, rough terrain	
Unexpected element x 2 references		BN1 – "...football you have a whole lot of other players around you...you don't know what someone else is going to do..."	C8 - "...things like hockey you have no idea of where the ball could end up...so you really can't plan ahead."
Inappropriate body type x 2 references	AGY3 - Body type - not suitable to the activity	BN3 – "...it depends how strong you are in your build..."	
Animal involvement x 2 references	AN3 - "...horse riding...I see that as a significant risk because of the animal..."	BO2 - "...falls from horses are different from falling from your own feet...even worse."	
Lack of protective gear x 2 references	AL2 – No protective gear – Football – "Because they don't have any protective gear on..." AS2 - "...go on the court without wearing protective eyeglasses..."		
Lack of recovery/nutrition x 2 references	AGY3 - "...last year she had so many competitions...its straight back into it really."		C6 - Malnutrition – Gymnastics – "...at the Olympics level...basically the girls stop eating and become anorexic..."

Team games x 2 references	AO2 - "...that is going to be more dangerous than orienteering that is an individual sport."	BO1	
Coaches not accredited x2 references	AF3 - "It's very hard in a small country town...a lot of the coaches are just the parents and if they wanted to accredit the coaches a lot would pull out and you wouldn't have a game because you wouldn't have a coach." AN3 - Accredited - "I have never been to a netball clinic and that is an isBL1 I have...I have no official training yet I am taking a netball team, I think that is a risk." "I am not aware of any coaching training being given to any coaches that my children have had."		
Administrators	AL1 – Officials – "...it is run by all these 65 year old kids that have grown up doing it since they were 14, so they are pretty static."		
Rules	AH2 - "...I do not like short corners...the person...winds up a shot where you have got 3 or 4 kids in the goal could get hit, to me that is quite risky."		
Insufficient number of Volunteers	AF2 - "We can sometimes have two of us attending to 40 or 50 children."		
No stretching and taping	AF2 - "I think in the past people have laughed at that..."		
Insufficient information	AF2 - "...not enough out there."		
Lack of fitness	AS1 - "...you have to be fit to play. People go the other way around and get fit here and you can't do that you have to be fit to play."		
Gender		BO2 - "...boys are more at risk than girls...more into speed and excitement..."	
Insurance	AO1 - "...they used to mark all the mine shafts with tape so that people could avoid them, but the insurance has stated that if you mark the mine shafts and miss one and they fall down it you are liable...As a result they don't mark them and they say "be aware of the mines marked on your maps, but it is not all of them, it is possible that some might not be marked."		
Not Recognising risk x 1 reference	AF1 – "...she is a bit of a risk taker...not recognising there is a risk..."		

Table 16. Factors that Decrease Sports Injury Risk

Sub Theme	Interview Group A	Interview Group B	Interview Group C
No contact x 21 references	X12 AF2 –Non-contact – Junior football – “...they are allowed to bump but they are not allowed to tackle.” AH2 Less body contact allowed, players separated by a net AGY1 when learning new skills	X9	
Player preparation x 15 references	AH1 “...work on fitness...refined their skills...decreases their injury risk because they are not just paddock playing any more.” AN3 “...cover like safety type of skills in how to step and pivot...so you don’t go over on your ankle.” Skill progression AS1 “...his fitness level is pretty good, so the actual risk of doing injury...not what I would rate as high.” AS2 Learn Rules – “...once they learn how to call a let then they avoid a lot of injuries themselves.” AGY1 “...the coaches go through the skills very progressive...they don’t jump ahead. I think they are quite safe.” AGY2 Skill development – sequential AO1 “...train on the terrain...” AGO2 “...proper procedure in holding the club...not exerting any pressure on any muscles...’	BH2 “...she needs to understand the rules and know the skills well enough to be safe enough to play” “...to deal with the concentration levels that are required.” BH3 “...ensures the rules were covered.” BN2 “...attend the training nights properly” BN3 Ability to protect yourself BS1 Fit BS2 “...keeping your fitness levels in other areas like gym work.”	C8 – Awareness of where you are in relation to the play
Protective Equipment x 14 references	AF3 Protective equipment – “...the u10’s and u12’s are made to wear helmets; they can’t play unless they have a helmet on. Inc, x2 good quality		
Supervision x 10 references	AF1 Trainer – “...there is more intense scrutiny I suppose at training.” AS2 Guidance - at venue when first playing AGY2 supervised adequately – “It is very important for me” AO1 “Good supervision...is a major factor” AGO3 controls practice	BL2 “...supervising in a way that people weren’t getting hurt or doing foolish things or acting in uncivilised...ways.” BO1	C3 “...especially with younger kids the supervision...” C5 - Well organised competition – “...coach...kids...helpers...doing the right things...have got the sponsorship resources ...level of income...can actually put those sorts of practices in place.” C6 “...see the levels of dangers...keep it within bounds.”
Facilities x 9 references	AF3 “...the grounds can’t be too hard...” “...padding around the goal post...it is done by a safety officer at the start of the match.” AH3 “...fairly high quality...” AN1 Sweep the courts before the game AN1 AN2 Padding on the goal posts AN3 “...quality of the surface of the courts has an impact on it.” “...she finds the injuries less when playing on the wooden floor...” AS1 “...common practice in the management of the game...any perspiration on the court...stop the game...dry it off...” AS3 courts well maintained AGY3 lighting		

Official x 9 references	AF1 Umpires – "...being more severe on overly aggressive players." AF3 – "...down on head high tackles..." AL3 "...the rules are adequate as long as the...referee can interpret them correctly and get on top of things." AN3 "...adjusted to accommodate the children learning...not made to stop..." "...umpire up with the game..." AS2 "...it can be controlled by good umpiring...The players need to be encouraged to call for a let..."		C5 "...keep the whole tone of the game at a level where it is seen as not being acceptable to get out of control." C6 "...have to be actually in charge of the game, the kids have to know that they are in charge of the game and obey them." C8 - "...good umpire...players seem to play more to the rules...it make a big differences."
Player Attitude x 6 references	AN1 "I think the responsibility comes come back on the person to play responsibly..."	BF1 Not aggressively tackle, less competitive Taekwondo "...they are told when they begin...when someone says 'enough' they stop so they have got control of the situation." BF2 "...it is up to her...less up to others that she is going to get injured." BN3 "...how competitive you are going towards getting goals..."	C3 "...with the older kids some sort of ethos of safety in general in sport." C4 "...I think responsible behaviour...can prevent problems."
Low impact x 6 references	X3	X3	
Coaches – accredited x 6 references	AGY1 "...are all trained and are professional in what they do with the kids...so I think it is very, very safe"	X1	X2
Injury prevention practices x 6 references	AF2 Stretching and taping AN1 Warming up and cooling down AGY3 "...warm up is really good, cooling down period as well..." AGO3 "...encouraged to warm up..."	BF3 Drink and stretch to avoid cramping BGY3 Recovery – "...if someone is really unwell or mentally unwell or there is a crisis in their life...something will happen...they twist their ankle or something...so that they can have a rest." Eat and rest breaks	
Controlled movements x 5 references	AH2 " it is not a really fast moving game..." AH3 "...kids playing slowly or more definitely..." AO1 Slower pace – "...you actually learn to cope with the terrain"	BO1 - Slow, no sudden moves BGO1 – slow, continuous, not turning	
Rules x 4 references	AF3 "...in football the aim is to get rid of the ball before you get caught, whereas in rugby is to hold on until you die." AH2 Order off rule AGO2 "...rules that probably ensure that it is pretty safe..."	BO1 – proper rules	
Individual sports x 4 references		BN1 "...shouldn't be anyone there to clash with. It's a bit more controlled." BS3 "...only responsible for themselves...no outside elements...they can stop when they want..."	
Umpires Accredited x 3 references	AF3 Accredited knows what he is doing. 2 good standard	BO1	
Sport Focus x 3 references	AO37 – more emphasis on skill AGO2 Non competitive – "...fairly civilised sort of game..." "...high level of etiquette..."	BF2 "...the focus of the sport is on participation and socialisation rather that competition...if they are so determined to win...they get frustrated and hit out..."	

Appropriate competition Level x 3 references	AN3 "I would look at her skill level and her age and then judge her participation accordingly." AO1 Progression – Easy courses first	BN3 Appropriate build	
Equipment x 3 references	AH2 "solid and flatter and the ball stays generally low." AN1 "It's up to us to try and get the best shoes to take the impact...with concrete floors..." AGY1 high standard		
Modified rules x 3 references	AN3 "...the gap rules have been adapted...to give 4ft rather than 3ft."	BN2 "able to step when land"	C8 Cricket: "...if you were looking at younger ages they would usually use a soft ball"
Non weight bearing x 2 references		X2	
First Aid x 2 references	AF3 Trainers and First aiders – "...are all there, it is all very well organised." AH3 "...actually a sports doctor is one of the managers of the team..."		
Coaches	X7 AL1 "...use your head and think about the shot rather than use your body...as they get older...injuries less because they start to use their heads." AL3 State team information filtering through to club level 15 AGY1 "...the coaches go through the skills very progressive...they don't jump ahead. I think they are quite safe." Adhere to safety procedures AGY3 "...they do try pretty hard to avoid the injuries..." AG01 "...a couple of really good coaches through the Sports Academy here...direction in warm up...given a lot of good training..."	X10 BF1 Coaches don't push them Education – "...need to be pulled up and made aware of it...they're responsible for that aggressive player..." BL2 BH3 "...the biggest thing I would look for." BN2 "...adequate coaching..." BN3 "...develop safe attitude in kids" BGY1 "I think any injury could be avoided...in that circumstance if coaches had have been there and on the spot it could have been avoided, but that's not always possible" BGY2 Attitude – "Encouraging, teaching the children how to think about their sport, that they are playing intelligently rather than brutally, teaching them skills..." BO1 - Good coaching BGO1 Early coaching available at the club "Correct technique minimises injury risk."	X4 C4 "...responsible for ensuring responsible behaviour" C5 "...ensuring a safe environment..." C6 "...setting the standards..." C8 "...gymnastics...they have things in place that would protect her. I would probably go along and make sure they were adhering to those standards...coaching standards"
Administrative Decisions	AF3 "...they have stopped a few ...because of lack of water..."		
Consequences	AF3 Fear of being outed at the tribunal		

Table 17. Parents' Knowledge of Recommended Personal Protective Equipment

Sport		Group A	Group B
Contact	Football	Mouthguard X3 Taping X3 AF3 - "...the u10's and u12's are made to wear helmets; they can't play unless they have a helmet on."	Mouthguard X3 Headgear X2 Strapping Shin splints
	Lacrosse	Boys - Helmet X2, Gloves X2, Rib pads X2, Arm guards, Box X2, Shin pads (optional) 1X Girls – Mouthguards, goalie wears protective equipment	1X Boys - Helmet, gloves, wrist pads Girls– Mouthguards X2, Gloves, Goggles – recently introduced to protect the eyes
Incidental Contact	Hockey	Mouthguard X3 Shin pads X3 Goalie's equipment	Mouthguards X3, Shin pads X3, Goalie protection gear Boxes (males)
	Netball	Shoes to take the impact Taping (when injured) Hats - hot weather	Strapping Band-aids over earrings
Limited Contact	Squash	Protective eyewear X3	Protective eyewear X3
	Gymnastics	Knee braces Wrist guards (higher level) X2 Grips Taping	Handgrips x2 Knee straps Wrist protectors Taping
Non Contact	Orienteering	Nylon clothing Shoe – "...bit like a football boot but its lower in the heel...don't roll as far." Ankle Braces Gaiters Sunglasses – Protection for "...eyes jabbed by bushes..." Taping	Light suit to cover arms and legs, gaiters on ankles Strapping Ankle brace
	Golf	None	None

Table 18. Factors Influencing Effective Use of Protective Equipment

Sub Theme	Interview Group A	Interview Group B
Availability x5 references	<p>AH1 – "...they just didn't have the adequate gear at the club at the time...gone missing and they only became aware of it on Saturday..."</p> <p>AH2 – Mouthguards with us in our first aid kit</p> <p>AN1 – Club supplies</p> <p>AS3 – "...you can buy them at any of the squash courts."</p>	<p>BH2 – Provided with registration – "...your starter pack you got that equipment."</p>
Supervision x4 references	<p>AH2 – Difficult to know – "...hard to tell whether the girls have it in their mouth."</p> <p>AL2 – "...coaches ensure that the players wear protective gear..."</p> <p>AH2 – "...We (<i>team managers</i>) back up the parents..."</p>	<p>BH1 - Juniors playing at senior level - Seniors not wearing them – junior wants to follow senior's model</p>
Effect on performance x4 references	<p>AF2 – "...I couldn't talk properly so I didn't wear one."</p> <p>AL3 – Effects play – "...when the ball hits the ground they can't find it...they can't see with the helmet..."</p>	<p>BH1 – Mouthguards – Difficult to talk</p> <p>BS2 – Protective eye wear – "...not sure that it improves the game...it hinders it a bit I think."</p>
Compulsory x4 references	<p>AH1 – Association doesn't allow to play without mouth guard and shin pads</p> <p>AH2 - Club policy – reinforced</p> <p>AS1 – State wide policy – "...most adults at this complex comply with that..."</p> <p>AS2 – Playing competition or practising</p>	<p>BF3 – League won't make helmets compulsory</p> <p>BL2 – Mouthguard – not worn consistently : supposed to be compulsory</p> <p>BGY2 – Basketball – Coach encouraged parents to buy a mouthguard but didn't enforce it</p>
Culture of the sport x4 references	<p>AH1 - Part of the culture</p> <p>AH2 – Culture</p> <p>AH3 – "...culture of the club..."</p>	<p>BO2 – "...part of the culture now just to put it on."</p>
Promotion x3 references	<p>AN1 – Football – Club didn't encourage - "...the club had helmets but he was the only one that wore one...it would have been good if more had..."</p> <p>AF1 - If reinforced at the club level</p> <p>AS1 - Advertising at the courts</p>	
Effect on enjoyment x3 references	<p>AS1 Mouthguard – "...if you keep doing things like that kids are going to be put off because they would just end up being all armoured up, if you are going to do that you might as well put elbow pads and knee pads and everything."</p> <p>AGO2 – Football – Headgear – "...very difficult to enforce because he was the only one in the team..." '...socially he felt like his friends thought he was a bit of a woose, and so it was very difficult to get him to wear it the following year."</p> <p>AH2 - Shin pads – Girls wear them because they realise...if they don't...they will know about it."</p>	
Advice / Information x3 references	<p>AN2 – Medical advice – "...we had an x-C2 and he said...it (<i>taping</i>) might cause a crutch sort of thing and it would be better if she could play without it."</p> <p>AH2 - Individual's responsibility – ensure they understand – "...get to them from a young age."</p> <p>AH1 - "...don't have the training or background it could actually slip through...if someone wasn't aware of what you wore."</p> <p>Right person as team manager – "...good hockey background in the sense of safety..."</p>	
Don't see need x2 references	<p>AO1 – Attitude – "I tend to think that the protection goes a bit too far..."</p>	<p>BL1 – Headgear – "I don't think there have been enough problems that have really substantiated anyone being concerned."</p>
Environment x2 references		<p>BO1 – "...if it's a hot day you are going to wear a T-shirt."</p> <p>BO1 – "If it looks like blackberries you are going to wear your gaiters or your long pants."</p>
Cost	<p>AS2 – Cost – "It would be nice if it was cheaper, there is nothing worse than if a kid loses a game and throws it on the friggin' floor."</p>	

Table 19. Awareness of Modified Rules

Sub Theme	Interview Group A	Interview Group B	Interview Group C
Injury prevention x19 references	<p>AF3 – Compulsory helmets U10 &12 Umpires down on head high tackles AL1 – “gentler rules” AH1 - Hockey 7 - Skills – no big hits...all push passes AH2 –Try to keep the ball down AS3 – Cricket – must wear helmet when batting and fielding within 5mt of the bat AGY1 – “...start them off slowly...very progressive skills.” AGY3 – “...certain skills that they have banned...for international use because they are too difficult...are really extremely dangerous.”</p>	<p>BF2 – “...Not sure...assume less tackling...” BF3 – “In Under 10’s it’s not bad, you are not allowed to tackle...but when you finish under 10 its open slather...” BL1 –No stick check BL2 – No stick check BH2 – Minkey – Skills – push no hit, Rules – only allowed 1 on 1 to defend BGY2 – Equipment - Uneven bars are now further apart BGY3 – Equipment - Tongue vault They only allow them to do things at a certain level Progressive skills</p>	<p>C3 - ‘...I don’t really know...forms of footy for kids where you are not allowed to tackle, which makes sense for little kids I guess.” C2 - “...touch version of football as opposed to the high contact.” C5 - I believe that in the first 2 years they do a non contact form of AFL C6 - “...football they have eliminated tackling at under age levels, U8 or 10...” C8 - Cricket: “...if you were looking at younger ages they would usually use a soft ball”</p>
Ease of participation x15 references	<p>AF1 – Smaller field AH1 - Netball – Netta – Smaller field – don’t have to run so far, “...coaches are able to talk and support on the ground...” AN2 – U9- “...they don’t have the stepping rule.” AN3 – “...umpiring is adjusted to accommodate the children learning...give 4 feet rather than 3 feet...” Goal rings are lower AGY1 – “...start them off slowly...very progressive skills.” AO1 – “...the younger they are the easier the course...tracks...shorter distance...” AO2 – “graded structure...we don’t actually encourage them to do the harder courses until they are 15” “...younger ones...easier...shorter...” AO3 – “...prevent younger children getting distressed...” AGO2 – “...if little ones got into a bunker...after so many shots they were allowed to take it out and throw it out.” AGO3 – “...junior pennant...the first 3 play off scratch and the others off handicaps...”</p>	<p>BL1 – Smaller field BGY3 – Progressive skills BO1 – Beginners shadowed by experienced orienteer’s, plenty of instruction, novice courses, graded courses BGO2 – Play off the ladies tee</p>	<p>C6 - “...under age levels, U8 or 10, some competitions use a smaller field.”</p>
Examples not explained x6 references	<p>AS1- Racquetball</p>	<p>BF1 – Only Auskick BS2 - Racquetball</p>	<p>C1 - “I think at school they have football which is a modified soccer game.” C6 - Hockey – “...Minky or something...” “...there are some modified rules for football as well...” C8 - Minky hockey</p>
Maximise participation X4 references	<p>AL3 – Aussie Sports Lacrosse – “...modified equipment...made to share the ball around...more participation...quite adaptive rules... up to the association”</p>	<p>BH2 – Minkey – competition – no teams or ladders BN3 – Junior mixed – only 2 boys per team – must be up opposite ends</p>	<p>C8 - “Not so much for the injury risk as for the participation...people get more of a go...”</p>
Not necessary		<p>BO2 – Not necessary</p>	

Table 20. Suggestions for Further Modifications

Group A	Group B
<p>AL2 – rule change – no slashing</p> <p>AH2 – Football – Order off rule</p>	<p>BF1 – No scoring</p> <p>BF2 – Rule change – “...taking speckies off someone’s back...I don’t think that should be encouraged...”</p> <p>BF3 – Rule – No knee in back when taking a mark</p> <p>BN1 – Rules – “...allowed to take a couple of extra steps...to eliminate the stop...”</p> <p>BN2 – Rules – “...changing the rule so they can take one more step”</p> <p>BN3 – Organisational – No boys</p> <p>BS3 – “...make the walls flexible, but that’s impractical...”</p>

Table 21. Sources of Information on Sports Injury Risk

Sub Theme	Interview Group A	Interview Group B	Interview Group C
Media – Unspecified X3	x1	X2	
Media – TV X6	X1	X5	
Media – TV – Football X18	X11	X5	X2
Media – Newspaper X6	X2	X3	x1
Media – Newspaper – football X5	X1	X3	x1
Personal experience – Playing X19	X12	X5	X2
Personal injury experience X1	X1		
Family members sporting experience		BL3, BO1	
Family members injuries	X1		X1
Talk to others X5	X3		X2
Talk to other parents X10	X3	X5	X2
Listen to people knowledgeable in SI		X1	X2
Observation X11	X6	X5	
Observation – professional sport X5	X3	X2	
Observation – children sport X4	X2	X1	X1
Information gained while performing work duties X9 (Occupations listed)	AH3 – Doctor AN3 - teacher – students injuries AS2 – Nursing AGY1 – teacher	BF1 –Nurse – emergency – treat football injuries BH2 - Human Movement Lecturer BGY1 – PE Teacher BGY2 - Nurse – Emergency BO1 – Teacher	
Specific SI training X3	X1	x1 Sport trainer x1 Club administration, Coaching	
General knowledge X3	X1	X2	
Sporting association or club X2	X1	X1	

Table 22. Benefits of Playing Sport

Sub Theme	Interview Group A	Interview Group B	Interview Group C
Social x8 references	AF1 – "...I would rather see her doing that than wandering around the streets which she had been doing recently." AH3 – "...statistically kids in teams stay out of trouble. I think it is a lifestyle thing, preferable...to not doing sport." AO37 – "...the social skills that he has learnt...because he plays with a lot of adults..." AGO2 – "...he might often play with somebody in their 50's or 60's...I think it is a fairly civilised sort of game...not always competing against somebody else..."	BF1 – "I thought it was a good idea for him to a bit of a go for backyard footy, to play with his friends" BF2 – "...more as a social, participation thing..." "...being dependent on someone else, that it is all right...to develop that team work that you don't have to be in control of every facet..." BN3 – "...made some new friends..." BGO1 - "...play sport that they could do when they left school and that they could play well into adult life." "...the social activity."	C4 - "...we think it is really important for her to do it (participate in physical activities), especially being an only child..."
Health x4 references	AN1 – "...it's a great healthy lifestyle..." AGO3 – "...he is a chronic asthmatic...suffers no ill effects from playing golf." AH3 – "I think kids in sport is absolutely fantastic in keeping them away from drugs and alcohol and other things..."		C4 - "...for her health as well."
Fun / Pleasure x4 references	AF1 – "...she thoroughly enjoys it..." AO3 – "...sport is fun..."	BN3 – "...gee I have had fun and I have really enjoyed myself...you are proud of yourself." BGY1 – "...the pleasure she got out of the activity..."	
Training benefits x3 references	AH1 – fitness levels and training	BGY1 – "...the development was paramount." BGY3 – "...they are so well tuned and trained...once they have finished they can basically do anything..."	
Psychological x3 references	AN1 – "...very confidence, self esteem building ...take responsibility for your actions..."	BL1 – "...strive to be the best they can be..."	C5 - "They need the exercise and it gets the aggression out of them sometimes."
Exposure to risks x1 references	AO1 – "...people actually have to take risk in their life and be exposed to these sorts of things..."		

Table 23. Other Factors that Influenced Choice of Sport

Sub Theme	Interview Group A	Interview Group B	Interview Group C
Resources X4 references	AO1 – “...main factor it’s the resources of time and money...”	BN1 – “...If the protective gear was too expensive...that would be an issue. BGY3 - ...that’s purely a domestic and a financial thing really	C6 “They used to have swimming lessons...still do at school but I cut it out because I wasn’t able to attend...I am relying more on the school...”
Child’s choice X3 references	AGO2 – “Not particularly, I think it was mainly because of his interest”		C1 “You can’t force them, you cannot force them, you just have to be happy with what they do” C6 “From my experience when people get to a stage when they are not capable of competing and possibly winning then the reason for competing disappears...”
Sustainable sport participation X3 references		BO1 – “If you are involved in sport you tend to encourage your kids to go into sports that you are interested in.” BGO1 - “...I encouraged them to do was play sport that they could do when they left school and that they could play well into adult life.”	C2 “...we’re biased towards tennis...play all year round, indoor, outdoor with 2 or many players...”
Avoiding unsafe environments X2 references		BGO1 “There is another element...to do with the social activity associated with sport. I think there is a lot of drinking that goes on in football clubs, young drinking...”	C6 “They used to have swimming lessons...still do at school but I cut it out because I wasn’t able to attend...concerned for their safety...in a paedophile type of area, at out of school sessions...I am relying more on the school...”
Enjoyment			C4 “I think the most important factor is if it is an enjoyable activity...more important to me than if it is risky or not.”
Peer Pressure	AF1 – “...the peer pressure from her friends who were enjoying it.”		
Develop life saving skills	AGY1 – It is purely the water safety, to learn to survive in water.		