GEAR UP: MOTIVATION AND BARRIERS TO THE WEARING OF PERSONAL PROTECTIVE EQUIPMENT BY YOUTH SKATERS IN COUNCIL SKATEPARKS

FINAL REPORT TO DHS PUBLIC HEALTH RESEARCH GRANTS SCHEME

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EXECUTIVE SUMMARY

This research project aimed to investigate the knowledge of youth skaters aged 10-17 years about the risk of injury in skateboarding and in-line skating and the protective effect of recommended PPE (safety gear), the behaviours and attitudes of youth skaters related to the wearing of PPE whilst skating and identify the motivators and barriers to the wearing of items of PPE by young skaters including the personal, socio-cultural and economic factors influencing their use or non-use.

Youth participants were recruited from four local government areas with different socio-cultural and economic profiles: the Cities of Melbourne and Whitehorse (urban), City of Casey (outer urban/regional) and City of Latrobe (rural). The participating councils agreed to publicise the study and to assist with recruitment through flier and posters distribution and direct approach at skating facilities.

A two-phase qualitative research process was adopted: focus groups and subsequent in-depth interviews. The focus group method was chosen to enable the researchers to gain access to the interactions between the young people in a context that takes the impact of peer influence into account. Five focus groups were conducted in the Cities of Casey and Melbourne each involving between two and eight skaters. The focus group interview guide explored participants’ perceptions of the culture and appeal of skating, attitudes and group norms about injury risk and risk taking, the barriers and facilitators to wearing of PPE, skaters ideas to improve the safety of the sport, and their responses to the notion of compulsory PPE wearing in skateparks. After the Phase One focus group transcripts were analysed, the researchers, using their knowledge of the field drawn from the emerging data, selected individuals from specific groups or subgroups for in-depth interview. These in-depth interviews extended, developed and verified the emerging interpretation of adolescent perceptions of their experience of skating and the facilitators and barriers to the use of PPE. Forty-two in-depth interviews were conducted.

Grounded theory was developed by the sociologists Barney Glaser and Anselm Strauss as a way of formalising the operations needed to develop theory from empirical data. Strauss and Corbin produced a more formalised version. We have used both to inform our analytic strategies.

RESULTS

Focus groups

A total of 22 youth skaters participated in the five focus groups. The age range for eligibility in the focus groups was 10-17 years. Fifty-nine percent of participants (n=13) were aged 10-14 and 41% (n=9) were aged 15-17 years. Eighty-six per cent were male. Focus group participants were evenly divided in terms of experience with almost one-third falling into each of three categories: less than 2 years experience, 2 to 3 years experience and 4 or more years of experience. One participant had been skating less that a year. Participants commenced skating as early as three years of age, and as late as 15 years of age. Most began skating between ages 8-13 years. All participants were regular skaters with most skating daily (54%) or 2-3 times per week (32%). The profile of skaters in the focus groups closely matched the profile of skatepark users as identified in a previous observation study covering 10 Melbourne skateparks. Skateboarders are by far the largest user group of Victorian skateparks and comprised the majority of focus group members.

Main themes emerging from focus group discussions

Skaters enjoyed the informality and individuality of skating, the fact the sport demanded minimal equipment, was easily transferable to many locations and could be undertaken alone or with others. This indicated a high valuing of personal freedom and independence.
The aspects most enjoyed were mastering the equipment in different skateparks, trying and landing new tricks and the excitement of pushing yourself to the limit and taking risks.

Learning was done informally by emulating more skilled local skaters and skate champions and by trial and error. Injury risk minimisation (protective) strategies were also learned from watching more experienced skaters.

Skaters generally appeared well aware of the risk of minor injury in the sport but viewed risk taking and getting hurt as integral to learning tricks. A few expressed a ‘gung-ho’ attitude to risk-taking but others described the measures they use to minimise the risk such as learning tricks in stages, learning how to bail out appropriately and even wearing items of PPE when doing certain tricks.

A strongly held belief was that skaters were at low personal risk of serious injury in street and park skating and some expressed the view that PPE was ineffective in protecting against serious injury.

Few participants regularly wore PPE as part of their usual skating activity. The prevailing view was that PPE was not necessary in street skating/skateparks because the risk of serious injury was low, based on their own skating history (I’ve never fallen on my head, so I wouldn’t see the point of wearing PPE).

There was general agreement that it was okay for certain specific groups at high risk of being injured to wear PPE – beginners and vert skaters – and that wearing PPE was acceptable among park skaters in certain situations – when learning new tricks or doing a trick that was particularly hazardous.

There were a number of negative comments regarding the ‘uncool’ look of PPE. PPE was said to “look stupid”, “it’s not a fashion statement” and “it’s not cool to wear it”. Skaters wearing PPE had been called, or heard other PPE wearers called, “action boy”, “mummy’s boy, “too girly to skate in the park”, “nerd” and “dorky”. Several participants stated that is was the size of the pads that made them so unappealing, and that re-design to make the pads smaller and less obvious may encourage skaters to wear it.

Skaters felt that the decision about PPE wearing should be left to the individual. Local skaters at all levels of expertise took their PPE behaviour cues from national and international ‘pros’ (professional skaters).

When questioned about cost as a barrier, many said that good quality PPE was too expensive but this appeared based on their preference to spend available money on upgrading their equipment or purchasing other desirable consumer goods.

A broadly held view was that that the quality of much of the available PPE is poor - ill fitting, poorly sized, uncomfortable and ineffective. Brands and place of purchase did have an influence, with many focus group members expressing the view that skating items bought from major discount retailers were poor quality. Focus group participants generally identified specialist skate and surf shops as the source of quality and ‘cool’ skate gear.

Lack of comfort was generally agreed to be a major barrier to PPE wearing. Skaters reported that PPE “gave you rashes”, “rubs on your knees when you’re wearing pants” and that helmets “move around on your head and you have to push them back” and that PPE was restrictive and impaired their ability to perform tricks.

We asked the skaters what could be done to encourage skaters wear items of PPE. Responses included: “make them more comfortable”, “brand it”, pay local role model skaters to wear it, promote it using skating ‘pros’ through the media and direct contact, get heroes to wear it, run intermediate classes taught by their peers where PPE use was required for participation, and promote PPE as part of skate champions’ sponsorship deals.
Parental influence of PPE wearing generally appeared low, except among young skaters.

Other safety ideas raised by individuals included advertising PPE on television, making the PPE smaller and less visible, and making kneepads that can be worn under jeans or even building kneepads into jeans. One skater suggested making the ground more forgiving (‘cushioned’) as an alternative to wearing PPE.

Skaters expressed broad opposition to making PPE compulsory in skateparks mainly because it would ‘take the fun out of the sport’. Several skaters thought that this type of law would just move skaters away from the skateparks and onto the streets and others recognised that enforcement was likely to be a big problem and therefore nobody would take notice of the rules (‘just like bike helmets’).

In-depth interviews

42 skaters aged 10-17 years participated in interviews. The majority of participants were born in Australia (n=40, 95%) and all participants reported English as being the main language spoken at home. Almost half of those interviewed did not know their family income level (n=20, 48%). Three participants (7%) reported it being between $10,000 and $39,999, five (12%) between $40,000 and $59,999, eight (19%) between $60,000 and $79,999 and six (14%) reported having a family income of more than $80,000.

Most interview participants were skateboarders (n=37, 88%), rather than inline skaters (n=5, 12%). The age range for eligibility in the in-depth interviews was 10-17 years. Half of participants were aged 10-14 and half were aged 15-17 years. More than two-thirds of participants (69%) reported they skated equally at skateparks and on the streets and a further 24% skated mostly at skateparks. In-depth interview participants were fairly evenly divided in terms of experience with 26% having been skating for less than 2 years, 38% for between 2 and 3 years and 36% for 4 or more years. The time participants spent skating varied, some participants reported skating every day while others skated only when they went to particular parks, which happened as infrequently as “every three weeks”. Many skaters indicated that they would skate “as often as possible” and that the time they spent skating was only limited by work and/or school commitments.

Attributes of skateboarding/in-line skating that attracted skaters to the sport

The most common response given by participants was that it was “fun”. A more specific response from ten skaters referred to the satisfaction they felt when they ‘landed’ a new trick. Other skaters were attracted to the sport by the positive interactions they have with friends while skating, the autonomous nature of the sport and lack of team structure or supervision, and the variety of experiences in skating in that there are always new tricks to learn or new parks/street spots to visit.

How did participants learn to skate/learn new tricks?

Most interview participants were introduced to skating by a sibling or friend. A few alternative pathways into the sport were mentioned by interviewees: watching strangers skating in a park, being given a gift of a board or blades, playing skating computer games, watching skating DVD/video/television program, the opening of a skatepark in their neighbourhood and to prepare for snowboarding. A few began in-line skating after finding skateboarding too difficult.

Consistent with focus groups participants, the main learning technique was watching and copying more expert skaters. Interviewees also learned to skate or learned new tricks through movies, video clips on the internet and skating magazines.

Attitudes to risk taking and injury
As in the focus groups, many skaters seemed to accept some form of injury risk as an inevitable part of learning to skate and, for some, the element of risk taking added to the appeal of the sport. Some skaters perceived skating to be inherently more risky than other popular sports whereas others felt they had more personal control over injury risk in skating because they could bail out of a trick and other people’s actions were less likely to impact on them.

As in focus groups, a broadly expressed view was that serious injury was very rare in skating and the prevailing attitude was that skaters could control and minimise their risk of injury by skating within their limits. Skaters were asked what body sites they thought were most often injured in skating. The ankle, lower extremity (overall) and wrist were viewed as the most vulnerable body parts. No skaters mentioned the head, consistent with the belief that they are at low risk of serious injury.

**Attitudes to PPE wearing**

All of the interview subjects observed skating in the park prior to their interview were not wearing any item of PPE but some stated they had worn it in the past or currently wore some items occasionally. As in the focus group setting, barriers were raised more often than facilitators. Two major barriers were consistently expressed by interviewees: PPE was viewed as unnecessary because skaters perceived that their personal risk of serious injury in the sport was low and the different pieces of PPE were uncomfortable and restrictive. Some expressed the view that PPE was ineffective. Peer pressure against wearing PPE was one of the strong themes from the focus group discussions but was not identified as a significant barrier to PPE wear by many in-depth interview subjects. Most interviewed skaters expressed the view that PPE wearing was an individual’s choice but some mentioned that wearing it was ‘uncool’ or would lead to their peers branding them as inferior skaters.

The reported facilitators for the wearing of PPE were very consistent across all participants and all interview sites. The prevailing attitude in both the focus groups and in-depth interviews was that PPE is only necessary in certain situations or under certain circumstances and that, for the majority of the time, street/park skaters do not need to wear PPE. The most commonly reported situation in which PPE wearing was considered acceptable and desirable was when ramp or ‘vert’ skating. Most skaters said they already wear items of PPE when skating vert or would wear it if they were skating vert in the future. Some skaters considered that PPE was also acceptable when attempting a new trick or a trick that was considered highly risky or dangerous and if a skater had suffered a previous injury to a particular body site. A few skaters reported they wore PPE when they first began skating and/or saw this as an acceptable reason for others to wear PPE.

As reported from focus groups, parental influence on PPE wearing was not strong but had some effect on when participants were learning to skate.

**Suggestions on ways to improve safety of the sport**

When asked for ideas about preventing injuries in skating, the most common response was injuries were not preventable; they were going to happen “no matter what”. Only four skaters mentioned wearing PPE as a possible way of preventing injuries. A common response when asked how to prevent injuries in skating was for skaters to avoid doing tricks that are risky or beyond their skill level, suggesting that many skaters feel they have some control over whether or not they are going to get injured.

Some suggestions for preventing injury were practical and related to the structural features of the skatepark or the way the skatepark operated, having soft fall surface grass around edges of the park, lowering the height of equipment especially for learners, have more space to relieve congestion and separation of BMX bike riders from skaters.
Reaction to proposal for compulsory wearing of PPE in skateparks

Participants were asked to give their opinion on councils making PPE wear compulsory in skateparks because of their concern about skaters getting seriously injured. Reactions were mostly negative. Many skaters suggested they would be very angry if compulsory PPE (mostly interpreted as referring to helmets) was introduced, and that the rule may even lead some skaters to engage in illegal or undesirable behaviour such as vandalism. Interestingly, although the majority said they would be angry if compulsory PPE was introduced almost all of them indicated they would still skate at the skatepark, although some mentioned they would not skate there as often as previously. One of the interview sites was a supervised indoor facility that advertised on signage that helmets should be worn. Some skaters reported that they wore their helmet when skating there because it was required but others said they did not bother because the rule was not consistently enforced.

DISCUSSION

The results of this qualitative study provide unique insights into the values, attitudes and beliefs that shape the behaviour of skaters with respect to risk taking and safety practices and show that there are significant personal, social and environmentalstructural barriers to the adoption of recommended PPE (helmets, wristguards, elbow- and knee-pads). A total of 64 park skaters participated in the study, drawn from four local government areas with different socio-demographic profiles. Ninety-one per cent of skaters in the study group were skateboarders, all males but one, the dominant skate park user group. Therefore, study results mostly reflect the views of (mostly male) skateboarders rather than those of in-line skaters. For the most part, the in-depth interviews confirmed the themes that emerged from the focus groups, but the interviews provided evidence that skaters were a more divergent group in terms of attitudes and beliefs than indicated through focus groups.

We examined our results using the PRECEED-PROCEED health promotion model developed by Green and Kreuter (1991) as it provides a useful tool for planning behavioural change interventions. This model considers that behavioural actions are shaped by three categories of factors that need to be addressed in any prevention program — predisposing factors (knowledge, attitudes, beliefs, values and ‘readiness to change’ that support the adoption of the desired behaviour), enabling factors (availability of resources to accomplish the behaviour change) and reinforcing factors (social support for the desired behaviour through rewards or incentives, peer or community approval and rules).

Our study indicated that there were few factors that would predispose skaters to wear PPE. The subjective norm around PPE wearing was that it is unnecessary and ‘not the done thing’. Skaters valued the informality of park skating in the sense that it is an unorganised and individual fun activity, with few rules and low or no supervision and they especially valued the ease of participation and the freedom of skating. Consistent with findings from previous cross sectional studies investigating teenagers’ and young adults’ attitude to helmets and other items of protective gear, many skaters in our study viewed PPE as a hindrance to enjoyment and performance, describing the various PPE items as inconvenient, uncomfortable and restrictive.

Skaters also valued the challenge of skating, which intrinsically involved ‘pushing their limits’ (risk taking) and got intense satisfaction from ‘landing’ new tricks. While personal challenges were self-set and achieved, it was clear that social approval for mastery was also valued. Skaters watched more advanced local and international skaters and learned by trial and error. Pain and ‘minor’ injuries (grazes, bruises, strains and sprains) were regarded as an unavoidable part of that learning process. Overall, skaters appeared to have little knowledge of the magnitude and severity of injuries in skateboarding and had a low perception of their personal vulnerability to injury. They also showed little knowledge of the efficacy of PPE and, in fact, many study participants believed that PPE did not work, or worked only to prevent minor injuries, and therefore was unnecessary.
On the positive side, study participants did identify some situations and times when wearing PPE was acceptable. One of those times was when skaters were learning to skate. Padding up was also generally deemed to be acceptable when a skater was trying new or particularly hazardous tricks (e.g., doing ‘stairs’) or in ‘vert’ (ramp) or rail skating and to protect an injured body site.

Enabling factors are environmental factors at the practice, organisational or community-level, which make change possible. There was a notable lack of enabling factors for PPE wearing identified in the focus groups and in-depth interviews. Park skating currently lacks a club structure through which PPE wearing could be promoted, supported and encouraged. With two exceptions (one indoor and one outdoor skatepark which were managed by sports facility management organisations), the councils partnering in this project provided no supervision or on-site lessons, coaching or demonstrations in any of the public skateparks they owned. Expanded no- or low-cost PPE borrowing schemes would be feasible in these supervised skateparks, but the equipment would need to be in the brands and styles recognised as acceptable and of good quality by adolescent skaters, and heavily promoted with skatepark staff acting as role models.

There is a current national initiative through Skate Australia to ‘mainstream’ skateboarding, and the Australian Institute of Sport (AIS) now accredits it as a sport. In this new environment there may be increased opportunities to market the benefits of PPE wearing among competitive street skateboarders, with the potential for increased PPE use to filter down to recreational park skaters. Currently, there is no recognised sports peak body for skateboarding in Victoria — the Victorian Skateboarding Association Inc. is not a member of Skate Australia and Skate Victoria only services in-line skaters involved in competitive roller sports.

Another barrier to skaters wearing PPE in situations they self-defined as high-risk, such as vert or ramp skating, was that they did not want to carry it around with them all the time. Lack of secure storage at skateparks acts as a disincentive to having PPE ‘on hand’ when needed, especially in parks with high ramps.

The poor design and sizing of much PPE on the market was also identified in our study as a major barrier to PPE wear. Skaters were also disparaging about the quality of the PPE sold through discount department stores, identifying that specialist surf and skate outlets were their preferred source of quality and desirable (‘branded’) skate equipment. Skaters who mentioned that cost was a barrier did so more because they perceived the investment in good quality PPE to be a waste of money rather than unaffordable.

Peers exerted a very strong influence on the attitudes and behaviours of skaters in our study. Most skaters reported that they were introduced to the sport by friends or siblings and developed their skills by watching and emulating more expert skaters in the local skateparks or ‘pros’ (skating champions) performing tricks on video (available through the internet), TV or film and at events. Younger focus group participants reported that skaters who wore PPE were often ridiculed or ‘ripped’ by their peers (but none reported participating in name calling) and the most widely held view among all study participants was that PPE wearing was definitely ‘uncool’. However, participants in in-depth interviews expressed a more tolerant attitude towards their peers who chose to wear PPE, affirming that it was a matter of personal choice.

Many study participants commented that no local or international street skate champions ever wore any items of PPE, and the ‘pros’ fearlessness, stoicism and resilience when injured were admired and emulated. Changing the ‘culture’ of the sport at the top with regard to PPE wearing and recruiting respected local and international role models to the cause of injury prevention presents a huge challenge that needs to be addressed at the local and international levels.

In general, skaters’ comments indicate that parents do not appear to have much influence on the PPE wearing behaviour of their offspring, except when their children are younger and learning to skate.
Implications for prevention

Although there has been some historical tension in the injury prevention and control field about the use and relative effectiveness of ‘active’ (behavioural) strategies and ‘passive’ (environmental/structural) strategies, fuelled by the success of environmental measures in public health (immunisation and water fluoridation) and road safety, it is now generally acknowledged that injury reductions will not be achieved unless behavioural components are addressed in concert with environmental and structural changes (Gielen & Sleet 2003).

The application of well-respected behaviour change models (for example the Health Belief Model, the Theory of Reasoned Action and Locus of Control model) to injury prevention is limited but the small number of studies on the determinants of PPE use by young people provide some directions for the behavioural components of any multifactorial intervention to increase PPE wear in skaters. It has to be remembered that the methods of influencing youth skaters’ values, attitudes and perceptions are different from those that will work with their parents. Our results indicate that behavioural components of multifaceted campaigns targeted to skaters should focus on the following: personalising risk to heighten skaters’ perceived low susceptibility to injury specifying immediate and relevant consequences of injury, such as restriction or cessation of participation in skating and other sports (and associated peer interaction) and perhaps, for older adolescents, interruption to studies; increasing awareness of the efficacy of PPE focussing on benefits that youth may value (such as accelerated skills development); and strengthening self-efficacy. Parental strategies should focus on raising awareness of the magnitude and potential severity of injury in skating and potential short and long-term consequences, the efficacy of PPE and the provision of attractive incentives, for example subsidies, discounts and giveaways to encourage parents to purchase good quality PPE when buying their child’s first skating equipment.

The current low PPE wear rate among park skaters, especially skateboarders, the strong personal and group barriers to PPE use, the widespread opposition among youth skaters to the introduction of compulsory wear in council skateparks indicate that a regulatory approach is probably premature at this stage especially when, for the most part, supervisory and enforcement mechanisms are not in place.

We therefore recommend a staged approach with an initial focus on awareness raising, education and environmental strategies and measures to influence the ‘culture’ of the sport, so that injuries are not seen as ‘just part of the game’ and voluntary PPE wear rates reach a level where mandatory wear rules become more acceptable in the sport. Our study revealed that park skaters generally support the wearing of PPE by learners/novice skaters and the weight of published research indicates that injuries are more frequent in this group of skaters compared to their more experienced counterparts. For these reasons, learners/novice skaters and their parents would be the most suitable initial target of a planned multifaceted PPE promotion and education campaign. Campaign messages should not suggest, however, that protective gear be abandoned when a skater becomes proficient.

A recent systematic review of the research evidence for the effectiveness of community wide multifaceted programs to promote the use of bicycle helmets among children aged up to 14 years reported that interventions that included targeted and mass media education of children and parents, along with free or discounted helmets were generally successful in increasing helmet use rates but effects in terms of increases in helmet wear were variable (Spinks et al. 2005). In Victoria, observed voluntary helmet use in children reached 32% after seven years of community-based activities before legislation was enacted in 1990, increasing post-legislation to 65% in 1991 and 76% in 1992 (Vulcan et al. 1992; McDermott 1995). The Victorian experience indicates that combining education and other environmental supports such as helmet discounts with regulation is the most potent mix of strategies. The uptake of PPE in targeted local government skateparks should be closely monitored with a view to introducing compulsory wearing of PPE when voluntary wearing reaches a critical level of acceptance (say 30%) and enforcement and supervision issues are resolved.
Recommendations

- Implementation of a multifaceted education and awareness raising campaign to change the attitudes of skaters to PPE wearing and to educate parents about the effectiveness and benefits of PPE, in a context that encourages participation (‘be active, stay active’) initially targeted at learner/novice skaters and their parents
- Support for a peak body for skateboarding in Victoria or another credible organization to deliver a progressive skater skills and safety training and demonstration program in council-owned skateparks
- Engagement of General Practitioners and Emergency Department medical staff in an injury prevention education and post-injury counselling initiative that communicates to skaters and parents the effectiveness of PPE in reducing the risk of injury and re-injury
- Initiatives to address the PPE design, marketing and supply issues that are barriers to acceptance of PPE by youth skaters
- Trial of free- or low-cost hiring schemes at supervised skateparks or through nearby facilities
- Initiatives to encourage park skaters to join virtual ‘clubs’ established through a skatepark user web-page on council websites as a medium for delivering skills development and safety information and to report injuries and hazards to council
- Development of skatepark safety design guidelines
- In-depth research into hospital-treated skating injury cases to further elucidate the contributory factors and circumstances of injury and costs and consequences
- An observation study to investigate exposure to different pieces of equipment, describe skating behaviours and the proximate causes of falls, collisions and other hazardous incidents.
1. BACKGROUND

The promotion of physical activity among children and adolescents that conforms to *National Physical Activity Guidelines for Australians* is a key national and state public health priority under the *Active Australia/Go for your life and Healthy Weight 2008* strategic initiatives. These formative years play a critical role in laying the foundation for health in later life. Expansion of participation in popular ‘street sports’ (skateboarding, inline skating and Freestyle BMX) is viewed as one way of getting young people to engage in regular exercise. The Federal Government through the Australian Sports Commission has funded Skate Australia to conduct national ‘learn to ride’ initiatives — the *Street Active* and subsequent *Street Wise* programs — along with skate coach and competition judge training programs. These initiatives provide opportunities for children aged 6-14 to be introduced to skating through highly promoted learn to ride clinics conducted at large skate facilities across metropolitan, regional and rural Australia. More than 6,000 skaters and bike riders attended these clinics in 2002.

State and local government are responding to the active recreational needs of youth by expanding the provision of community skate/blade facilities. For example in 2003/4 alone, 16 Councils and community groups received grants from the *Victorian government Sport and Recreation Community Facilities Funding Program* to part-fund the development of new skate/blade facilities. Additional facilities are also being built from Council resources outside this scheme. For example, the City of Casey, a partner on this project, is currently developing three skateparks to add to the five skateparks and two mobile skate ramps already in operation.

1.1 Participation in skating

Participation in skateboarding and in-line skating (also known as rollerblading) has grown significantly from the mid 1990s in the US, Canada and UK. Australia appears to be following this trend, although comprehensive sports participation survey data that allows trend analysis are lacking.

Reliable Australian sports participation survey data indicate that in-line skating and skateboarding are popular recreational and fitness activities among Victorian youth and young adults. The Australian Bureau of Statistics (ABS) survey *Children’s participation in cultural and leisure activities* conducted in April 2003 reported that 23% (*n*=604,500) of Australian children aged 5-14 years participated in skateboarding or in-line skating outside of school hours in the two weeks prior to the survey (ABS 2003). Participation and demographic data were not published for individual States. The recently published *Participation in Exercise, Recreation and Sport Survey 2003* (Australian Standing Committee on Recreation and Sport 2003) only covered the population aged 15 years and older. The ERASS estimated that 122,400 Australians (including 32,600 Victorians) over the age of 15 years participated in organised and unorganised roller sports in the 12 months prior to interview in 2003.

Several factors have contributed to the rapid rise in popularity of skating activities including: the use of skates and skateboards for recreation, competition and transportation; the appeal of skating to a broad range of ages; recognition that skating provides low-impact aerobic exercise; the promotion of skating as an ‘extreme’ sport and the high quality and relatively low cost of equipment (Sherker & Cassell 1999). Participation costs are also low compared to other sports. Unfortunately the increase in popularity, speed and challenge in skating activities has led to a concomitant increase in skating-related injuries. Preventing injury in sport and active recreation is integral to gaining optimal health benefits from regular exercise. It has the added advantage of promoting continued participation. One US study has reported that most injured in-line skaters (56%) give up the sport (Chong *et al.* 1995).
1.2 The size of the injury problem

It is difficult to get a complete picture of the size and nature of the injury problem associated with skating activities in Victoria because there is no comprehensive sports injury surveillance system that collects data from the full range of treatment facilities (hospitals, sports medicine centres, general practitioners, physiotherapists etc.). The major sources of Victorian sports and active recreation injury data are both hospital-based: the Victorian Admitted Episodes Database (VAED) that records injury hospital admissions to all Victorian hospitals; and the Victorian Emergency Minimum Database (VEMD) that currently records emergency department presentations to 36 participating hospitals across Victoria. Both datasets underestimate the size of the hospital treated sports injury problem because the coding systems utilised do not allow full capture and there are substantial missing data.

Hospital admissions

In July 2000, for the first time, a code specifying skating injury was introduced into the VAED. This code included skateboarding, in-line skating and roller skating. During the most recently available three-year period (July 2001-June 2004) there were 1,272 recorded hospital admissions for injuries in skateboarding, in-line skating and roller skating. Males accounted for 78% of admissions. More than half (56%) of those admitted to hospital for skating injuries were aged 10-17 years. Upper extremity injuries predominated (65%, mostly elbow and forearm fractures), followed by lower extremity injury (22%, mostly knee and lower leg fractures) and injuries to the head/face/neck (10%). Most skating injuries were caused by falls (90%). For the two year period July 2002 to June 2004 the specific type of skating activity was able to be identified and the majority of injuries were sustained while skateboarding (60%), followed by inline skating (33%) and roller skating (7%).

Hospital emergency department (ED) presentations

The Victorian Injury Surveillance and Applied Research Unit (VISAR) aggregates and analysis injury data from the emergency departments (EDs) of 36 public hospitals across the state. There were 3,590 recorded ED presentations (non-admissions) for injuries in in-line skating, skateboarding and roller skating in the 3-year period July 2001 to June 2004. Most injuries occurred in skateboarding (63%), followed by in-line skating (31%) and roller skating (6%). Males accounted for 74% of presentations. Forty-four per cent of those presenting to ED with skating injuries were in the age group 10-17 years. Upper extremity injuries predominated (59%, mostly wrist fractures, forearm fractures, wrist sprains and hand/finger fractures). Twenty-three per cent of presentations were for injuries to the lower extremity (mostly ankle sprains), and 11% for injuries to the head, neck and face. Most skating injuries were caused by falls (85%).

Major mechanism of injury

As stated above, falls are the most common mechanism of skating and skateboarding injury among hospital-treated skaters. A number of research studies have shown that, typically, falls involve young novice skaters and skateboarders wearing little or no safety gear, who either spontaneously lose their balance while skating outdoors or fall after striking a road defect or some debris, or older, more experienced skaters learning new tricks (Banas et al. 1992; Towler & Brown 1994; Schieber & Branche-Dorsey 1995; Fountain & Myers 1996; Forsman & Eriksson 2001). Falling skaters typically put their hands out in an attempt to break their fall, landing on an outstretched arm onto a hard surface, with the wrist sustaining the injury (Banas et al. 1992; Calle & Eaton 1993; Heller 1993; Schieber et al. 1994).

A combination of an unsteady base of support, a changing terrain with unexpected challenges and an unsettling braking mechanism on in-line skates can contribute to falls. Add to that the high speed that can be reached by skaters, immature coordination skills and a lack of protective gear, and you have a scenario for injury.
1.3 Evidence of effectiveness of PPE in skating

The strongest evidence of the effectiveness of PPE in the prevention of skating injury is provided by a retrospective case-control study of 161 injured skaters who presented to U.S. hospitals (Schieber et al. 1996). The authors found that the odds ratio for wrist injury (adjusted for age and sex) for those who did not wear wristguards, compared with those who did, was 10.4:1. The odds ratio for elbow injury (adjusted for age and sex) for those who did not wear elbow pads, compared with those who did, was 9.5:1. The authors also found a positive, but statistically non-significant, protective effect for kneepads. The study was too small to investigate the protective effect of helmets.

The effectiveness of wristguards is also supported by evidence from a controlled trial in snowboarding (Idzikowski et al. 2000) and biomechanical studies involving the testing of matched cadaveric arms (Lewis et al. 1997; Moore et al. 1997; Greenwald et al. 1998; Staebler et al. 1999). Helmet wearing is recommended for skating activities on the basis of evidence supporting the protective effect of helmets in bicycling (Thompson et al. 1996).

1.4 Value to be gained from increasing the wearing rate of PPE by skaters

*Population attributable risk*

Most hospital-treated serious skating injuries are wrist and forearm fractures. Wristguards have the potential to prevent 87% of wrist/forearm fractures arising from in-line skating (Schieber et al. 1996) and 50% of those arising from snowboarding (Idzikowski et al. 2000). It has been estimated that the ED costs for a presentation of a forearm fracture in 2000 dollars is $634 for a 5-14 year old (based on Watson & Ozanne-Smith 1997 and Harris et al. 1998). The average cost is estimated at $1,389 for all admitted arm fractures based on cost estimates from total Weighted Inlier Equivalent Separations (WIES) values for those cases with available data from the Victorian Admitted Episodes Dataset (VAED) (Ozanne-Smith 2001).

The ultimate goal of the promotion of wristguard wearing in particular, is the widespread uptake of wristguards in selected sports and recreational activities with high risk of wrist/forearm injuries associated with falls (in-line skating, skateboarding, scooter and bike riding and snowboarding). An estimate of benefit-cost shows that if wristguard uptake was increased to 25% at 90% efficacy, health sector costs would be reduced in the first year by an estimated 266 hospitalised cases and 531 ED treated cases assuming that uptake occurred in half the relevant sports and recreational activities (Ozanne-Smith 2001). The savings in health care costs would escalate over time as further uptake occurs.

1.5 Current PPE wearing rates among skaters

Evidence from a number of Australian and overseas observational and epidemiological studies indicate that only a small proportion of in-line skaters (and even fewer skateboarders) wear full protective gear when skating. Most skaters (76%-88%) who present to hospital emergency departments with injuries report they wear no safety equipment at all (Calle & Eaton 1993; Heller 1993; Ellis et al. 1995). Victorian data on PPE wearing rates are sparse. An observational study of PPE wearing by in-line skaters in different skating settings (rinks, trails, parks and streets) in local government areas in Victoria, conducted in 1999, found that two-thirds of the 409 observed skaters wore no PPE (Sherker & Cassell 2001). The most frequently worn items were wristguards (26%) and kneepads (24%). Few skaters wore elbow pads (7%) and helmets (6%).

A MUARC-supervised Deakin University student research project conducted in 2003 provides a snapshot of PPE wearing in Melbourne council-owned skateparks (Jones et al. 2004). A total of 275
skaters and bike riders were observed in 10 skateparks across nine urban and regional local government areas in the south-east of Melbourne (including the Cities of Melbourne and Casey) over a one-week period in the August school holidays 2003. Inclement weather on several days adversely affected the number of observations. The study found that approximately three-quarters of skatepark users (skaters and bike riders) wore no PPE. Eighty-seven per cent of the 182 observed skateboarders wore no PPE. The most frequently worn item of PPE by skateboarders was the helmet (11%). Wristguards were worn by only 3% of skateboarders and kneepads by 1%. Among the much smaller number of observed in-line skaters (n=35), 75% wore helmets. Only one or two of the in-line skaters wore wristguards, kneepads or elbow pads. Only half of the 51 observed BMX bike riders wore their helmets.

1.6 Reasons for non-wearing of personal protective equipment (PPE)

The motivators and barriers to the wearing of personal protective equipment (PPE) by in-line skaters and skateboarders are not well studied. Our literature search found only three studies on the issue, all cross-sectional surveys of in-line skaters. An early survey of U.S. college students (Williams-Avery & MacKinnon 1996) reported that the most common reason given by in-line skaters for not wearing protective gear was that it was perceived as unnecessary (14.4%). Other reported barriers were: that the gear was uncomfortable, looked foolish, was inconvenient, was an added expense, and disapproval by peers. A later survey of in-line skaters reported similar barriers: low perceived need (47.3%), discomfort (37.5%), cost (15.9%) and undesirable appearance (15.2%) (Young et al. 1998).

Group norms also appear to influence the use of PPE. Sherker and Cassell (2001) reported from their Victorian observational study that in-line skaters observed skating in groups were significantly more likely to display the same pattern of PPE use than expected if skaters were grouped randomly. Similarly, Young et al. (1995) report from an observational study of 1,548 recreational skaters in Wisconsin that in-line skaters, particularly adolescent skaters, skating in groups of two or three had a significantly increased likelihood of all group members either wearing or not wearing PPE.

In a Victorian follow-up survey of injured skaters, Heller et al. (1996) found that significantly more in-line skaters wore wristguards after sustaining an injury than before (48% vs. 5%) showing that the experience of an injury may motivate skaters to wear protective gear.

To date there has been no in-depth research that aims to better understand the motivators and barriers to PPE-wearing among youth participants in skating activities and the constraints to PPE use that operate in the culture and environment surrounding these sports/recreation activities. What is known is that, at the most, one-quarter of Victorian in-line skaters (and fewer skateboarders) wear wristguards and other items of PPE and there is resistance to their use. We need insight into these issues before proceeding with any injury prevention intervention to increase PPE wearing rates among skaters.

This current study endeavours to identify predisposing factors (knowledge, attitudes and beliefs), reinforcing factors (attitudes of peers and the ‘industry’ surrounding the sports) and enabling factors (resources, regulations) influencing skaters’ behaviour and the environment in which the sports are played; and the identification of strategies to increase the use of PPE, particularly the wearing of wristguards and helmets among the youth skating population.
2. **AIMS**

The aims of this research project are:

- To investigate the knowledge of *youth skaters* aged 10-17 years about the risk of injury in skateboarding and in-line skating and the protective effect of recommended PPE (safety gear)
- To investigate the behaviours and attitudes of *youth skaters* related to the wearing of PPE whilst skating
- To identify the motivators and barriers to the wearing of items of PPE by young skaters including the personal, socio-cultural and economic factors influencing their use or non-use

Key informant interviews were conducted in a separate study (funded by the City of Melbourne) and will be reported separately.

3. **METHODOLOGY**

This project was developed in the context of a review of the literature on skateboarding and in-line skating injury and effective injury prevention strategies and interventions. It has two components: focus groups and in-depth interviews with youth skaters and key informant interviews. The eligible study population of the youth component is active child and youth in-line skaters and skateboarders (aged 10-17 years) who used community skate/blade facilities (council and privately owned). Youth focus groups and interviews were conducted locally at skateparks or in council facilities.

Qualitative research methods were utilised to determine the facilitators and barriers to the wearing of PPE to protect against injuries in child and adolescent skaters and practical strategies to encourage its use. The use of a qualitative research design enabled access to participants’ experience and perspective in their own language rather than assumptions made by researchers, thereby reducing potential researcher bias. The research was exploratory in nature because there has only been one small previous in-depth qualitative study on this issue. In these circumstances the aim of research is to develop theory from information gained from young people and other key informants rather than impose our own theoretical framework.

A two-phase research process was adopted for the youth component: focus groups and subsequent in-depth interviews. The focus group method was selected to enable the researchers to gain access to the interactions between the young people in a context that takes the impact of peer influence into account. It is important to examine the process of peer influence as the literature indicates that at this stage of human development peers are significant as agents of socialisation. After the Phase One focus groups were analysed, the researchers, using their knowledge of the field drawn from the emerging data, selected individuals from specific groups or subgroups for in-depth interview. These in-depth interviews extended, developed and verified the emerging interpretation of adolescent perceptions of their experience of skating and the facilitators and barriers to the use of PPE.

Youth participants were recruited from four local government areas with different socio-cultural and economic profiles: the Cities of Melbourne and Whitehorse (urban), City of Casey (outer urban/regional) and City of Latrobe (rural). The participating councils agreed to publicise the study and to assist with recruitment through flier and posters distribution and direct approach at skating facilities.
3.1 Youth focus groups

Recruitment

Initially we attempted to recruit participants using posters and direct recruitment at skateparks in the Cities of Melbourne and Casey. Skaters were asked to register their interest with a local contact at the skatepark and then were given an explanatory statement and parental consent form to bring back on the day of the focus group.

Six focus groups were scheduled, and then cancelled, due to the small numbers and/or interested participants failing to bring back consent forms signed by parents. The three reasons for low participation given by the skatepark managers/youth workers who assisted with recruitment were as follows: (1) skaters were reluctant to give up skating time to participate because they value their leisure time highly; (2) skaters, especially older skaters, viewed themselves as independent and do not understand why they need to have their parent’s permission to participate in the focus group and find the parental consent process a hassle; and (3) interested skaters forgot to bring the form back before the scheduled date of the focus group.

In response to the first barrier to participation, we decided to make a payment to study participants (in both focus groups and in-depth interviews) to compensate them for their time and travel costs - $15 for 10-14 year olds and $25 for 15-17 year olds. It was thought that the payment might also encourage participants to return signed parent/guardian consent forms (third barrier).

In response to second barrier (requirement for parental consent for older teenagers) we asked the Ethics Committee at Monash University to waive the necessity for parent/guardian consent for focus group participants aged 15-17 years. At this age young people are regarded by society as mature enough to legally enter the paid workforce. They could therefore be assessed as competent to make their own decision about participating in non-intrusive group discussions on the formulation of health and safety interventions including policies and rules that will directly affect them. We did not seek the waiver for in-depth interviews involving 15-17 year olds, as the group interview environment is more protective than the one-on-one interview.

The Monash University ethics committee approved the variation in the study protocol and with these changes in place five focus groups were conducted in the Cities of Casey and Melbourne involving between two and eight skaters. Plans for focus groups in the City of Latrobe were abandoned due to further recruitment difficulties. In the City of Casey two of the researchers (RA and KA) went out for a day with two City of Casey youth workers on the community VIBE bus. The VIBE bus visits skateparks in the City of Casey and provides youth services on-site. The youth workers provided local knowledge and made the initial direct approach to skaters inviting them to take part in the focus groups. Skaters aged 15-17, under the revised ethics approval, were able to consent on the spot. For skaters aged 10-14, youth workers obtained parental consent. Focus groups were conducted on the VIBE Bus. In the City of Melbourne staff of the Riverslide skatepark directly recruited interested skaters into the study. We then mailed explanatory statements and consent forms to skaters and their parents.

Interview guide

The focus group interview guide explored participants’ perceptions of the culture and appeal of skating, attitudes and group norms about injury risk and risk taking, the barriers and facilitators to wearing of PPE, skaters ideas to improve the safety of the sport, and their responses to the notion of compulsory PPE wearing in skateparks.
3.2 In-depth interviews

Recruitment

Recruitment of in-depth interview participants was initially planned to occur through council youth/recreation officers or skatepark staff who had agreed to publicise the study and to assist with recruitment through flier and posters distribution and direct approach at skating facilities. We attempted this approach at Riverslide skatepark (City of Melbourne) but found it to be unsuccessful. It required the skaters to telephone the Recruitment Officer (AC, located at MUARC) to register their interest. There was no response. This method was abandoned and the majority of participants were directly approach by the Recruitment Officer in the skatepark environment. Interested skaters were provided with parent and participant consent forms and a provisional interview time was set. All participants were required to bring the consent forms signed by a parent or guardian with them to the interview and these were collected prior to the interview. Forty-two in-depth interviews were held across the four LGAs (Melbourne, Casey, Latrobe and Whitehorse) from April to July 2005.

In-depth interview guide

The interview protocol was informed by the analysis of the focus group interviews (attachment 1). This process enabled peer evaluation of the focus group analysis and allowed young people an opportunity to express their perceptions and ideas without the potential impact of peer influence. Participants were initially asked similar questions to those devised for the focus groups followed by probing questions to elicit information on the range of individual, familial and cultural, environmental and economic influences on their and their peers’ decision to wear or not wear PPE. Interviews typically took approximately 20-30 minutes.

3.3 Analysis

Grounded theory was developed by the sociologists Barney Glaser and Anselm Strauss (1967) as a way of formalising the operations needed to develop theory from empirical data. Strauss and Corbin produced a more formalised version (1990). We have used both to inform our analytic strategies. The constant comparative method was derived from grounded theory (entailing a cyclical process of induction, deduction, and verification) and has been used as a set of strategies of data analysis to improve the reliability and theoretical depth of analysis. Particular attention is paid to the processes entailed in coding data. Some published accident research has used the term “coding” to simply label data extracts as examples of themes the researcher was interested in. Rather, in this study we used coding to compare indicators (such as actions or fragments of text or talk) to refine their fit to underlying concepts.

Initial coding was based on what Glaser and Strauss (1967) call “in vivo” codes as well as on conceptually derived codes. In vivo codes are the categories used by respondents themselves to organise their world—for example, the description of “vert” skaters by some of the street skaters as those who while classed as risk takers were also denigrated for losing freedom of movement by being restricted to skateparks with high ramps. However, such codes are provisional and are essentially descriptive summaries of respondents’ own accounts. Analytical coding also requires deeper questioning and comparison. Indicators are coded according to a number of coding paradigms, which we used to ask a battery of questions of each indicator to establish its properties, its dimensions, and its relation to other codes.
Constant comparison of indicators with each other refined their fit to the emerging conceptual categories eg. the commentary indicated the means by which some skaters created status hierarchies based on not only risk-taking but on choice and decision-making. Coding also has to be theoretically informed eg. status hierarchies often indicate what is valued by groups and in examining these skateboarding groups it was evident that risk-taking was not the only means by which skaters achieved status in their communities. Two clear axes of social status emerged; the first was based on risk taking, the other on level of autonomy. And these were then used to analyse further the responses to the wearing of safety equipment. At least three researchers reviewed the transcripts and two individually coded them. These codings were then compared and the results section provides the outcome of the third review process in which the research group developed explanations for the meanings participants attached to the use or not of PPE.

Validity

The key to developing rigorous and valid theory using the constant comparative method is the search for deviant cases. These are cases that do not fit into the initial emergent theories and require further analysis. These can be within the researcher's data – they are searched for exceptions to the emerging relations between codes. Researchers using this method of analysis need to account for as much variation in the data as possible. Theoretical insight and comparative material comes from other research, perhaps outside the substantive field of interest as a means of using alternate theoretical lenses to ensure that the material is subject to analysis beyond potential local theoretical confinement.
4. RESULTS

4.1 Focus groups

A total of 22 youth skaters participated in the five focus groups, all but one were skateboarders. The age range for eligibility in the focus groups was 10-17 years. Fifty-nine percent of participants (n=13) were aged 10-14 and 41% (n=9) were aged 15-17 years. Eighty-six percent were male (n=19). The profile of skaters in the focus groups generally matched the profile of skatepark users as identified in a previous observation study covering 10 Melbourne skateparks, except that the proportions of skateboarders and female skaters in the focus groups (95% and 14% respectively) were higher than in the observation study (84% and 1% respectively). All three female participants had younger brothers who were skateboarders and the girls took up skating at the same time as their younger brothers.

Participants filled out a short questionnaire covering demographics and skating experience and other issues of interest prior to the focus group interview. Focus group participants were evenly divided in terms of experience with almost one-third falling into each of three categories: less than 2 years experience, 2 to 3 years experience and 4 or more years of experience. Only one participant had been skating less than a year. Participants commenced skating as early as three years of age, and as late as 15 years of age. Most began skating between ages 8-13 years. All participants were regular skaters with most skating daily (54%) or 2-3 times per week (32%).

Most participants (77%, n=17) were of Anglo-Australian heritage, two were from a Greek-Australian background, and one each was aboriginal, Australian-Zimbabwean and Croatian-German. Most stated that their parents approved of skating (91%), and in 73% of cases parents had purchased their first skateboard. Other sports and recreational activities undertaken by skaters included skiing, snowboarding, surfing, BMX riding, basketball, football, soccer and tennis. These and other characteristics of participants are summarised in Table 1.

There are three distinct ‘disciplines’ of skateboarding that are tantamount to subcultures – vert (aerial), park and street. Vert skaters were not represented in any of the focus groups, however a few participants had tried vert skating in the past. The skaters saw a clear distinction between vert and other forms of skating:

*If you like skating vert and that, you skate it. If you like skating street, you skate it…it’s different. Those guys [vert skaters] have to go to half pipes when they want to skate. Street skaters can go anywhere in any country.*

More than half of participants identified themselves as park skaters, and a further quarter crossed between park and street skating. The recent increase in the number of skateparks in Victoria influenced at least some participants to move there skating activity from the streets to skateparks:

*I did [skate on the street] before the park, but since the skateboard parks been built [I skate here].

*I used to skate on the street and then I moved closer to this park and I just come here because it’s fun.*

Some noted that park skating was better than street skating because “everything’s just set up for you” and “it’s so cool, you don’t get hassled by like cops or shop owners, it’s good” and some offered security “there’s patrolling there also with security guards”. Some skaters also identified that street skating could have negative impact on the built environment and other members of the community:

*It sort of wrecks benches. There might be business people around eating lunch and you make a noise, or you might get near an office and they’ll hear you while they’re trying to work.*
Table 1: Demographic profile of focus group and in-depth interview participants by Local Government Area (LGA)

<table>
<thead>
<tr>
<th></th>
<th>City of Casey Focus group (n=14)</th>
<th>City of Melbourne Focus group (n=8)</th>
<th>City of Latrobe In-depth (n=11)</th>
<th>City of Whitehorse In-depth (n=15)</th>
<th>Total Focus groups (n=22)</th>
<th>In-depth (n=42)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-14</td>
<td>10 (71%)</td>
<td>3 (37.5%)</td>
<td>2 (25%)</td>
<td>4 (26.5%)</td>
<td>13 (59%)</td>
<td>21 (50%)</td>
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<tr>
<td>15-17</td>
<td>4 (29%)</td>
<td>5 (62.5%)</td>
<td>6 (75%)</td>
<td>11 (73.5%)</td>
<td>9 (41%)</td>
<td>21 (50%)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11 (79%)</td>
<td>8 (100%)</td>
<td>8 (100%)</td>
<td>15 (100%)</td>
<td>19 (86%)</td>
<td>42 (100%)</td>
</tr>
<tr>
<td>Female</td>
<td>3 (21%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3 (14%)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Type of skating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skateboarding</td>
<td>13 (93%)</td>
<td>8 (100%)</td>
<td>7 (87.5%)</td>
<td>15 (100%)</td>
<td>21 (95%)</td>
<td>37 (88%)</td>
</tr>
<tr>
<td>In-line skating</td>
<td>1 (7%)</td>
<td>-</td>
<td>1 (12.5%)</td>
<td>-</td>
<td>1 (5%)</td>
<td>5 (12%)</td>
</tr>
<tr>
<td><strong>Where do you skate most?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skatepark</td>
<td>8 (57%)</td>
<td>4 (50%)</td>
<td>2 (25%)</td>
<td>3 (20%)</td>
<td>12 (54.5%)</td>
<td>10 (24%)</td>
</tr>
<tr>
<td>Street</td>
<td>3 (21%)</td>
<td>1 (12.5%)</td>
<td>-</td>
<td>2 (25%)</td>
<td>4 (18%)</td>
<td>2 (5%)</td>
</tr>
<tr>
<td>Home</td>
<td>1 (7%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 (4.5%)</td>
<td>-</td>
</tr>
<tr>
<td>Rink</td>
<td>-</td>
<td>1 (12.5%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Mix of park and street</td>
<td>2 (14%)</td>
<td>3 (37.5%)</td>
<td>8 (73%)</td>
<td>12 (80%)</td>
<td>5 (23%)</td>
<td>29 (69%)</td>
</tr>
<tr>
<td><strong>How long have you been skating?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;2 years</td>
<td>6 (43%)</td>
<td>4 (50.0%)</td>
<td>2 (25%)</td>
<td>3 (27%)</td>
<td>3 (17%)</td>
<td>8 (36%)</td>
</tr>
<tr>
<td>2-3 years</td>
<td>3 (21%)</td>
<td>1 (12.5%)</td>
<td>4 (50%)</td>
<td>4 (36%)</td>
<td>2 (25%)</td>
<td>7 (32%)</td>
</tr>
<tr>
<td>4+ years</td>
<td>5 (36%)</td>
<td>3 (37.5%)</td>
<td>2 (25%)</td>
<td>4 (36%)</td>
<td>3 (33%)</td>
<td>7 (32%)</td>
</tr>
<tr>
<td><strong>How often do you skate?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once a day</td>
<td>6 (43%)</td>
<td>N/A</td>
<td>6 (75%)</td>
<td>N/A</td>
<td>N/A</td>
<td>12 (54%)</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>5 (36%)</td>
<td>N/A</td>
<td>2 (25%)</td>
<td>N/A</td>
<td>N/A</td>
<td>7 (32%)</td>
</tr>
<tr>
<td>Once a week</td>
<td>3 (21%)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>3 (14%)</td>
</tr>
<tr>
<td><strong>How many medically treated injuries have you had?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>5 (36%)</td>
<td>N/A</td>
<td>5 (62.5%)</td>
<td>N/A</td>
<td>N/A</td>
<td>10 (45%)</td>
</tr>
<tr>
<td>1-2</td>
<td>7 (50%)</td>
<td>N/A</td>
<td>2 (25%)</td>
<td>N/A</td>
<td>N/A</td>
<td>9 (41%)</td>
</tr>
<tr>
<td>&gt;=3</td>
<td>2 (14%)</td>
<td>N/A</td>
<td>1 (12.5%)</td>
<td>N/A</td>
<td>N/A</td>
<td>3 (14%)</td>
</tr>
</tbody>
</table>
4.1.1 Attributes of skateboarding/in-line skating that attracted skaters to the sport

Focus group participants were first asked to describe what aspects of skateboarding most appealed to them and drew them into the sport. They liked skating because it was an informal and individual sport that demanded minimal equipment, was easily transferable to many locations and could be undertaken alone or with others:

*The thing about skating is that you can just do it. Jump on your board and just like roll wherever.*

*It’s not like a team game or anything...if no one can come with you, you can still do it.*

This indicated a high valuing of characteristics associated with a sense of personal freedom and independence.

The aspects most enjoyed were mastering the equipment in different skateparks, trying and landing new tricks and the excitement of pushing yourself to the limit and taking risks. For a few even the prospect of “getting hurt” was appealing as it was seen as a natural part of learning newer and harder tricks “it’s the fun of not knowing what’s going to happen”.

4.1.2 How did participants learn to skate/learn new tricks?

All focus group participants were introduced to the sport by an existing skater, usually a sibling, neighbour or friend. Skaters indicated that older, more experienced and skilled skaters were the informal demonstrators of tricks and source of advice. Young skaters indicated that they watch the better skaters to see how they do the tricks and then emulate them, learning by trial and error:

*By watching people do them, you can practise them and stuff.*

*You have to watch someone else do it, so you know how to do it as well.*

One of the older skaters warned though that not all local role models provide the best example to younger kids:

*I’ve seen people at this park, like older guys than me, trying dropping ramps to show kids, and they’ve always gone to the hospital. They always either hurt themselves, or they cut open their face, or something like that. It’s because they think they can do it and they [can’t] ... you just need to know how to do it properly. It’s like, people go up to the top of the ramp and they go in and they hurt themselves. You’ve sort of got to roll on the ramp to get used to them and then roll up.*

Injury risk minimisation (protective) strategies were also learned from watching more experienced skaters. Less advanced skaters reported looking to more advanced skating role models to learn how to avoid injury, or to reduce the impact of a fall:

*If you go really high and you know that your feet aren’t in the right position to land, you can just swing one foot out and you can kick the board completely away from where you’re going to land. You just land on two feet, or whatever. It comes when you watch other people do it...I only started doing it about a year ago now. I saw somebody do something really big and they kicked [the board] out and went, “Oh yeah. That’s really a good idea”.*
4.1.3 Attitudes to risk

The strongest response to the questions probing participants’ attitudes to risk taking was that skaters generally appeared well aware of the risk of minor injury in the sport but viewed risk taking and getting hurt as integral to learning tricks:

Well, you get hurt when you try new things...you’re taking risks.

You get hurt, you get hurt. You just cry it out.

You can’t just expect to learn the tricks straight away. You’ve got to have some pain.

Among the older skaters (15-17 year-olds) there was some debate as to whether it was ‘cool’ to do risky manoeuvres. Some said “yeah, in a way [it’s cool]” and “if you do something risky and you get it you know everyone’s happy...you know, you get applause for it” and “yeah, it’s the fun of not knowing what’s going to happen”. However others in the focus groups disagreed with this viewpoint:

I say no because when you’re hurt you regret it. It wrecks your body, if you don’t take risks then you can keep skating for longer I reckon.

Several of the younger children admitted they were scared when trying new tricks:

Like, when I ollie the stairs, I like, stop because I’m scared it’s either going to be too long and I can’t ollie it and then when I stop, I see downwards and it’s not... it’s like that. So, I keep on doing that, thinking it’s going to be really long and then I finally just ollie over it.

There were a few vocal members of focus groups, mostly considered highly skilled by their peers, who expressed a ‘gung-ho’ attitude to risk-taking and were willing to put their bodies on the line to become successful skaters:

I try everything first shot. It’s either I hurt myself or I get it first shot. People try really big things... they’re used to the impact. They’ve got to take the risk of how much it’s going to hurt but they don’t cry over it. They just do it, step down, have a sulk and then do it again. It just proves that we [skaters] can take pain. Because if you can’t, then there’s no point in going big. If you go big, then you’re just going to cry over it. There’s no point in trying.

I was skating with a pro, his name is Andrew Reynolds, he was here for the Globe World Cup...he went skating and he broke his leg. The bone came out of the side of his leg and he didn’t even cry about it.

Many others did not hold this view. Older skaters at the same park when asked to comment on the sentiments in first quote above generally disagreed with the sentiment expressed. Many skaters adopted a more conservative approach to risk taking when planning to try high-risk skating manoeuvre/trick or learning more advanced tricks. Some skaters described measures they used to minimise injury risk such as learning tricks in stages, watching others to learn the appropriate ‘bailing’ technique and even wearing PPE if they felt they were at risk of an injurious fall:

What I do, is I go from like grinding. If there’s a smaller box, I’ll try and go on that and then work my way up to a box that I can grind with other grinds.
Participants identified ankles, knees and genitals as the most vulnerable body sites for injury, and to a lesser extent, the wrists and head. Skaters mostly reported minor injuries during their skating careers including wrist sprains, chin lacerations, dental injuries, and grazes to knees and elbows.

A pervasive belief among focus group participants was that they were at low risk of serious injury in the sport, despite the fact that one in five reported they had sustained a serious injury while skating and several others had witnessed a fellow skater getting seriously injured.

A friend broke his neck...two bones in the back...[he] had his head in a frame and stuff. He can walk [but] he can’t move his head to the side.

The more severe injuries reported by focus group participants were a foot fracture, ankle ligament damage requiring 3 months on crutches, and a head injury requiring a 2-day hospital stay. One skateboarder had previously been a high-level competitive in-line skater and had sustained stress fractures in both shins and soft tissue injury to the arms and shoulders and his injury history had motivated him to switch from in-line skating to skateboarding:

Members of one focus group agreed that the everyday bumps and grazes occurred to skaters “because they’re kind of being stupid...and they’re like doing things that they’re not up to” whereas members of another group expressed a contrary view “when you hurt yourself skating, people always think that you were doing something stupid...but it might be that you just hit a stone”.

### 4.1.4 Attitudes to wearing of PPE

Few participants reported they regularly wore PPE as part of their usual skating activity. The prevailing view in all focus groups was that PPE was not necessary for park skating because the risk of injury was low, and this view was generally based on their own skating injury histories. Most instead tailored their wearing to the conditions or situations where they felt they were most at risk: they may have worn it as a learner, they wore it when doing vert; or when learning a new trick. However, PPE wearing was seen as ‘uncool’ in everyday park skating unless the skater was doing something new, difficult or daring:

Yeah. I used to wear it, only now the stuff I do is not that daring.

My mum wants me to wear a helmet but I tell her I don’t need it because I won’t try anything too hard and I will wear it when I do.

But, if you’re like older and you’re wearing gear and you’re not doing much hard stuff, that’s not too [cool]. I mean, if they’re trying to do like a 360 of a half pipe, I don’t blame them.

Well, there’s a guy that ... hit his head on the concrete [when] he did a huge sort of trick...when he came back the next time and he was wearing a helmet [but] only for when he tried that same trick. Like, if you did something you know you can do, you wouldn’t wear a helmet.

Like, if you’re a street skater, street skaters don’t need to wear things unless they’re doing something really big and they know they’re going to hurt themselves. So, they wear it for their own safety but if there’s something that they know they can do it and their not going to hurt themselves and they know how to like, bail from the trick so they don’t hurt themselves, then they don’t wear anything.

A widely held view was that there was no point in wearing safety gear because the risk of injury was perceived to be low:
I’ve never fallen on my head, so I wouldn’t see the point.  

Just personally, I just don’t feel like I need it. You know? Probably because I never really had concussion or had a real serious injury so I can’t say, “Oh, I regret not having that on or anything.”

Like the guys I was skating with [when I started out], nobody wore helmets or anything. I wore a helmet the first time I came to a skatepark [then I didn’t] because I didn’t need it. I didn’t hit my head, or anything.

These ramps here, they’re all four foot, five foot, if you hurt yourself, you hurt yourself, [but] you’re not going to do anything major unless you do something stupid.

You don’t hurt yourself often enough. Like, when you get hurt it doesn’t hurt that much.

I think it [the helmet] would have [helped prevent an injury] but [I was injured seriously] like once in four years. I’d been wearing it every day. It was like once that it came in use.

Only one skater wore wristguards “because it’s safer for your wrists and you don’t break them”. Another stated that PPE helps “only if you fall over [otherwise] it just gets annoying”. One of the older skaters felt that wearing pads may reduce fear of falling “I was thinking if you had all pads on, you wouldn’t be as scared that you were going to fall and stuff”.

Several others expressed the view that PPE was not necessary to prevent minor injury “no, you get used to it [grazes]”, or ineffective in preventing the injuries they considered most serious, such as leg fractures:

But if you land on your board, or if you land off your board and you land on hard brick, on like a pretty hard drop, you could break you leg and the knee [pad] would do nothing. If you...ollie off a high drop and you break your leg, the padding would have done nothing.

Interestingly, almost all skaters indicated they or other skaters would or should wear PPE post-injury as a means of protecting an injured body region:

If they’ve had a wrist injury, or a knee injury, they’ll wear wrist [or knee] pads.

I wear a sort of ankle brace on my ankle because I stuffed that up.

Across all groups it was deemed that PPE was okay “for little guys” or “the beginners”:

If you’re a beginner and you’ve just got your first skateboard and you’re out for the first time [it’s ok to wear PPE]. I mean, I wouldn’t blame them for wearing gear because they could just slip off the skateboard and just hurt themselves and if they’re like 7, or something, they would really hurt themselves.

If you had schools and stuff who where teaching people how to do it and like, they had to wear that gear, they would do it to learn how to do it. Like, skate properly. Once they had their own free time away from that, they wouldn’t wear the gear because that’s the way it is.

[I wore PPE] when I was learning and stuff, but I don’t really now. When I was learning I used all of the protection but now I just wear wrist things occasionally.
[I wore PPE] when I was young I couldn’t skate and I didn’t know how to bail. So, I’d slip more and hit my head but I find skating without it [PPE] makes it easier.

An advanced skater indicated that if he had his time over, he’d wear PPE as a beginner:

I feel like my legs are already screwed, so I don’t think wearing safety gear’s going to make it all better. If I was starting out, yeah I’d probably wear it. If I got the change again to wear knee pads and other stuff I probably would.

However, another advanced skaters felt that PPE, rather than being protective, made beginners more at risk:

The thing about gear is, when parents make their kids wear gear, little kids are afraid that, “oh no, I’m wearing gear, I’m going to hurt myself”. If you don’t wear the gear, then you’re just going to be relaxed.

PPE wearing was acceptable to many if skaters were learning or perfecting new tricks or doing “something big”:

When you’re going to try a really, like new trick.

If I was trying a back flip I’d wear all the safety stuff.

I’d probably wear the pads...if I was going to do something really crazy like there was a good chance of having a stack, I’d chuck a helmet on. Say, if there was a good chance of me cracking my head open or something.

PPE wear was also acceptable for vert skating, due to the height and size of the ramps and risk of falling. Skaters who would not wear gear at skateparks because they felt they did not need it still identified the need to wear PPE at vert venues:

Well, when you’re on a ramp, that’s a different story because you basically need it unless you want to break your knees and stuff. But wearing knee pads in areas like this [skatepark] it’s not really needed.

You should wear a helmet until you really can do it and then you really don’t need to. It’s like, you’ve got ramps out here that are four foot high. You go to places in Dandenong, you’ve got sixteen foot ramps. I wear a helmet when I go on them.

There were a number of negative comments regarding the ‘uncool’ look of PPE. We were told that wearing PPE “looks stupid”, “it’s not a fashion statement” and “it’s not cool to wear it”. Skaters in the focus group had been called, or heard other PPE wearers called, “action boy”, “mummy’s boy”, “too girly to skate in the park”, “nerd” and “dorky”.

Their actual or projected reaction to the name-calling was mixed; some said it wouldn’t bother them, while others it would. An older skater noted that it was generally kids of the same age who teased those wearing PPE, and it often only takes one older skater to intervene to stop the teasing:

A couple of times I’ve been there [and] they [kids] were picking on this one guy, he was wearing elbow pads, he wore the whole lot. It pretty much just takes one person to stick up for that one person and they just drop it.
Some skaters expressed the view that PPE wear was an individual choice, based on skill level and what type of skating was being done:

Well, I think it’s people’s choice if they want to wear the gear. I don’t really wear it but still, if they do hurt themselves, it’s their own fault for not wearing it.

Local skaters at all levels of expertise took their PPE behaviour cues from national and international ‘pros’ (professional skaters). World-class skaters were important role models:

In America, Tony Hawk and all of those people [vert skaters], you only see them wearing it. Most of the ‘street’ people, you don’t see wearing it. Last year at the Globe World Cup, I only saw one person that was wearing protection.

Several skaters felt that is was the size of the pads that made them so unappealing, and that re-design to make the pads smaller and less obvious may encourage skaters to wear it:

Well, I’d try and make it smaller so it’s not so visible because people don’t wear it because they think it looks dorky. So, if you made it a little bit smaller but as safe, or maybe a little bit safer, they would wear it more. It can be annoying to wear but like, if most kids put it under their jeans but it doesn’t work because if you made it smaller and put it under your jeans and it didn’t look visible then, a lot more kids would wear it.

We also asked skaters in the focus groups how much skating gear costs, to probe if cost was a barrier. Set-up prices paid for boards ranged from $70 to $380 depending on brand and purchase point. Knee pads cost between $25 and $45, helmets were priced between $30 and $60 and wristguards were about $15. Many thought that the PPE was too expensive and that they’d rather spend the money they had on upgrading their board:

People are using most of their money on equipment for a skateboard, not for their protection.

One skater said he’s asked for new PPE for his birthday but he was the only one in the focus groups that was interested in getting PPE. Others told us “you wouldn’t ask for it” as a present, “you’d be better off getting a bike and spending money on a bike, than spending on skateboarding safety gear”. We asked if their view would be different if PPE was cheaper the answer was still a resounding “no”, and the idea of marketing PPE as a package with boards was met with mixed enthusiasm.

We asked skaters if they were offered free PPE would they wear it. There was mixed responses, with some saying “yes” they’d wear helmets, knee pads and wristguards if they were supplied free but many others signalled that they wouldn’t wear PPE even if these items were supplied free:

I’d do it [accept free gear] because it’s just less hassle if you’re going to try something like really crazy that you wouldn’t normally do and you need some gear. It’s not worth going out and buying kneepads for that one trick. If you’ve just got them in your closet, then why not?

There was a broadly held view that the quality of much of the available PPE is poor; it was described as ill fitting, poorly sized, uncomfortable and ineffective. Brands and place of purchase did have an influence here, with almost all skaters supporting the view that skating items bought from major department stores were the least appealing. The participants identified “skate shops” as the best place to buy any type of skating equipment. Three quarters of participants told us that their parents bought their first boards from discount chain stores and they were of inferior quality:

If your parents buy your stuff, if your like under 15 or 16 then [they buy from a major retailer] ...it’s more like when you’re around like our age group, then you go buy the brands and the better the brand the more expensive it is.
Quality wise because the trucks [from a major retailer] aren’t as strong, they snap. The wheels are all right but they’re not the best and the board’s no good.

I think I got my first board from [a major retailer] and the all the grip came off.

They held the same view about the quality of PPE from these stores:

If you get those crap plastic ones from [a major retailer]…it’ll probably snap on your elbow, which has already happened to me, that’s why I quit [wearing it].

The [a major retailer] stuff is usually dodgy and it doesn’t last very long.

Lack of comfort was generally agreed to be a major barrier to PPE wearing. Skaters reported that PPE “gave you rashes”, “rubs on your knees when you’re wearing pants” and that helmets “move around on your head and you have to push them back”. Another sentiment expressed by many of the skaters was that PPE impaired their ability to do manoeuvres.

About helmets:

The helmets they weigh you down. You have to tie them up and then they cut “there” and stuff.

When I wore a helmet, it really choked me all the time and I couldn’t turn my head as quick. My reflexes were just slower.

About elbow pads:

They’re really uncomfortable, they look retarded, when you wear them, if you fall, they don’t do anything.

About knee pads:

I used to wear them when I hurt my knee but I stopped it...because they feel uncomfortable [and] you can’t like go do bigger tricks than what you usually do.

The wrong shape, bulky...and it’s really hard to find ones that perfectly fit you…they’re either too small or too big.

You move your legs a lot around when you’re doing tricks and you can’t move them around as good.

You can’t bench knee when you’re wearing knee pads.

It’s kind of hard to push when you’re skating with the knee pads because you can’t really bend your knee.

Every pro that started off learning has never worn knee pads. It just slows the learning process because you just get inflexible, heavier and the knee pads they have created are really crap. You put them on as tight as you can and your leg with either go blue, or it just moves up and down, you have to keep correcting it.
About wristguards:

*Now, with the wristguards, you can’t hold your board.*

*Wristguards are really annoying. They get in the way.*

*Wristguards and elbow pads, if you’re wearing shorts, they make you real sweaty.*

### 4.1.5 Suggestions on ways to decrease injury or improve the safety of the sport

Most of the skaters in the focus groups indicated that the main way they avoided injury was by watching and learning injury avoidance techniques from peers such as how to bail and safe falling techniques.

*If you fall, you just tumble, you just roll. It still hurts a lot but you have to roll down on your shoulder otherwise you’ll break something.*

Knowing your limits and skating within them was also promoted as a means of preventing injury:

*Don’t skate outside your limit. Don’t try anything too crazy.*

*Know what you are doing, know the things you can do.*

One experienced skater recommended structured appropriate training for learners:

*Have like little schools to teach them [novices] how to skate... if it was advertised like skateparks and stuff, parents are likely to take little kids and that’s where little kids come back and show what they can do.*

We asked the skaters what could be done to encourage skaters to wear PPE. Responses included “make them more comfortable” and “brand it”. The latter comment indicated the strong potential influence of the skating equipment industry in making PPE more acceptable:

*Sell them more at like surf shops and stuff. Yeah, they’re mostly like [a major retailer] brands now and people who want to buy them will like them in a surf shop instead of [major retailers].*

One skater suggested that paying local role model skaters to wear PPE would influence other skaters to do the same:

*If I owned a company I’d like pay “him” [referring to advanced skater of same age] to wear them so a kid would look up to him and say, “Oh, he must be wearing gear. It’s cool so I’ll wear it”.*

Other skaters suggested that getting supportive messages from respected role models through the media and direct contact, or just via seeing their heroes wearing PPE would have a positive effect and make PPE more accepted:

*Get someone [a star] to say, “Is it cool breaking your head open?” or something like that. So, he said you had to wear a helmet.*

*Publicly known skaters that come around talking to people.*
Meeting Tony Hawk.

Well, I’d probably say to all the pro skaters, [wear it] because then they’d think it’s cool. Yeah. Like, if all the professionals wore all the padding then heaps of people would.

Other suggestions to encourage kids to wear PPE included running intermediate classes taught by their peers where PPE use was required for participation, and promoting PPE as part of sponsorship deals:

You could say like, there might be a rule where you have to wear a helmet or you don’t get taught by them, or something like that.

Sometimes when they get you to wear helmets and stuff, they’re sponsoring you for it. So, if you wore that, they might keep you in touch and you can become really good. They might say, “Oh yeah, we’ll sponsor you if you wear our clothes or something and skate with our boards”.

Parental influence of PPE wearing generally appeared low, except among the young:

When I hurt my elbow in the skatepark, my Mum made me [wear an elbow pad] but I just took it off when I got there.

My mum tells me to wear a hat but I don’t. I wear it all the way there. Only have to wear it to the place but when I get there, I just take it off.

Other safety ideas raised by individuals included advertising PPE on television, making the PPE smaller and less visible, and making kneepads that can be worn under jeans or even building kneepads into jeans. One skater suggested making the ground more forgiving (‘cushioned’) as an alternative to wearing PPE.

4.1.6 Reaction to compulsory wearing of PPE in skateparks

Skaters were asked to comment on the situation in the United States where PPE wearing is mandatory in many skateparks. The idea of introducing this regulation in Victoria was met with broad opposition, mainly because skaters felt it would affect their enjoyment of the sport:

If they change skateboarding to wear safety gear, as like a policy and a law thing, then nobody would do it because it’s not fun.

Yeah, but nobody’s going to wear it. If they force us, there won’t even be a sport anymore.

One dominant member of one focus group responded angrily that “every cop car that came past I’d slash their tyres”, but this extreme reaction was not supported by his peers.

Several skaters said that this type of law would just move skaters away from the skateparks and onto the streets:

They make us buy that and then it’s just going to kill the sport. Nobody will go to skateparks anymore.
There’ll be more that say, [we] don’t have pads, [and] they’ll probably go skating around shopping centres.

You’d just go back to street skating. There wouldn’t be any parks anymore, they’d all be ‘graffitied’ and trashed and nobody would go there anymore. The Council makes it (skateparks) so we won’t skate in like street spots but they’ll just ruin it. We won’t go to parks if we have to wear the protection.

Several of the focus groups noted that enforcement was likely to be a big problem:

No one would pay attention to it. It’s exactly like wearing a helmet on your bike. No one pays attention.

It wouldn’t work ... unless they’re going to have lots of people here watching everybody. Because if they had people here to like, monitor the parks and watch the parks, and like tell people who weren’t wearing gear to get out of the park, they would have nobody whatsoever go into the park.

I doubt the police would like [to] control the skateparks... (To which another group participant responded ‘Yeah, they’ve got paedophiles to catch’).

Only one skater expressed support for the idea:

They probably should do that in Australia too because more people would do that [wear PPE].
4.2 In-depth interviews

Forty-two skaters aged 10-17 years participated in interviews. At the beginning of each interview skaters were asked some demographic questions (responses summarised in Table 1).

All interview participants were male. The majority of participants were born in Australia (n=40, 95%) and all participants reported English as being the main language spoken at home. Almost half of those interviewed did not know their family income level (n=20, 48%). Three participants (7%) reported it being between $10,000 and $39,999, five (12%) between $40,000 and $59,999, eight (19%) between $60,000 and $79,999 and six (14%) reported having a family income of more than $80,000.

The majority of skaters were skateboarders (n=37, 88%), rather than inline skaters (n=5, 12%). The age range for eligibility in the in-depth interviews was 10-17 years. Half of participants were aged 10-14 and the other half were aged 15-17 years. More than two-thirds of participants (69%) reported they skated equally at skateparks and on the streets and a further 24% skated mostly at skateparks. In-depth interview participants were fairly evenly divided in terms of skating experience with 26% having been skating for less than 2 years, 38% for between 2 and 3 years and 36% for 4 or more years.

Participants were asked to rate their own skating ability as beginner/learner, intermediate or expert. Almost all skaters rated themselves as intermediate (n=39, 93%), with just two classing themselves as learners and one as an expert. It is important to note that ability was self rated and the interviewer observed that there seemed to be a wide range of abilities within the ‘intermediate’ skater group.

Participants’ perceptions of parental support for their skating activities varied. More than half (n=15/25) of those who commented believed their parents were enthusiastic about and approved of their skating:

*My parent’s love it, they encourage me... one of my friends does photography so they like seeing pictures of me.*

*They’re pretty supportive, because it gets me outside and it’s like pretty healthy, not like other people going out drinking and stuff.*

More parents seemed to be indifferent to their child skating (n=6) than actively disapproving of it (n=4). Disapproval was usually due to their parent’s perceptions of injury risk or, in one case, because skating was associated with drug taking:

*They don’t like it, my mum hates it because I always cut myself, and hurt myself.*

*They’d rather me not skate [because] so that I’m not getting injured or she doesn’t want me to get into drugs and stuff.*

The time participants spent skating varied, some participants reported skating every day while others skated only when they went to particular parks, which happened as infrequently as “every three weeks”. Many skaters indicated that they would skate “as often as possible” and that the time they spent skating was only limited by work and/or school commitments.

At three of the interview sites (Cities of Casey, Melbourne and Whitehorse) all participants were observed skating either before or after interview. None of the skateboarders (n=30) wore any items of PPE at these sites. Of these 30 skateboarders not wearing equipment, 19 (63%) indicated they would wear PPE in certain circumstances and 26 (87%) said they had worn it at some stage. Two of the inline skaters at the indoor facility wore helmets and knee pads and the other two indicated they would wear PPE in certain circumstances.
4.2.1 Attributes of skateboarding/in-line skating that attracted skaters to the sport

In-depth interview participants were asked to describe what it was about skating that they found most appealing. Some participants mentioned more than one aspect. Interviewees gave a broader range of responses than focus group members. The most common response given by participants was that it was “fun” (n=15). A more specific response from 10 skaters referred to the satisfaction they feel when they ‘landed’ a new trick:

- When it all works, just when it’s a trick that you didn’t expect to land and you get it, it really pleases you.
- It feels pretty good because you’re always aiming for something… trying to do something… it’s probably the best feeling [landing a trick].

Other skaters referred to the appeal of the positive interactions participants have with friends while skating (n=9):

- The best bit is the people… they’re always energetic, awesome blokes.
- [The best bit is] just having fun and being with my friends.

Some participants identified the freedom and autonomy of skating, or the lack of team structure and supervision, as appealing (n=5):

- Like you don’t have a team or anything, you can just do it by yourself and you can do it whenever you want.
- The freedom [of] not having people telling you what to do.
- No-one can teach you anything, or coach you; they can just give you advice.

Other participants said the appeal lies in the variety of experiences in skating; there are always new tricks to learn or new parks/street spots to visit (n=6).

4.2.2 How did participants learn to skate/learn new tricks?

All focus groups participants reported they were introduced to skating through an existing skater (a sibling, neighbour or friend) and this was also the case for most interview participants. Other pathways for taking up the sport among interview participants were that they were attracted to the sport through watching strangers skating in a park, being given a gift of a board or blades, playing skating computer games, watching skating DVD/video/television program, the opening of a skatepark in their neighbourhood and one took up skating to prepare for snowboarding. A few in-line skaters turned to in-line skating after finding skateboarding too difficult.

Consistent with focus groups participants, the main learning technique was watching and copying more expert skaters:

- [I learn new tricks by] watching other people… get inspiration from other people, watching people and then knuckling down and trying it over and over.
Another common response was that they learned to skate or learned new tricks through communications media: skating movies, video clips on the internet and skating magazines.

4.2.3 Attitudes to risk

As in the focus groups, many skaters seemed to accept some form of injury risk as an inevitable part of learning to skate and comments such as the following were very common:

\[
Pain \text{ is fairly normal when you're skating.}
\]

\[
You've just got to [get injured]... no-one's ever died from like falling over. So it's got to happen. They'll pick themselves back up and just go on.
\]

In this sport I don’t think there is [any way to prevent ankle injuries]... because it’s one of those things that’s just bound to happen.

The risk of injury was even seen as part of the appeal of the sport for some skaters:

\[
There’s that risk that you could end up in hospital— that I suppose is the adrenalin rush.
\]

Skaters were asked to compare the injury risk in skating with other sports. Responses varied. A few skaters perceived skating to be more risky than other popular sports:

\[
I’m going to get injured more than in other sports because skating is dangerous, I think it’s the most dangerous sport; I’ve heard people say that.
\]

More participants viewed skating as less risky than other sports, referring to the risk control measures they could exert such as being able to ‘bail’ or kick a board away. Skaters also mentioned they felt more able to control risks in skating because other people’s actions were less likely to impact on them:

\[
Skating is pretty good [in terms of injury risk] I reckon is one of the least [risky] because you can just jump off your board when you’re feeling bad.
\]

\[
Because on a bike, you are connected to it. You’re sitting down with your legs both side and you can’t just jump off... but on a skateboard, you can just jump off. The same with rollerblades [you can’t jump off].
\]

Like football for instance people get cheek bones broken, [skateboarding] is a sport where you can get hurt but you try and stop yourself from doing it.

Footy’s pretty rough, people just try and hurt you. I think bike riding is also a lot worse [than skating] because you can hit the handlebars.

There was a belief that serious injury was very rare in skating and skaters’ own vulnerability was perceived as low. The prevailing attitude was that skaters were in control and could minimise injury risk, by not engaging in certain tricks or activities:

\[
No-one has ever been killed while skateboarding.
\]

\[
Not really, because I’m not going to try anything that I know I’m going to hurt myself doing.
\]
Skaters were asked what body sites they thought were most often injured in skating. The ankle, lower extremity (overall) and wrist were viewed as the most vulnerable body parts. No skaters mentioned the head, consistent with their belief that they are at low risk of serious injury.

4.2.4 Attitudes to PPE wearing

A number of barriers and facilitators to PPE wearing were identified in the focus groups and explored in more detail during the subsequent in-depth interviews.

The reported barriers to PPE wearing were very consistent across all participants. The two most commonly expressed barriers were that padding was unnecessary and uncomfortable. Skaters view PPE as unnecessary as they perceived that their risk of serious injury was low and would never happen to them:

*I don’t really think I need it because I’ve never fallen on my head actually, in three years.*

*No-one else wears them and I don’t feel the need to wear them... [skating is pretty safe actually].*

The other very common barrier was that the different pieces of PPE were uncomfortable or restricted the skaters in some way:

*Because if you wear [knee pads] over your jeans or something it feels uncomfortable and you feel like [you are] wearing tight jeans, it doesn’t really fit properly.*

*They’re [wristguards] uncomfortable because you’re bending your hand back like “that” all the time and I don’t like it. I just like the free way of moving your hand around.*

*I might have worn them a couple of times when I was a kid, I used to get rashes from them.*

PPE was also considered by some to be a waste of money:

*I don’t think it’s completely necessary so I couldn’t justify spending money on it.*

*I just don’t want to go out and spend $30 on some [wristguards]... it’s going to hurt if you land on your wrists hard and like they can’t change it that much, so I’m not going to go out and spend money on something and I’m still going to hurt my wrists.*

Peer pressure against wearing PPE was one of the strong themes from the focus group discussions but did not rate as highly among in-depth interview subjects. Some mentioned that PPE was uncool and others stated they had heard younger skaters teasing or ridiculing their peers who wore PPE, but the prevailing view was that PPE wearing as an individual’s choice and not a ‘big deal’:

*I’ve got knee pads, elbow pads and wrist guards and when I first started skating I wore them doing all the things. That’s how I learnt fast as well, but you get ripped off for wearing them. So I don’t wear them much now because I’m better but when I try and learn something hard I bring them out because I always take my back pack and I always have them there.*

*The older kids don’t judge, it’s just the little kids.*
Kids don’t really care I don’t think. It’s sort of personal preference and if you decide to wear a helmet that’s ok I suppose.

However, a few skaters believed that if they wore PPE it would mean other skaters would perceive them as being inferior skaters:

Because there are some people that think they [helmets] make you look stupid and that you’re not as good as everybody else.

I think it’s more because no-one else wears them because I’ll look like a fool kind of thing.

The reported facilitators for the wearing of PPE were very consistent across all participants and all interview sites. The prevailing view was that it was not necessary for street/park skaters to wear PPE and wear was only approved in certain situations or circumstances.

The most commonly reported situation in which PPE wearing was considered acceptable and desirable was when skaters were ramp or ‘vert’ skating (n=15 interviewees). Most skaters said they already wear items of PPE when skating vert or would wear it if they were skating vert in the future. PPE wearing was considered acceptable in this instance for a number of reasons including the strongly held perception that you were more at risk of serious injury due to the height of the ramps and also that it was convenient to wear PPE as it promoted the ability to slide if you needed to ‘bail’ from a particular move or trick:

If I was skating ramps — see there is a big difference between skating the street and skating a ramp — like if I was skating a ramp I would chuck on everything because like that is scary.

Because a ramp’s like 13 foot high, and not all people but most of the vert skaters on big ramps like they always wear them [helmets and pad] because it’s like 13 foot and if you hit your head you’re gone.

Some skaters (n=8) considered that PPE was also acceptable when attempting a new trick or something that was considered highly risky or dangerous:

Just when I used to wear them, I would learn the new tricks and then when I got confident I could do them without the pads and then I don’t need to wear them because I can do the trick easily... [then I stop wearing them] until I learn a new trick that is going to involve some stacking.

Like, not when I know what I’m doing but when I try different tricks I’ll chuck on a helmet or something.

People wear it depending on how hard they go. If you’re just going to go around for a cruise then you’re not really putting yourself at risk but if you want to try something new then you’ve definitely got to [wear it]. This one guy he was nuts... he’d try anything and he’d always wear pads and everyone would be looking at him because they’re just so big and he’s all decked out, but we all knew it was the right thing for him because he was so hardcore.

It was also acceptable if an experienced or older skater wore items of PPE:

All the people who are like grown up and stuff, who are like 30 and that, you see them and they have knee pads and everything... They’re probably like more concerned about themselves and we [younger skaters] are just dumb.
Some skaters mentioned that PPE wearing was acceptable if a skater had suffered a previous injury to a particular body site (n=5). They said they would wear the appropriate item of PPE to protect that area when it was healing or to prevent the injury happening again:

They’re good for protection [wristguards], my friend fractured his wrist the other week he hurt it real bad. He wasn’t wearing wristguards... he’s going to wear them from now on. Injury makes you want to wear it [PPE].

I wore like tape [around ankle], it was really tight and it’s already in the shape, like a sock kind of thing... no [I don’t wear it anymore] I think the ankle’s healed.

Parental influence on PPE wearing was stronger when participants were learning to skate and some skaters reported they wore PPE when they first began skating and/or saw this as an acceptable reason for others to wear PPE:

Yeah [my parents made me wear PPE] but like I sort of realised it was good because like, I’ve hit my head a couple of times... so when I was beginning I might as well do it. It’s safer.

Well if you’re a little kid and learning to skate then yeah you’d probably wear it but I’ve been skating for three and half years.

A few participants saw their skating as secondary to being involved in another sport at the elite level so wore protective equipment proactively in order to prevent injury impacting on their chosen sport.

Yep [I wear PPE] because I’m a gymnast and you’re not allowed to get hurt.

4.2.5 Suggestions on ways to improve safety of the sport

When asked for ideas about preventing injuries in skating, the most common response (n=15) was injuries were not preventable; they were going to happen “no matter what”.

I don’t reckon there’s any way to prevent an injury. Like if you’re going to go for it, you’re going to go for it, and if you fall on your back, you’re going to fall on your back or your elbow or something.

You can’t reduce injuries in skating- it’s going to happen, there are a large number of skaters that do get hurt, you can’t really do anything about that though.

Only four skaters mentioned wearing PPE as a possible way of preventing injuries. When specifically pressed for what defensive or preventive things they do if they feel they are going to fall the following types of responses were common:

Just bail, throw the board out from under your feet, just jump off. If it’s on a rail, just hope to god that it’s not higher than your legs, or else you’re going to cop it.

You just jump off your board... well if you were up on a rail like up there you’d try and go away from it. Like go either side away from it.

Some suggestions for preventing injury were practical and related to the structural features of the skatepark or the way the skatepark operated:
Have grass rather than gravel around the edges of skatepark so if you need to bail you can land on grass rather than concrete.

They just have to make sure they don’t have everything too big because there is always going to be little skaters that want to learn so they have to have a little course and a big course.

Make the parks a lot bigger, more space would mean less collisions.

A commonly mentioned safety issue at some of the skateparks was the conflict between skaters and BMX bike riders, particularly at the newly installed skatepark in the City of Whitehorse (n=8/15 interviewees):

They just get in a chain... so they all go around after each other to annoy the skaters... [to improve safety] just get rid of the bikers.

They need to make a bike path over there or something [across the park from the skatepark]... then it would work heaps better.

It was generally found that skaters believed they had their own ways of minimising injury risk. A common response when asked how to prevent injuries in skating was for skaters to avoid doing tricks that are risky or beyond your skill level, suggesting that many skaters feel they have some control over whether or not they are going to get injured:

Just do what you are capable of... nothing over the top.

Skateparks should have signs that say skate at your own risk or don’t try tricks that you can’t do.

4.2.6 Reaction to compulsory wearing of PPE in skateparks

Participants were asked to give their opinion on councils making PPE wear compulsory in skateparks because of their concern about skaters getting seriously injured. Reactions were mostly negative. Many skaters suggested they would be very angry if compulsory PPE (mostly interpreted as referring to helmets) was introduced, and the rule may even lead skaters to engage in illegal or undesirable behaviour:

They would be very angry, they’d start skating around schools, vandalising.

I reckon a lot of people would go into the city and skate and go to the illegal places where you’re not meant.

People think of skaters as like vandalising bad people, but just because they don’t want to wear helmets doesn’t mean [they are bad or that] you have to make it compulsory.

Interestingly, although the majority said they would be angry if compulsory PPE was introduced almost all of them indicated they would still skate at the park, although some mentioned they would not skate there as often as previously.

A few interviewees were more accepting:

Yeah, I’d come here and wear a helmet, definitely. I don’t mind wearing a helmet.

I suppose it would be a bit of an issue at first but I suppose we’d all get used to it eventually.
One of the interview sites was a supervised indoor facility that advertised on signage that helmets should be worn. Some skaters reported that they wore their helmet when skating there because it was required but others said they did not bother because the rule was not consistently enforced.

4.2.7 Facilitators and barriers to wearing specific items of PPE

Helmets

Some interviewees recognised that an injury to the head could have more serious consequences than an injury to other body parts and this belief motivated them to wear a helmet:

- If you fall on your back or your arm, you just bruise and then you get up but if you fall on your head, then you get concussion and that’s bad news.

- Kids know that if you fall on your head it’s fairly serious and if you fall on your arm, it’s just a sprain and it gets fixed but your head, you don’t get a new one.

- It’s kind of not cool to split your skull open, but a broken wrist, well as long as it’s not too serious.

Another motivating factor for some skaters was that they had sustained a previous head injury:

- I hit my head pretty hard… [question from interviewer “Wearing a helmet or without?”]… without… and then I decided to wear it, I learnt my lesson.

Many interviewed skaters commented that they either wear a helmet or thought others should wear a helmet when learning, skating on high ramps or in other specific circumstances:

- Most beginners should wear it because some parks vary and some can be dangerous… like kids running into things, falling over and hitting their heads.

- If I’m feeling a little bit sloppy and my leg’s playing up and I think I might fall off or stuff something up, I’ll put my helmet on.

- Yeah if I go on like a huge vert ramp I’ll wear a helmet.

A common reason given for not wearing a helmet was that the skater had not ever injured their head and/or did not feel that wearing a helmet was necessary:

- I’ve never hit my head skateboarding [so don’t need a helmet].

- It’s kind of annoying to drag it around and I don’t feel that I need one because like I said I’ve never been seriously injured.

- When I first started I used to wear a helmet… not in an arrogant way but I sort of thought I didn’t need it anymore because I wasn’t hurting my head anymore.

Other frequently mentioned barriers to helmet wearing were that helmets were uncomfortable or impaired performance in some way:
It stops you from moving around a lot, but in a way, yes it provides safety. It just stops you from moving your parts or your weight transfer or whatever like that, but in a sense the safety aspect of it is very good.

It’s because you have a bit more weight and can shift in the middle of stuff and like get in the way.

A number of focus group participants made negative comments about the appearance of PPE. This was explored further in the in-depth interviews. Interviewees were questioned about whether they thought skaters would be ‘picked on’ or perceived as ‘uncool’ if they wore a helmet. Responses varied. Some participants thought that, in general, skaters do not care what their peers wear and they did not therefore believe that peer pressure was a strong reason for skaters not wearing PPE:

Maybe when I was a little kid [it was related to helmets not being cool], when you’re a little kid you’re like I’m not wearing a helmet, but when you get older I don’t think, no-one really cares what anyone else thinks. Like around here no one really cares if people think they’re not cool. It’s not that kind of issue, it’s just a practical kind of thing I reckon that most people don’t wear it.

On the other hand some skaters did emphasis that others thought helmet wearing was uncool:

Everyone thinks it’s uncool I guess... people idolise people they see. You look in any magazine or video and unless they’re skating vert where everyone [wears it] just because I reckon you’d kill yourself [if you didn’t]. No street skaters wear helmets so everyone thinks if they’re not doing it, I’m not doing it.

Participants were asked for ideas about making helmets more appealing or more marketable to skaters. Some suggestions related specifically to the marketing of helmets:

I reckon [if street skaters wore helmets on videos etc] it would make a difference, probably, because people idolise them and try to be like them so like a lot of trends have started through professional skateboarders.

With the helmets they definitely should advertise them more.

Other interviewees suggested a number of design changes such as improved sizing, added padding in the top of the helmet and more covering at the back of the head (as this was viewed as the part of the head that was more likely to be injured).

A specific barrier that was mentioned by interviewees in relation to other items of PPE was that they were perceived as ineffective in preventing injury; interestingly this was not mentioned about helmets.

Elbow pads and knee pads

Previous injury was the only motivator given for wearing knee and/or elbow pads. Again, the fact that the skaters had never injured that body part before seemed to influence their subsequent likelihood of wearing protective equipment:

I’ve never grazed my knees or elbows too badly so never really needed it.

Most skaters were opposed to wearing knee and elbow pads except in one specific situation, when skating ‘vert’ (ramps). The most common complaints about pads were that they were uncomfortable and/or impaired the skaters’ ability to do tricks:
Feels like an extra muscle or bone, it just feels heavier.

Because sometimes for the tricks that you’re trying to do, pads kind of stop the flexibility... you can’t quite move your arms and legs the way you have to.

Skaters also complained that pads caused rashes, were too hot and made them sweat. When questioned about the major problem or issue with pads, skaters were quick to point out that it was not so much to do with the look of knee or elbow pads, more to do with the comfort:

They [knee pads] end up getting really irritable under the legs and everything like that.

With knee and elbow pads it’s more to do with the comfort, other than a helmet that is more to do with how it looks.

Participants were asked for ideas about making knee and elbow pads more appealing or more marketable to skaters. Most suggestions related to the design and fit of elbow and knee pads:

I’ve seen new ones out that are the way I like them, they’ve got two different parts that hold the pad in place... and they cost heaps and they move a lot and they’re not tight, they’re loose on you and you can move around a lot...so they’re not restrictive at all.

You should have kneepads that are actually built into pants.

They need more sizes. They only have two sizes. They have small, which is for kids, or they have large, which is sort of like for a big adult, they’re just too large.

It’s just you’ve got to be the right size for them and with your arms; you’ve got to be able to move them for balance. [at the moment] It’s just getting in the way, so they’re not really worth it.

Wristguards

An emerging theme from the focus group discussions was that that wristguards were perceived as uncomfortable and ineffective but this view was not strongly supported by interview participants. While many skaters said that elbow and knee pads were either restrictive or uncomfortable, fewer skaters felt this way about wristguards. Some even liked wristguards and commented favourably on their design and comfort:

I reckon they’re pretty good ... because they sort of just look like arm bands because they sort of come over here and they look good as well.

Yeah they’re [wristguards] real good because they kind of go around your thumb, yeah they’re perfect.

However, other skaters believed wristguards were ineffective and therefore could not justify spending money on something that they believed would not prevent injury. One skater suggested that wristguards would be more restrictive for inline skaters because they need to grab onto things if they are falling, unlike skateboarders who can kick their boards away:

You can’t move your hands enough [when wearing wristguards] so if you’re going to fall, you can’t grab on to hold yourself.
[Wrist guards wouldn’t have helped [sprained wrist] because there’s no... you can’t stop the wrist from flexing back.

They’re so horrible [wristguards] because your hands are like [bent backward], it’s like the first thing you do, and you bail to your hands.

Participants were asked for ideas about making wristguards more appealing or more marketable to skaters. Suggestions related to getting either respected skaters (‘pros’) or respected companies involved in skateboard manufacturing or selling to promote wristguards:

Maybe if some really well respected companies... that everybody likes started making them [wristguards], because a lot of people just follow or like buy whatever is out from that company.
5. DISCUSSION

The results of this qualitative study provide unique insights into the values, attitudes and beliefs that shape the behaviour of skaters with respect to risk taking and safety practices and show that there are significant personal, social and environmental/structural barriers to the adoption of recommended PPE (helmets, wristguards, elbow- and knee-pads). A total of 64 park skaters participated in the study, drawn from four local government areas with different socio-demographic profiles. Ninety-one percent of skaters in the study group were skateboarders, all males but one, the dominant skatepark user group. Therefore, study results mostly reflect the views of (mostly male) skateboarders rather than those of in-line skaters. For the most part, the in-depth interviews confirmed the themes that emerged from the focus groups, but the interviews provided evidence that skaters were a more divergent group in terms of attitudes and beliefs than indicated through focus groups.

We have also examined our results using the PRECEDE-PROCEED health promotion model developed by Green and Kreuter (1991) as it provides a useful tool for planning behavioural change interventions. This model considers that behavioural actions are shaped by three categories of factors that need to be addressed in any prevention program — predisposing factors (knowledge, attitudes, beliefs, values and ‘readiness to change’ that support the adoption of the desired behaviour), enabling factors (availability of resources to accomplish the behaviour change) and reinforcing factors (social support for the desired behaviour through rewards or incentives, peer or community approval and rules).

5.1 Predisposing Factors

On balance, the knowledge, attitudes, beliefs and values expressed by most participants in our study would act as barriers rather than facilitators to ‘padding up’ (wearing PPE). Skaters valued the informality of park skating in the sense that it is an unorganised, individual activity, with few rules and low or no supervision. They especially valued the ease of participation and the freedom of skating (‘you can just pick up your board and roll’) and they clearly expressed that they valued the degree of independence and control over their own activities afforded by recreational park skating.

Many participants in focus groups and in-depth interviews viewed PPE as a hindrance to enjoyment and performance, describing the various PPE items as inconvenient, uncomfortable and restrictive. These findings are consistent with those previous reported from a small qualitative study of skateboarders’ experience of injury conducted in Nova Scotia, Canada (Black 2004). The design barriers to PPE wearing have also been previously reported from a number of cross sectional studies investigating teenagers’ and young adults’ attitude to helmets and other items of protective gear in bicycling (Finch 1996, Finnoff et al. 2001); in-line skating (Young et al. 1998, Schuster & Israeli 1999); inline skating, skateboarding and snowboarding (Kroncke 2005) and a range of other sports such as football, surfboard riding and squash (Finch et al. 2003; Braham et al. 2004; Eime et al. 2004; Taylor et al. 2005).

Skaters also valued the challenge of skating, which intrinsically involved ‘pushing their limits’ (risk taking) and got intense satisfaction from ‘landing’ new tricks. While personal challenges were self set and achieved, it was clear that social approval for mastery was also valued. Skaters watched more expert local and international skaters and learned by trial and error. Pain and injuries (grazes, bruises, strains and sprains) were regarded as an unavoidable part of that learning process — ‘inevitable’ and ‘just part of the sport’ — a signal that they were ‘testing their limits’, and even, for some, a badge of courage. There was an implicit understanding that the acceptance of injury was an indicator of masculinity. Overall, skaters appeared to have little knowledge of the extent and severity of injuries in skateboarding and had a low perception of their personal vulnerability to injury. They also showed
little knowledge of the efficacy of PPE and, in fact, many study participants believed that PPE did not work, or worked only to prevent minor injuries, and therefore was unnecessary. Again, these findings are consistent with the findings from the only other qualitative skateboarder injury and PPE research study reported in the literature (Black 2004). In our study, even some of those who had experienced or witnessed a serious injury event when skating expressed these beliefs. Prevalent attitudes were that the control of injury risk was up to the individual and that ‘knowing your limits’ was the most effective injury prevention measure, although some study participants practised incremental learning when trying to add new tricks to their repertoire.

On the positive side, although the behavioural norm among park skaters was that padding up was ‘not the done thing’ and ‘uncool’, study participants did identify some situations and times when wearing PPE was acceptable. One of those times was when skaters were learning to skate. Padding up was also generally deemed to be acceptable when a skater was trying new or particularly hazardous tricks (e.g., doing ‘stairs’) or in ‘vert’ (ramp) or rail skating. A few had worn or knew others who wore PPE to protect an injured or ‘wrecked’ body part and this was also regarded as acceptable.

5.2 Enabling Factors

Enabling factors are environmental factors at the practice, organisational or community-level, which make change possible. There was a notable lack of enabling factors for PPE wearing identified in the focus groups and in-depth interviews. Park skating is fundamentally an individual and unsupervised activity that lacks a team or club structure through which PPE wearing can be promoted, supported and encouraged. With two exceptions (one indoor and one outdoor skatepark which were managed by sports facility management organisations), the councils partnering in this project provided no supervision or on-site lessons, coaching or demonstrations in any of the public skateparks they owned.

The one supervised indoor facility advertised on signage that helmets must be worn and a small quantity of PPE was available for hire, but helmet rule enforcement was patchy. Some skaters in our study reported that they wore their helmet when skating at this facility because it was required, but others said they did not bother because they knew the rule was not consistently enforced. In the supervised outdoor skate facility, the manager and staff (all skating enthusiasts) kept a supply of PPE on hand for participants in ‘learn to skate’ classes but only actively promoted and enforced helmet wearing among BMX riders (because of legal liability issues). Expanded no- or low-cost PPE borrowing schemes would be feasible in these skateparks, but the equipment would need to be in the brands and styles recognised as acceptable and of good quality by adolescent skaters, and heavily promoted with skatepark staff acting as role models.

There is a current national initiative, through Skate Australia, to ‘mainstream’ skateboarding, and the Australian Institute of Sport now accredits skateboarding as a sport. Skate Australia has recently instituted a skateboarding coach training and accreditation scheme and a competition judge training scheme in preparation for the introduction of a formal competition structure to develop a sports pathway for participants (personal communication, Matt Helmers, Development Officer, Skate Australia). In this new environment there may be increased opportunities to market the benefits of PPE wearing among competitive street skateboarders, with the potential for increased PPE use to filter down to recreational park skaters. However, Skate Australia has not yet adopted a policy position on compulsory PPE wearing for competition events, although the organization has encouraged all newly accredited coaches to act as role models and wear helmets when conducting coaching sessions. Currently, there is no recognised sports peak body for skateboarding in Victoria — the Victorian Skateboarding Association Inc. is not a member of Skate Australia and Skate Victoria only services in-line skaters involved in competitive roller sports.
Another barrier to skaters wearing PPE in situations they self-defined as high-risk, such as vert or ramp skating, was that they did not want to carry it around with them all the time. Only two skaters in our study reported carrying PPE so that they could don it when performing new or difficult tricks or vert. Lack of secure storage at skateparks acts as a disincentive to having PPE ‘on hand’ when needed, especially in parks with high ramps.

As previously mentioned, the poor design and sizing of much PPE on the market was also a major barrier to PPE wear. Adverse comments on the lack of comfort and poor fit of the PPE that skaters had worn in the past were widespread and consistent, indicating real design issues that need to be addressed. Skaters were also disparaging about the quality of the PPE sold through discount department stores, identifying that specialist surf and skate outlets were their preferred source of quality and desirable (‘branded’) skate equipment.

The few skaters who consistently wore skate helmets and wristguards reported they felt no discomfort or restriction, and some even commented that they liked the way the gear looked. De Nooijer et al. (2004) reported from a survey of 872 young Dutch in-line skaters that the more children used protective gear, the more favourable their attitudes were toward wearing protective gear and the higher their expectation was that they were able to wear protection even when it was hot.

Skaters who mentioned that cost was a barrier did so more because they perceived the investment in good quality PPE to be a waste of money rather than unaffordable, because they did not believe PPE worked or because they preferred to spend their or their parents’ money on skating equipment or more desirable consumer goods.

5.3 Reinforcing Factors

Peers exerted a very strong influence on the attitudes and behaviours of skaters in our study. Most skaters reported that they were introduced to the sport by friends or siblings and developed their skills by watching and emulating more expert skaters in the local skateparks or ‘pros’ (skating champions) performing tricks on video (available through the internet), TV or film and at events. Younger focus group participants reported that skaters who wore PPE were often ridiculed or ‘ripped’ by their peers (but none reported participating in name calling) and the most widely held view among all study participants was that PPE wearing was definitely ‘uncool’. However, older participants in in-depth interviews expressed a more tolerant attitude towards their peers who chose to wear PPE, affirming that it was a matter of personal choice.

Many study participants commented that no local or international street skate champions ever wore any items of PPE, and the ‘pros’ fearlessness, stoicism and resilience when injured were admired and emulated. These skating heroes generally belong to teams sponsored by the major Australian and U.S. skate hardware, clothing and footwear manufacturers/distributors or Australian distributors of U.S. products. A check on internet skateboarding sites indicated that none of the sponsors appears to require or encourage PPE wearing among their team members (except for vert skaters) when they participate in public exhibitions, events and elite competitions. Skate heroes are also not shown wearing PPE in computer games, promotional video clips (on web) or skate magazine photos. Changing the ‘culture’ of the sport at the top with regard to PPE wearing and recruiting respected local and international role models to the cause of injury prevention presents a huge challenge that needs to be addressed at the local and international levels.

In general, skaters’ comments indicate that parents do not appear to have much influence on the PPE wearing behaviour of their offspring, except when their children are younger and learning to skate. Similar findings were reported from the small qualitative study of Canadian skateboarders referred to above, that found that the ‘cut-off’ point for skateboarders heeding advice from their parents about helmet use was around 12-13 years (Black 2004), and a study of factors influencing PPE wearing by
young Dutch in-line skaters (De Nooijer et al. 2004). However, Finch (1996) reported that parental pressure was a strong influence on the adoption of bicycle helmet wearing among Victorian teenagers but this was in a situation where helmet wearing was required by law.

5.4 Implications for Prevention

Although there has been some historical tension in the injury prevention and control field about the use and relative effectiveness of ‘active’ (behavioural) strategies and ‘passive’ (environmental/structural) strategies, fuelled by the success of environmental measures in public health (immunisation and water fluoridation) and road safety, it is now generally acknowledged that injury reductions will not be achieved unless behavioural components are addressed in concert with environmental and structural changes (Gielen & Sleet, 2003). According to Gielen and Sleet (2003) a comprehensive systematic review of the extent to which health behaviour change models have been applied to injury prevention is underway in the United States. Their preliminary review assessed that the behaviour change theories and methods that have been successful in addressing other public health problems have been under-represented in the injury literature, and their application under-funded.

We found four studies in the literature that explored psychosocial predictors of protective gear use among young people. Williams-Avery and MacKinnon (1996) found that the major Health Belief Model (HBM) constructs (perceived barriers to wearing gear, perceived susceptibility to injury, perceived severity of injury, and perceived benefits of wearing gear) were significant predictors of protective gear use in a group of 217 U.S college student in-line skaters. Over 40% of those surveyed owned at least one item of PPE but only 6.5% reported they consistently wore their protective gear. The HBM, tested using regression and structural equation modelling, predicted typical gear worn, frequency of gear use, and injuries received while in-line skating. Barriers, perceived susceptibility to injury and perceived benefits of equipment use were most highly correlated to gear use and the authors suggest that these constructs may be important targets for injury prevention strategies.

Later studies by Quine et al. (1998), de Nooijer et al. (2004) and Lajunen and Rasanem (2004) indicate that the Theory of Planned Behaviour (TPB) or an elaboration, the Attitude-Social influence self efficacy (ASE) model, have greater predictive utility on protective gear wear than the HBM. According to TPB, the immediate cause of volitional behaviour is one’s intention to engage that behaviour. There are three predictors of intention: a person’s attitude towards the behaviour concerned (related to perceived benefits and disadvantages and emotions related to adopting the behaviour), a person’s beliefs about whether significant others, eg peers and parents, approve one’s intention to engage in the behaviour (subjective norm) and a person’s perception of the extent to which his/her performance of behaviour is easy or difficult (self efficacy).

Quine et al. (1998) compared the ability of TPB and HBM to predict bicycle helmet use in a sample of male school children and found TPB had greater predictive utility, explaining 43% of variance in predicted helmet use in study subjects, compared to HBM, which explained 18% of variance. The same research group then conducted a small randomised controlled trial of an educational booklet on bicycle helmet wearing containing persuasive messages based on TPB (Quine et al. 2001). They found a 25% increase in helmet use in the intervention group of schoolboys who received the booklet compared to controls, measured five months after the intervention, indicating that social cognition theories such as TPB could be valuable in the design of education interventions to change health behaviours (Quine et al. 2001).

De Nooijer et al. (2004) investigated the reasons why young Dutch children do not use protective gear when in-line skating using a questionnaire based on the ASE-model administered to 978 school children aged 9-13 years. Multiple regression analysis showed that all ASE determinants (i.e. attitude regarding benefits and disadvantages, modelling by friends, pressure by parents and self efficacy), except social norm, were significant predictors of adoption of protective behaviours. The authors
suggested that the young age of the children explained why the social norm variable (‘what friends think’) did not reach significance.

Lajunen and Rasanen (2004) compared the usefulness of three social psychological theories — HBF, TPB and Locus of Control (LC) — as the framework for understanding why cyclists are unwilling to use bicycle helmets even if they own one. The LC model includes two components — external and internal belief orientation. Internal LC refers to beliefs that events, for example crashes, are consequences of one’s own actions and therefore controllable whereas external LC refers to beliefs that events are unrelated to a person’s behaviour and therefore beyond personal control. Data were collected by questionnaire based on the three psychological models and involved 965 students (aged 12-19, 49% boys) in two Finnish schools. Analysis, using structural equation modelling techniques, showed that the TPB and LC models fitted the data well, and better than the HBM. The study found that all TPB components were significantly related to intention to use the helmet with the strongest predictors being subjective norm and attitudes related to perceived benefits and disadvantages (in the TPB framework), external, but not internal, locus of control (in the LC framework) and perceived barriers and cues to action, but not perceived severity and health motivation (in the HBM framework).

Although these results are not definitive, they indicate some directions for the behavioural components of any multifactorial intervention to increase PPE wear in skaters. It has to be remembered that the methods of influencing youth skaters’ values, attitudes and perceptions are different from those that will work with their parents. Our results indicate that behavioural components of multifaceted campaigns targeted to skaters should focus on the following: personalising risk to heighten skaters’ perceived low susceptibility to injury specifying immediate and relevant consequences of injury such as restriction or cessation of participation in skating and other sports (and associated peer interaction) and perhaps, for older adolescents, interruption to studies; increasing awareness of the efficacy of PPE focussing on benefits that they may value (such as accelerated skills development); and strengthening self-efficacy. Parental strategies should focus on raising awareness of the magnitude and potential severity of injury in skating and potential short and long-term consequences and the efficacy of PPE and the provision of attractive incentives, for example subsidies, discounts and giveaways to encourage parents to purchase good quality PPE when buying their child’s first skating equipment.

The current low wearing rate among skaters, especially skateboarders, the strong personal and group barriers to PPE use, the widespread opposition among youth skaters to compulsory wear rules in council skateparks all indicate that taking a regulatory approach is probably premature at this stage, especially when, for the most part, supervisory and enforcement mechanisms are not in place in council skateparks.

We therefore recommend a staged approach with an initial focus on awareness raising, education and environmental strategies and measures to influence the ‘culture’ of the sport, so that injuries are not seen as ‘just part of the game’ and voluntary PPE wear rates reach a level where mandatory wear rules have more support. Our study showed that park skaters generally support the wearing of PPE by beginners and novices, indicating that these groups and their parents would be the most suitable initial target of any planned multifaceted PPE promotion and education campaign. Whilst the weight of available research evidence indicates that beginners and novices are at higher risk of skating-related injuries than their more experienced counterparts (Banas et al. 1992; Calle & Eaton 1993; Fountain & Meyers 1996; Schieber et al. 1996; Williams-Avery & MacKinnon 1996; Schuster & Israeli 1999), a few studies have reported higher frequency of injuries in intermediate and/or advanced skaters (Seldes et al. 1999; Everett, 2002). These conflicting results indicate that PPE wear messages should not suggest that protective gear may be abandoned when a skater becomes proficient.

A recent systematic review of the research evidence for the effectiveness of community wide multifaceted programs to promote the use of bicycle helmets among children aged up to 14 years reported that interventions that included targeted and mass media education of children and parents along with free or discounted helmets were successful in increasing helmet use rates (Spinks et al. 2005).
wearing, an intensive campaign in school aged children in Seattle US, reported that helmet wearing went from 5.5% to 15.7% in the targeted community over the first two years of the program, to almost 60% after 6 years. However, results from other community-based interventions included in the review were much more modest and there was some evidence that helmet wearing rates decayed when the campaign activities reduced or ceased.

In Victoria, observed voluntary helmet use in children reached 32% after seven years of community-based activities before legislation was enacted in 1990 and increased to 65% in 1991 and 76% in 1992 (Vulcan et al. 1992; McDermott 1995). The Victorian experience indicates that combining education and other environmental supports such as helmet discounts with regulation is the most potent mix of strategies for increasing PPE wearing to the level that is necessary for significant injury reductions. The voluntary uptake of PPE in targeted local government skateparks should be closely monitored with a view to introducing compulsory wearing of PPE when voluntary wearing reaches a critical level of acceptance (around 30%) and enforcement and supervision issues are resolved.

5.5 Study limitations

As a qualitative theory building study, this design did not aim to produce findings that are generalisable at the population level but allowed the complexities of the topic to be explored to assist the design of tailored prevention strategies and measures. Park skateboarding and in-line skating are non-team sports and practitioners are highly mobile, so it is very difficult to gauge if maximum variation sampling was achieved. However, for the most part, researchers or council youth workers approached skaters randomly in six skateparks located in three very different municipalities (inner, outer suburban/rural fringe and rural) in terms of socio-geographical profile, at periods of peak usage (school holidays and weekends). A different approach was adopted when recruiting skaters from the Whitehorse skatepark, where the researcher deliberately targeted older and more advanced skaters due to the shortfall in recruitment of individuals for in-depth interview from this sub-group in other skateparks. We believe that we managed to gain access to a broad sample of skaters who are current users of council skateparks.

Skateboarders formed a large proportion of study participants (91%), but a previous observational study conducted in 2003 reported that they are the dominant skater user group in Victorian skateparks, accounting for 84% of skater users (Jones et al. 2004). In-line skaters comprised only 9% of the study group (and 16% of skaters using skateparks in the 2003 observation study), so the findings reported here cannot be viewed as indicative of the values, attitudes and beliefs of in-line skaters. Also, all participants were volunteers so we have no way of knowing if those who opted to participate were different to those who did not.

Focus groups are a valuable method for gathering data about health issues but an acknowledged difficulty, especially in groups involving male youths, is distinguishing between responses that are valid in terms of accurately presenting an individual participant’s views and experiences or a reflection of group processes where participants are ‘playing to their audience’ to sustain a place in the hierarchy of masculinity (Hyde et al. 2005). Although it may have been useful to interview some focus group participants individually in order to provide the opportunity for them to comment privately on their perceptions and experiences and to explore whether they felt or were inhibited by their peers, we believed this was unnecessary as we decided that the 40 plus individual in-depth interviews with youth skaters recruited from the same parks would redress any bias in focus groups results due to peer influence.
5.6 Recommendations

- Design, implement and evaluate a focus-tested education and awareness raising campaign to change the attitudes of skaters to PPE wearing and to educate parents about the effectiveness and benefits of PPE, in a context that encourages participation (‘be active, stay active’):
  - Campaign components targeting youth skaters should focus on: (1) personalising the risk of serious injuries among skaters (‘this could happen to me’); (2) communicating both the positive effects of PPE on the development of skating skills and the more immediate adverse consequences of common injuries (eg. ankle sprains and forearm fractures) for example interruption/cessation of participation in skating and other sports and loss of contact with friends; (3) communicating the efficacy of helmets, wristguards, knee and elbow pads (to all skaters) and ankle guards (to skateboarders) using marketing techniques that take account of the barriers and facilitators to PPE wearing among youth skaters.
  - Campaign components targeting parents of skaters should focus on communicating: (1) the nature, extent and potential severity of injuries in skating and the efficacy of PPE, especially when skaters are learning to skate, learning new tricks and using ramps and rails; and (2) the need to purchase good quality, correctly fitting, comfortable and appealing PPE (that is marked as conforming to Australian or international standards as appropriate) when skate equipment is first purchased.

- Support the development of a peak body for skateboarding in Victoria or support another credible organization (preferably an affiliate or member of Skate Australia) to design and deliver a progressive skater skills and safety training and demonstration program in council-owned skateparks, utilising accredited skate coaches.

- Implement and evaluate an organised program of graduated demonstrations and lessons in council-owned skateparks for beginner, novice, intermediate and advanced skaters (with special provision for introducing girls to the sport) which aims to:
  1. develop skating skills, including speed control, good balance, braking (for in-line skaters), ‘bailing’ (for skateboarders) and safe fall techniques;
  2. encourage the adoption of an agreed skater code of conduct in skateparks in and between skatepark user groups (skateboarders, in-line-skaters, BMX bike riders and scooter riders); and
  3. promote PPE wearing through education and role modelling.

  The first stage of the program should be targeted to beginner and novice skaters.

- Engage General Practitioners and Emergency Department medical staff in an injury prevention education and post-injury counselling initiative that communicates to skaters and parents the effectiveness of PPE in reducing the risk of injury and re-injury.

- Encourage Australian manufacturers, distributors and retailers of PPE (helmets, wristguards, knee and elbow pads and ankle guards) to collaborate with injury prevention researchers and skaters to address the design issues raised by skaters in terms of fit, comfort and appearance of PPE.

- Encourage Australian manufacturers, distributors, retailers and hirers of PPE, skate equipment and skate wear to market PPE in ways that raise its acceptance among youth skaters.
Encourage specialist skate equipment retailers to stock the full range of good quality, Standards-approved and acceptable PPE and to promote the purchase of PPE when customers are buying skating equipment (especially for beginners/novice skaters).

Introduce and evaluate measures to make helmets, wristguards, elbow and kneepads more accessible at skateparks to encourage PPE use when skaters are using rails and ramps (vert skating) and trying new tricks or risky manoeuvres including the provision of:

- free/low cost hiring schemes of good quality and acceptably styled PPE on-site at supervised skateparks in combination with PPE promotional activities including posters and signage, and role modelling of PPE wearing by skatepark staff and advanced skaters
- free or low cost good quality and acceptably styled PPE at unsupervised skateparks through nearby facilities (municipal libraries, skate/bike retail and hire shops etc.)
- bag storage for skatepark users at both supervised and unsupervised skateparks to enable skaters to bring PPE to skateparks in backpacks and wear it at least when learning new tricks and using ramps and rails.

Develop and trial a web page for local skaters on council websites that encourages skatepark users to register as members of a ‘virtual’ club and provides news of interest to skatepark users (e.g. state and local events), a chat room, information relevant to skills development, safety hints and information on the efficacy and advantages of PPE wear, and mechanisms for reporting skatepark hazards and injuries that occur in skateparks. (Note that hazards and injuries should be reported on common forms that allow statewide collation and analysis by the Victorian Injury Surveillance Unit).

Support local government in consultation with skatepark designers, panel/s of experienced skaters and sports injury prevention specialists to develop a set of safety design and maintenance guidelines for council skateparks, incorporating guidance on materials including falls surface materials, equipment design and configuration, user traffic control measures and other measures to minimise the risk of injury in skateparks.

Monitor the uptake of PPE in targeted local government skateparks with a view to introducing compulsory wearing of PPE when voluntary wearing reaches a critical level of acceptance and supervision and enforcement issues are resolved.

Conduct an in-depth study of hospital-treated skating injury to elucidate the specific mechanisms by which injuries occur, the pieces of equipment involved, gather more detail on specific circumstances of injury events and the PPE being worn at the time of injury.

Conduct an observation study to investigate exposure to different pieces of equipment, describe skating behaviours and the proximate causes of falls, collisions and other hazardous incidents.
REFERENCES


Australian Standing Committee on Recreation and Sport. Participation in Exercise, Recreation and Sport Survey 2003 Annual Report.


ATTACHMENT 1: GEAR UP: SKATER & PPE WEARING STUDY:
YOUTH IN-DEPTH INTERVIEWS

Ice breakers (get into a conversation with the interviewee)

1. Do you skateboard/in line skate/both?
2. What made you decide to skateboard/inline skate? Who introduced you to it?
3. How long have you been skating for? How often do you skate?
4. How would you rate your ability? Beginner/intermediate/expert? Do you participate in competitions?
5. What do you like most about skating?
6. How much time do you spend skating in a week?
7. Do your parents like you skating/encourage you to skate? Why, why not?

Learning to skate/learning new tricks

1. How did you learn to skate? Who did you learn from?
2. Do you do many tricks?
3. Do you push yourself to try new/more challenging tricks all the time or are you pretty relaxed with your skating?
4. How do you learn new tricks?
5. Are you ever nervous when trying out new tricks or doing certain tricks? How do you deal with situations when you are nervous?
6. If you think you are going to stack what do you do to stop yourself getting hurt?

Injury experience

1. Do you think you are more or less likely to get injured in skating than in other popular sports?
2. Have you ever been injured in skating? Tell me about your injuries (probe medical care, time off skating, rehabilitation measures) OR (if no injuries) What injuries have you seen others get? Anything serious?
3. Do you think you/they could have done anything to stop this/these injury/these injuries?
4. How did your parents feel about you getting injured? Did they want you to go back to skating?

5. What are the most common body parts injured in skating?

6. In your opinion can be anything be done to prevent injuries in skating? If yes, what can be done?

Safety gear wearing

1. Do you usually wear any safety gear when you are skating? Helmets/ elbow pads/ knee pads/ wrist guards/ ankle braces etc? Why/why not?

2. Are there any times when you currently wear it or any times when you think you might wear it in the future? Why/why not?

3. Did you wear then when you first started skating? Why/Why not?

I want to talk to you about each piece of safety gear separately and get your opinion about it

Helmet

1. Do you own any type of helmet? If bike helmet, ask whether it is one that can also be used for skating

2. Do you ride a bike? Do you always wear a helmet for bike riding? Why/why not?

3. Have you ever worn a helmet when skating? Why/why not?

4. Do you think there are any times when a skater should wear a helmet?

5. Why don’t skaters wear helmets?

6. Are there any issues/problems with the design of skating helmets that put skaters off wearing them?

7. Do you think that there is anything that can be done to make helmets more attractive and wearable?
Knee and elbow pads

8. Do you own knee or elbow pads?
9. Have you ever used knee of elbow pads when skating? Why/why not?
10. Do you think there are any times when a skater should wear knee or elbow pads?
11. Why don’t skaters wear knee or elbow pads? Are there any issues/problems with the design of pads that put skaters off wearing them?
12. Do you think that there is anything that can be done to make pads more attractive/wearable?

Wristguards

13. Do you own wristguards?
14. Have you ever used them when skating? Why/why not?
15. Do you think there is any need for skaters to wear wristguards?
16. Why don’t skateboarders wear wristguards? Are there any issues/problems with the design of wristguards that put skaters off wearing them?
17. Do you think that there is anything that can be done to make wristguards more attractive/wearable?

Compulsory wearing of safety gear

1. How would skaters feel if the council made it compulsory to wear safety gear in this skatepark because they are concerned about kids getting seriously injured?
2. Would skaters still come to this park? Why/Why not?
3. Would you still use this park? Why/why not?

Ideas on ways to reduce injuries in skating

1. Have you got any other ideas on how we could reduce the number of injuries in skating?
2. Any suggestions for improvements in design of skatepark or equipment?
3. Any ways to stop collisions/stacks etc.