An examination of the relationship between training behaviour, dropout and burnout in New Zealand under 19 hockey players.

Final report for presentation to New Zealand Hockey

by Auckland University of Technology

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Abstract

The survey reported here was undertaken in order to examine possible relationships between environmental/psychosocial variables and dropout or burnout in under 19 hockey players. Of specific interest was the relationship between training hours, motivation and dropout. More than 400 U19 male and female representative hockey players were surveyed on the day before commencing a hockey tournament. Measures obtained included basic demographics, playing hours, Intentions to play, Burnout, Perceived Autonomy, Sport Motivation and Goal Orientation. Relationships were examined via hierarchical regression analyses and inspection of means.

Regression analyses revealed significant causal relationships between; perceived autonomy participation in other sport matches financial issues and, intentions to play. Further regression analyses revealed significant causal relationships between; perceived autonomy, interpersonal pressures and, burnout. The majority of relationships were modest in size.

Specifically, increased hours commonly associated with higher level performance is not a direct major influence on intentions to play or burnout. Some concern may be raised however with respect to the apparent relationship between perceived autonomy and intentions to play/burnout. This relationship appears to suggest that those players who feel that they do not make their own decisions with respect to hockey are more likely to experience elevated negative feelings of towards playing hockey. Comparison of means between the current data set and those obtained in previous studies suggested that hockey players were no more prone to burnout than those performing in other sports.

Taken together the present results suggest that New Zealand Hockey need not be overly concerned with the training load put upon young players at under 19 level, provided that those players feel that they are meeting their goals and have some say in what is going on.

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Context and background

General context -

Across a wide range of sports, competition is fierce and the standard of play is quite frequently exceptional when compared to previous decades. This is great news for fans of sport and high performing athletes alike. Raised standards of play have brought about growth in athlete development programs alongside an overhaul of selection, training and competitive environments for a range of different sports including field hockey. Sports such as New Zealand hockey have acquired far more of a high performance focus as a result of growth and have achieved accordingly. Within this setting both coaches and players frequently aspire to an international profile. This in turn has obliged greater focus on recruitment and retention of players.

Recruitment and retention issues are set against a backdrop of reductions in sport participation and physical activity in general amongst the broad population. This suggests that the potential participant pool from which to select and develop performers is decreasing for many sports over time. Organisations such as SPARC have responded by identifying a deliberate agenda for increasing participation in all nationally funded sports. Recognition of this issue has in turn for some sports, forced a shift in thinking away from sport structure being focussed on selection, where "the cream rises to the top of a large pot" towards an approach whereby a valued performers need to be recruited, retained and intensively trained.

Participation strategies with a high performance focus quite frequently involve drives to encourage and maintain higher-level sport participation from an increasingly early age. An obvious maxim here would be "catch 'em early and train 'em hard". This notion has to be balanced against concerns about "too much too soon". A common conceptualisation of this problem in performance-focussed sport is demonstrated through the need to provide fun through play and higher achievement through deliberate practice.

The sort of deliberate practice that delivers higher-level performance is rarely as much fun as play. In a world of activities competing for the attention of youth, those activities no longer regarded as "fun" are likely to be discarded. Of particular importance are the demands made of young players in the process of making the

transition from ‘play’ to ‘competition’ and the long-term consequences of this for the development of the performer and the sport as a whole. Notwithstanding any moral obligations a sport has to young performers, a trite observation to make is that there is little value in creating elite juniors who fail to develop into elite adults.

Against this context, management representatives from Hockey NZ sought to commission research into this issue. Specifically this report was commissioned to examine relationships between training/competition, drop-out, burnout and related psychosocial variables.

Institutional context -

Following initial meetings with Ramesh Patel and Tracey Willis at Mt Roskill an institutional context for the study was established. It became clear from discussions that a major concern for NZHockey was the volume of training and participation required of young players and the fact that in many cases there was potential to “tire young players out”. Particular examples discussed were those that involved talented players who may be asked to attend training/matches at club, school and representative levels, possibly in more than one age group. Specific demands associated with this participation were the amount of travel involved and the volume of training undertaken.

Travel to and from venues may be argued to be lost time for performers this may in turn lead to boredom and frustration. The volume of training issue is more complex than this; should there be a lack of coordination between sessions it seems likely that certain types of training and drill will be duplicated during the week. Again this may also lead to boredom or frustration. Beyond this, physiologically demanding sessions may appear concurrently leading to unwanted fatigue and overtraining for players. All of these issues were thought to influence participation and in and enjoyment of hockey.

Additional issues thought to be of relevance to participation and enjoyment was volume of other activities undertaken, work-life balance and personal demands.

The concerns outlined above formed the focus of the present report. Specifically it was agreed to conduct a survey of training hours, related time allocation

variables and measures of engagement with hockey. For practical reasons and in order to develop a broad understanding of relevant issues, engagement with hockey was broken down into two facets: The intention to continue playing (likelihood of dropout) and negative feelings towards the sport which was in turn best described as burnout.

Academic context-

In the strict sense drop-out is a complete cessation of a particular activity for the foreseeable future. In the context of sports like hockey it may be seen as the permanent loss of a valued participant.

Dropping out of sport.

In a ten year retrospective study of drop-out for a range of sports Butcher, Lindener & Johns (2002) showed annual attrition rates to go from 18% at age 17 to 43% by age 19. This represents a considerable loss to all parties involved, but what is more worrying is that 50% of those leaving a given sport will do so permanently failing to take up new sports in the future. For high performance programmes the picture may yet prove more worrying. Data suggests that over a five-year cycle the rate of retention for higher-level performers may be as low as 1 in 10. For example data from an established swimming program showed the following pattern:

1985 - 51 High ranking female performers
1989 – 14 Individuals remained
1990 – 5 athletes in the national elite (Busmann & Alfreman, 1994)

Whilst the figures for hockey in New Zealand may not be as severe, it seems unreasonable to believe that the sport does not suffer some losses of consequence.

Considerable time and resources have been devoted to uncovering possible causes of drop-out. Common factors identified by a number of studies and reviews have included; Lack of Fun, Lack of playing time, Coaching, Other sports, Competing

other activities, Overemphasis on competition, Competitive stress, Boredom, Perceived lack of competence (Butcher, Lindener & Johns, 2002; Gould, 1987: Weiss & Petchlicoff, 1989; Ewing & Seefeldt, 1989).
From these factors it appears probable that training/playing hours may have a role to play particularly with respect to: Lack of Fun, Lack of playing time, Competing other activities and Boredom.

Burnout.

Sport psychologists define burnout as a syndrome characterised by emotional/physical exhaustion, reduced sense of accomplishment and sport devaluation (Raedeke, 1997). A burned out athlete should therefore feel tired, unable to achieve and indifferent about sport. What is observed early in burnout is a general withdrawal from the sport and complete dropout usually follows this at some point.

Burnout vs. Dropout.

Burnout describes accumulated negative feelings about a sport and dropout describes the point where a performer ceases to participate in a sport. This distinction allows for the possibility that a performer will perform poorly, have negative feelings about a sport but continue to participate. Performers in this situation are seen to be "going through the motions". Hence, burnout is a burden to sport because it causes both a loss of performance and a decline in motivation in for those experiencing burnout. Note that it is possible for performers to experience burnout and recover performance without necessarily dropping out. Dropout is not thought to be an inevitable consequence of burnout.

Sport burnout has been discussed and described in sport psychology research for close to 20 years (Smith, 1986). Unfortunately a reliable means of measuring it was only recently been formulated (Raedeke & Smith, 2001). As such there is a shortage of meaningful research that looks at what causes burnout, the process of burning out and how it may be prevented. In contrast dropout has been appraised in terms of simple intentions to play, though it should be noted that this is not a robust alternative to actual attrition statistics.

Motivation.

If the study of motivation is looking at the reasons "why people do what they do" (Gill, 1987) then dropout is the ultimate failure of sport motivation and burnout can be seen as one of the processes through which those feelings and reasons to do are extinguished. Recent research into motivation has focussed on the satisfaction of three basic psychological needs: Autonomy – the degree to which you determine your own actions "who's in charge ?". Competence – the feeling that you are able to do things "am I good at stuff ?" and Relatedness – the feeling of being secure and connected with others "am I with people like me ?". In the present context autonomy can be seen to be of particular interest because it may be related to the amount of time demanded of a player and the feelings of control generated by those demands.

Measures of sport motivation have traditionally focussed predominantly on autonomy and talk about self determination i.e. "who or what is causing me to do this?". Self-determined motivation is about fun, achievement and personal control, non self-determined motivation is about being told what to do or being controlled by forces outside of you. It should be noted that motivation or the lack it is invariably identified as a precursor to dropout.

Dropout and talent development.

As alluded to earlier, there has been considerable interest in the growth of talent identification/development programs and their effect on achievement. This growth in interest is typified by the inclusion of these topics at recent conferences in Canberra (AIS), Sydney (ISSP) and Auckland (AUT) all in 2005. Whilst arguments may continue as to the relative merits of talent identification per se, consensus seems to accept the need for greater recruitment and retention within all sports. To some extent, this has instigated the drive to involve participants with particular sports from an early age. A problem then emerges as to how young participants should be treated and coached. An extension of Ericsson's (1982) 10 years or 10,000 hours of deliberate practice rule, is to expect that the earlier children start the sooner they become experts. However as Baker (2003) points out this need not imply the need for absolute specialisation from an early age. Indeed Baker (2003) amongst others advocates

extensive *diverse* participation at youth level. An important issue to recognise is that maturation is a key determinant of whether skilled youths become skilled adults. The changes that take place between the ages of 11 and 21 make it difficult to predict future champions at even the most basic level. Maturation not only determines basic physiology and anthropometry, but also brain development. Quite simply the number and scale of potential changes makes prediction all but impossible. This then invites scrutiny of hours spent specialising in a single sport, the opportunities for participation in other sport and their overall impact on participation in the future. In the context of drop-out every effort needs to made to ensure that talent development does not turn into talent selection through loss of fun, too much too soon and possibly burnout.

Questions to be addressed in this report

1. Do high training/playing hours increase the likelihood of dropout ?
   (Total time spent in Hockey training/matches per week)

2. Does training in or the playing of other sports contribute to dropout ?
   (Total time spent in training for or playing other sports per week)

3. Does the time spent travelling to and from games and training influence dropout ?
   (Total time spent travelling to and from training/matches per week)

4. Do the number of hours spent by players in paid work contribute to dropout ?
   (Number of hours per week spent in paid work)

5. How does the incidence of burnout in New Zealand Hockey compare with samples drawn from other sports ?
   (Smith & Raedeke, 2001; Cresswell & Eklund, 2005)

6. What if any relationship exists between motivational states, perceptions of autonomy and dropout/burnout ?
   (Measurement via the Sport Motivation Scale*/Perception of autonomy questionnaire**)

Burnout inventory provided by Raedeke & Smith (2001)
* Sport motivation scale provided by Pelletier et al. (1995)
**Autonomy questionnaire provided by Amorose & Horn (2001)

Methods

Players between the ages of 16 and 19 were asked to fill out a questionnaire the evening preceding the start of a national representative tournament. The questionnaire consisted of a basic demographic survey, a training diary and the following psychological inventories:

Athlete Burnout Questionnaire (ABQ) from: Raedeke, T.D. & Smith, A.L. (2001) Development and preliminary validation of an athlete burnout measure. *Journal of sport and exercise psychology,* **23**, 281-306. Comprised of three 5-item subscales designed to measure: RA - Reduced sense of accomplishment, D - Devaluation, E - Emotional/physical exhaustion

Perception of Success Questionnaire (POSQ) from: Roberts, G.C., Treasure, D.C. & Balague, G. (1998). Achievement goals in sport: The development and validation of the Perception of Success Questionnaire. *Journal of Sports Sciences,* **16** (4): 337-347. Comprised of two 6-item subscales designed to measure: T – Task orientation, E – Ego orientation

Modified sport motivation scale based on: Pelletier, L.G., Fortier, M.S., Vallerand, R.J., Tuson, K.M., BriËre, N.M. & Blais, M.R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The sport motivation scale (SMS). *Journal of Sport and Exercise Psychology, 17,* 35-53. Comprised of four 4-item subscales designed to measure: IME – Intrinsic Motivation to Experience stimulation, IMA – Intrinsic Motivation to Accomplish things, E – External regulation, A - Amotivation

Perceptions of autonomy scale from: Hollembeak, J. & Amorose, A.J (2005) Percived Coaching Behaviors and College Athletes' intrinsic Motivation: A Test of Self-Determination Theory**.** *Journal of applied Sport Psychology*, **17**, 20–36. Comprised of one, six item subscale designed to measure perceptions of autonomy.

Intentions to play and interpersonal factors questions drawn from Hollembeak, J. & Amorose, A.J (2005) and Amorose. A.J. & Horn, T. (2002).

The full questionnaire used in this report can be obtained as a separate appendix on request.

Analysis

Analysis was undertaken via: Basic comparison of means, simple bivariate correlation of variables and multiple regression using SPSS v 12.0.

Demographics of sample.

Table 1: Participant Demographics.

	Age in years	Years spent playing hockey	Number of teams played for	Other Sports played	Time per week spent in transit to games or training
Mean	17.15	8.83	2.72	1.37	3.77
StDev	0.77	2.96	0.74	1.36	3.50
Max	18.92	14	5	8	17.00
Min	15.42	1	1	0	0.00

Table 2: Training and time summary Participant Demographics.

	Total training hockey (hrs)	Total playing hockey (hrs)	Total training other (hrs)	Total playing other (hrs)	Hours at work
Mean	5.21	3.30	1.84	1.26	5.96
StDev	2.17	2.22	3.03	2.60	10.25
Max	14	13	15	16	60
Min	1	1	0	0	0

Table 3: Intentions to play and burnout.

	Intentions to Play (Dropout likelihood)	Burnout
Mean	2.54	2.25
StDev	0.86	0.67
Max	5	5
Min	1	1

Table 4: Motivation and autonomy variables.

	Autonomy	Intrinsic motivation experience	Amotivation	Extrinsic motivation	Intrinsic motivation accomplishment
Mean	2.42	3.43	2.27	3.03	3.54
StDev	0.62	0.68	0.77	0.71	0.79
Max	4	5	4	5	5
Min	1	1.5	1	1	1

Investigation of environmental and psychosocial relationships

Dropout

1. Regression of intentions to play against time spent in match play and training for Hockey and other sports.

   A significant relationship was found between intentions to play and time playing matches in other sports only:

   [Beta (Other Matches) = 0.140, Beta Std. (Other Matches) = 0.135, Rsq = 0.018, adj Rsq = 0.015, F= 5.793, Sig. = 0.017].

2. Regression of intentions to play against hours spent travelling and in paid work.

   No significant relationships were revealed.

3. Regression of intentions to play with motivational, interpersonal and financial factors.

   A small but significant relationship was found between perceived autonomy, personal financial factors and intentions to play.

   [Beta (Autonomy) = 0.488, Beta Std. (Autonomy) = 0.157, Beta (Financial) = -0.335, Beta Std. (Financial) = - 0.159, Rsq = 0.061, adj Rsq = 0.055, F= 10.160, Sig. < 0.000].

Burnout

1. Regression of burnout against time spent in match play and training for hockey and other sports.

   No significant relationships were revealed.

2. Regression of burnout against hours spent travelling and in paid work.

   No significant relationships were revealed.

3. Regression of burnout with motivational, interpersonal and financial factors.

   A significant relationship was found between perceived autonomy, interpersonal factors and burnout.

   [Beta (Autonomy) = - 0.746, Beta Std. (Autonomy) = - 0.289, Beta (Interpersonal) = 0.619, Beta Std. (Interpersonal) = 0.350, Rsq = 0.233, adj Rsq = 0.228, F= 49.905, Sig. < 0.000].

Comparison of sample to other populations.

Table 5: Comparison of means for burnout with previous studies

	Raedeke (2001)		Cresswell (2005)		Current Study	
	Mean	StDev	Mean	StDev	Mean	StDev
Reduced Accomplishment	2.37	0.85	2.43	0.67	2.49	0.57
Emotional /Physical Exhaustion	2.62	0.91	2.32	0.72	1.89	0.77
Sport Devaluation	2.02	0.9	2.16	0.77	2.36	0.67
Overall	2.34	0.89	2.30	0.72	2.25	0.67

Interpretation of analysis:

Tables1-4, describe suitable data with valid distribution properties.

Table 5, compares mean burnout scores for the current data set and two previous data sets in the published research literature. The Smith & Raedeke (2001) set was drawn from a large US sample including a wide range of team and individual sports. The Cresswell & Eklund (2005) sample was approx 400 New Zealand rugby players of mixed standard. It is clear from the table that relative to the scale of possible scores any differences are small. The overall scores suggest that if anything the New Zealand hockey players surveyed are less prone to feelings of burnout.

Maintaining perspective with respect to these results;

When interpreting regression statistics the key variables to consider are the RSq or Adjusted RSq values. Roughly speaking these values provide an indication of the percentage of people in the sample actually experiencing the indicated relationship. Thus an RSq of 0.02 in a sample of 400 suggests that only 8 of the 400 actually feel that way. Commonly regression effects less than 0.05 are regarded as really quite small and of limited impact.

Limitations of the data;

The present study drew data from players selected for a national representative hockey tournament. The two principal dependent variables for investigation were intentions to play (dropout) and burnout. In both cases these variables are subject to selection bias. Individuals selected for tournaments such as this are likely to experience considerable motivational benefits as a consequence of being selected. That is to say, being selected is likely to endorse feelings of competence and reduce any negative feelings about the sport or participating in it - this is a bit like talking to the choir. It may be argued that those most likely to drop out and/or burnout are those who have not been selected. Unfortunately those who were not selected were not surveyed in this study. In this respect the sample may not be reflective of those most at risk and therefore all recommendations need to be interpreted in this light.

Questions and answers

1. Do high training/playing hours increase the likelihood of dropout ?
   Based on the current data there is no significant evidence to suggest that hours spent training or playing hockey contribute to the likelihood of dropout.

2. Does training in or the playing of other sports contribute to dropout ?
   Based on the current data there is significant evidence to suggest that playing in matches in other sports increases the likelihood of players continuing to play hockey.

3. Does the time spent travelling to and from games and training influence dropout ?
   Based on the current data there is no significant evidence to suggest that hours spent travelling to and from games contribute to the likelihood of dropout.

4. Do the number of hours spent by players in paid work contribute to dropout ?
   Based on the current data there is no significant evidence to suggest that hours spent in paid work games contribute to the likelihood of dropout.

5. How does the incidence of burnout in New Zealand Hockey compare with samples drawn from other sports ?
   The samples presented here suggest that there is no difference between New Zealand hockey players and those measured elsewhere with respect to burnout.

6. What if any relationship exists between motivational states, perceptions of autonomy and dropout/burnout ?
   Based on the current data there is significant evidence to suggest that:
   Increased autonomy for players leads to: reduced likelihood of dropout and reduced feelings of burnout.
   The financial demands of hockey increase the likelihood of dropout.
   The interpersonal pressures resulting from hockey participation increase feelings of burnout.

Discussion and recommendations

Training, match play and player well being.

An overwhelming body of evidence suggests that physical activity up to chronic levels promotes both physical and mental health. The average hockey player in this study would be engaging in a maximum of 12-13 hours per week of acute physical activity (table 1). This is still less than two hours per day and somewhat less than that level which would be regarded as chronic. Indeed compared to sports such as swimming this level of participation might be seen as quite reasonable and hockey may well be reaping benefits in terms of increased retention of performers.

Comparison with other samples both in New Zealand and internationally indicates that the hockey players in this study experience no greater degree of negative feeling than those playing other sports (table 5). Consequently there is nothing here to suggest that training and playing hard in hockey will dispose players towards depression, exhaustion or other psychological difficulties. Therefore we would expect the overall incidence of ill health (psychological or otherwise) to be equivalent to if not less than in the general population and other sporting groups. Playing hockey at representative level is unlikely to pose a threat to player's mental well being unless they are being treated poorly during training and playing.

Autonomy and negative feelings towards hockey

A small significant factor in predicting dropout or burnout was player's perceived autonomy. The strongest of all associations identified in this data was between burnout and autonomy. Autonomy reflects the extent to which players feel free to make decisions for themselves with respect to hockey. These feelings are most likely to be influenced by the structure of training, coaching and parents. Research frequently places the coach at the centre of the motivational process and therefore coaching and the training environment they set out may be deemed pivotal in this regard (Sarrazin et al. 2002, Deci et al. 2004).

It may be argued that feelings of autonomy mediate any potential relationship between training hours and tendency to dropout/burnout. Such a proposal may be

described in the following way; within a normal sporting population negative feelings are likely to fluctuate in line with natural variation in feelings of achievement and the demands of day-to-day living. Where either achievement decreases or day-to-day demands increase, players might normally experience reduced commitment to a sport. This might manifest itself in a reduction in motivation towards a sport if not an actual reduction in time spent participating in a sport. Put simply, when I feel I am not playing well, tired or when other things are getting on top of me, my desire to train at a high volume may be reduced and I may skip a few sessions. It should make sense that performers who perceive themselves to be tired or over tired should not be forced to train. In this way minor withdrawal may be seen as a healthy protective process.

Performers who perceive themselves as lacking in autonomy are likely to be those who feel obliged to attend sessions when they do not want to, or are actually forced to attend sessions when they don't feel like it. Hence, they continue with high volumes of training despite negative feelings. Consequently, feelings of withdrawal, devaluation and ultimately exhaustion may ensue. In personal terms, if I feel that I am being forced to train or play when I am not achieving or not attracted to hockey, I am likely to withdraw from or mentally devalue hockey and regard sessions as a burden. The most likely outcome of this process is long-term damage to my willingness to play hockey in the future. In other words, lack of autonomy may interrupt a natural negative feedback process, which exists between attraction to hockey and participation. Where autonomy is low, an obligation participate exists where it might be in fact of benefit to actually take a rest.

This then raises the issue over how to promote autonomy within a sporting group and still maintain the consistency of training that develops skills and hence achievement. One option may be to reduce emphasis on attendance at all but the most important training sessions and indicate to players which sessions may be skipped on occasion. At this level it should be clear that parental input takes on some degree of importance in reinforcing the fact that *players do have choices*. Indeed there is room to emphasise the need for parents not to force performers to participate when they feel unable to.

With respect to coaching and autonomy, sport in New Zealand appears to be moving in the right direction. Recent years have seen attempts to adopt teaching

games for understanding, questioning approaches and player empowerment in a number of sports. However anecdotal evidence from coaches in sports other than hockey suggests that there may be some difficulty in progressing these ideas to the field. In many cases the common complaint is that practitioners have a poor grasp of the concepts that underlie these ideas and lack of training with respect to their implementation. Consequently, in many cases coaches are using the appropriate language but failing to implement the actual processes involved.

Hockey and other sport

Present results favour a small relationship between time spent playing matches in other sport and the likelihood of continuing to play hockey. Whilst this may appear counter to intuition, it does make sense. Firstly studies of drop-out and adherence have identified that younger players value highly the play aspect of sport as well as winning. Thus any opportunity to increase time playing as opposed to training will most probably lead to increased desire to participate overall. Players may also participate in a second sport with less intensity and commitment for less competitive reasons as a counterbalance to intense committed play in hockey. What these results make quite clear is that extra play does not tire players out and should not be discouraged. It would appear that encouraging players to pursue one sport at the expense of any others may lead do decreased desire to play in the long term.

Financial and interpersonal demands

Whilst it is clear that majority of players find hockey to be good value, a small number do limit their intentions to continue playing in response to financial constraints. Partial analysis of the data revealed this effect to be relatively small and as such it may reflect the negative affectivity of some respondents. That is to say when given the opportunity, people will complain about anything that isn't free. However it should also be noted that whilst equipping a hockey player is by no means the most expensive undertaking, with the growth of sport equipment marketing and commodities, costs will increase for players. This will be accompanied by growing transport costs for the better player. Consequently though this issue may not be of importance at the moment, it is still worth monitoring over the long term.

Interpersonal pressures characterised by the feeling that commitment to hockey is in some way a burden for immediate family and friends increases feelings

of burnout. Once more this effect is relatively small in size. This burden may not be conceived in terms of time and transport demands alone, but also in terms of perceived prestige associated with hockey when compared to Rugby, Netball or Soccer for example. Low perceived prestige would contribute to players feelings of being undervalued hence why this effect links most strongly with feelings of burnout as opposed to drop-out.

Between achievement, selection and fun

The present data set was drawn from a sample group of players in attendance at a national tournament. These players had been selected for regional representative honours and therefore were more likely to see the demands of high training volume as an acceptable sacrifice for the achievement of valued goals. The result that increased training does not directly lead to dropout/burnout should not be seen as surprising in this context. This view is supported by small structured interviews with national standard performers who have been through the 16-19 age group competition phase. A consistent point that emerged was that; playing during this time was demanding but rewarding because of being selected and achieving or maintaining a valued status within the sport. In other words the demands were bearable as long as one kept getting selected. Players who are not selected are less likely to feel this way because perceived rewards do not follow from work put in.

Those who were not selected for the tournament surveyed did not fill in the survey and did not contribute to the data set. Consequently, it may only be speculated that this group would have experienced greater feelings of dropout/burnout in relation to high training volume. This notion adds to the perspective to the picture offered by the data presented here and raises other interesting issues. Firstly it raises the possibility of slightly misleading conclusions due to the nature of the sample of hockey players surveyed. Not enough is known about those players of the fringes or lower down the line who do not get selected for representative tournaments. This contention cannot be addressed without the collection of additional data.

The issue of tournament selection brings into focus the trade off between fun and achievement. On the one hand selection endorses competence and therefore builds motivation. On the other hand not being selected risks the opposite. As identified earlier, in a culture that pursues higher standards of performance at earlier ages there is a real possibility of focussing too much on representative tournaments and selection. The consequence of this could easily be long-term attrition of the participation base which may hold performance and funding implications for the future. Sport for youths is supposed to involve fun and achievement. These ingredients will allow the delivery of a large adult cohort into the sport from which committed future champions may be selected. It makes no sense to select early as the quality of prediction tends to be very poor indeed.

Concluding remarks

It is clear that those players participating in national tournaments enjoy largely positive feelings towards hockey which should ensure their participation in the future. The training demands associated with playing representative hockey do not appear to place any unreasonable psychological demands on players and certainly do not dispose them to any greater degree of psychological discomfort. Those most at risk of leaving the sport or experiencing negative feelings are those who feel that they do not have a great deal of choice with respect to participation and experience little choice during play/training. Actions may be undertaken to reduce this possibility and future research would be required to determine the success of any initiatives undertaken. Of concern may be the not-selected group who did not attend this tournament. Future research might address this by surveying these individuals after a national tournament and then following up on those who drop out requesting reasons why they left the sport.

From the perspective of this study the issue for New Zealand Hockey appears not to be one of solving problems or correcting errors, but rather how to make a successful sporting organisation better still.

Take away messages;

In this sample of hockey players, there is little if any evidence to support a hypothesised relationship between playing/training hours and player dropout.

Players in this sample most at risk from dropout/burnout are those who do not experience a high degree of autonomy in their hockey playing. Consequently those interested in reducing the incidence of drop out may wish to investigate ways through which autonomy may be increased.

This sample of hockey players appeared to experience no greater degree of burnout than players in other sports, indeed if anything they experience less overall.

Players most at risk from dropout or burnout may not have appeared in this sample due to selection bias.

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