To explore the incidence of injury, treatment and prevention in Ballymachugh GAA senior football men’s team.

Mini-Project

Ronan Baxter

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Declaration
I declare that this project: ‘to explore the incidence of injury, treatment and prevention in Ballymachugh GAA senior football men’s team’ is presented in partial fulfilment of the requirements for the Degree of Bachelor of Business (Hons) in Tourism & Sport Management. It is entirely the work of the author and has not been submitted to any other university or higher education institution, or for any other academic award in this institute. Where use has been made of the work of other people it has been fully acknowledged and fully referenced.

Signature____________________   Date: ________________
Ronan Baxter                                        12th April 2013
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Abstract

The aim of this study is to explore the incidence of injury, treatment and prevention guidelines in Ballymachugh GAA senior football men’s team. The objectives used to seek this aim were ‘to investigate the causes and types of injury among Ballymachugh GAA senior football men’s team’ and ‘to identify injury prevention, treatment and recovery strategies amongst players in Ballymachugh GAA senior football men’s team’.

A quantitative method was used, involving the distribution of thirty questionnaires to members of the Ballymachugh GAA senior team.

The results indicate a high level of injury incidence with 25 out of the 30 respondents having suffered an injury recently. Non contact was the most common type of injury with the hamstring the most frequent injured body part. It was also evident that a number of participants were unconcerned about their recovery as they continued to participate despite obtaining an injury. A number of participants also believed that the club could have treated them better while injured and gave a number of suggestions how they might do so.
List of Abbreviations

FIFA- The International Federation of Association Football

GAA- Gaelic Athletics Association

IAAF- International Amateur Athletic Federation

RCT- Randomised Control Trial

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Introduction

The author chose to carry out this dissertation due to a keen interest in sports injuries and in particular injuries in GAA. The author was also deeply curious about how players recover from injuries and how they feel they are treated by the club. This magnetism emerges from having a background in GAA and a strong awareness of the vast amount of injuries that can occur during a training or game.

The research will be broken into five different chapters:

- Literature review, this chapter looks at contemporary literature.
- Methodology: this chapter looks at the research that will be applied.
- Results: this chapter analyses what the author found out from carrying out his research.
- Discussion: this chapter highlights what the author found and putting that into context with the literature that was researched earlier.
- Conclusion: this chapter looks at what the author set out to do, how the research was carried out and did he achieve what he set out to do.

The aim of the research is ‘to explore the incidence of injury, treatment and prevention guidelines in Ballymachugh GAA senior football men’s team’. The objectives are as follows:

1. To investigate the causes and types of injury among Ballymachugh GAA senior football men’s team.
2. To identify injury prevention, treatment and recovery amongst players in Ballymachugh GAA senior football men’s team.
1 Literature Review

1.1 Introduction
The following sections included in the literature review will evaluate how a sports injury is defined within the GAA. It will then discuss the incidence of injury within the sport as well looking at: when injuries are most likely to occur, the month in which injuries are most frequent, the most common injury, whether the injury was the result of contact or non contact, playing positions of those who suffer from injury, and the age an individual is most likely to get injured.

The literature review will then investigate the principles of injury prevention and the steps players can follow in order to reduce their chance of obtaining an injury. It will then highlight the importance of a warm up and cool down highlighting the benefits of both, plus the types of exercises that may be included and the time that should be spent at each.

The final section will examine injury prevention policies which can contribute to preventing injury. This section will also identify the similar prevention policies that the GAA and other sports have in common.

1.2 Definition of Sports Injury
A considerable amount of literature has been published on sports injuries in general. These studies state numerous different ways that one may choose to define the term sports injury. According to Cromwell et al., (cited in Newell 2011) sports injury is sustained during training or competition and restricts an individual’s involvement or time lost from play. Whereas, Brooks & Fuller (2006) states that an injury is one that prevents a player from taking part in a training or match and the injury has been there for a period greater than 24 hours.

1.3 Injury Incidence
A study by Phillips (2000) suggests that incidence of injury pertains to the number of new injuries that occur in a population at risk over a period of time or the number of new injuries during a period divided by the total number of sportspeople at that period.

It is also pointed out by Van Mechelen & Hlobil (1992) that the incidence of injury can also be referred to as the injury rate. It determines the number of new injuries in a specific period.
divided by the total number of players exposed to injury (the population at risk). Therefore the risk per player per year is equal to the number of new injuries during one year among the total population at risk (Van Mechelen, 1992, Dvorak and Junge, 2000).

According to Newell (2011) there is an expectancy that a greater number of injuries occur in training as teams are likely to have six times more training sessions than games with more participants likely to be involved in training sessions than in games. The research from the study shows that out of the 471 injuries recorded 276 happened during a game with the remaining 195 in training. However, according to Murphy et al. (2012) in which they tracked the injuries of 851 GAA players over four years they found that of the 1014 injuries recorded, 397 occurred in training, 553 in games and 64 other.

Evidence was also provided by Newell (2011) to show which injury occurred the most in each month during the season:

Table 1: Most Common Injuries per Month

<table>
<thead>
<tr>
<th></th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hamstring</td>
<td>Hamstring</td>
<td>Hamstring</td>
<td>Hamstring</td>
<td>Hamstring</td>
<td>Hamstring</td>
<td>Hamstring</td>
</tr>
<tr>
<td>2</td>
<td>Knee</td>
<td>Knee</td>
<td>Ankle</td>
<td>Knee</td>
<td>Knee</td>
<td>Quad</td>
<td>Knee</td>
</tr>
<tr>
<td>3</td>
<td>Ankle</td>
<td>Groin</td>
<td>Knee</td>
<td>Groin</td>
<td>Ankle</td>
<td>Knee</td>
<td>Quad</td>
</tr>
<tr>
<td>4</td>
<td>Back</td>
<td>Ankle</td>
<td>Quad</td>
<td>Shoulder</td>
<td>Quad</td>
<td>Calf</td>
<td>Thigh</td>
</tr>
<tr>
<td>5</td>
<td>Shoulder</td>
<td>Quad</td>
<td>Back</td>
<td>Ankle</td>
<td>Finger</td>
<td>Ankle</td>
<td>Ankle</td>
</tr>
</tbody>
</table>

It is obvious from the table above that the most common injury within the GAA is the hamstring injury.

Similar findings were also obtained from Murphy et al., (2012):

Table 2: Most Common Injuries

<table>
<thead>
<tr>
<th></th>
<th>Hamstring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Knee</td>
</tr>
<tr>
<td>3</td>
<td>Ankle</td>
</tr>
</tbody>
</table>

January and February were acknowledged as the month’s players got injured the most with August the month in which injuries were less frequent. The most likely reason for this is that
the weather is bad during January and February as opposed to August and pitch conditions are likely to be more hazardous during these months. Players are also starting back training after a break and maybe in poor physical condition.

In another study Cromwell et al., (2000) (cited in Newell 2011) recorded 107 players in which 88 individuals sustained an injury. The most common injuries during the study were soft tissue injuries with muscle accounting for 3%, ligament, 32%, and tendon 16%. Injuries to the ankle (20%), knee (13%), hamstrings (13%), and shoulder (12%) were most prevalent. 62% of the injuries recorded were sustained during games and 38% during training. These results demonstrate a degree of consistency with Newell’s findings in 2011.

Cromwell’s study in 2011 also found that muscle was the most frequently injured tissue followed by ligament and tendon. Fractures also accounted for 4.4% of the recorded injuries. Non-contact injuries resulting from turning, sprinting and landing were also more prevalent than contact injuries. Similar results are also revealed by Newell (2011) with 60% of all injuries occurred non-contact and the remaining 40% contact.

The majority of non-contact injuries were hamstring or groin strains caused by running, turning, accelerating or decelerating. Potential causes of injury were also identified by Wilson et al., (2007) which included increased match intensity, incomplete conditioning/fitness and changes in playing conditions such as hardening of the ground. Contact injuries were found to be mainly sustained to the shoulder, knee and ankle as a result of a collision, tackle or being struck by an opposition player.

The following table provides information on the position injuries occur most frequently:

**Table 3: Most Frequent Injured Position**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Midfielders</td>
<td>Forwards</td>
</tr>
<tr>
<td>2.</td>
<td>Backs</td>
<td>Backs</td>
</tr>
<tr>
<td>3.</td>
<td>Forwards</td>
<td>Midfielders</td>
</tr>
<tr>
<td>4.</td>
<td>Goalkeepers</td>
<td>Goalkeepers</td>
</tr>
</tbody>
</table>

The above table indicates a slight difference in the position that players are most likely to get injured. The findings of Murphy et al., (2012) are likely to be more accurate as the study
recorded 1014 injuries whereas Newell (2011) recorded 471. However, Newell (2011) states that there is no significant association between playing position and injury.

A detailed examination of non-contact anterior cruciate ligament injuries by Griffin et al., (2000) also indicates that the incidence of injury is highest among individuals who participate in a number of sports and are aged between 15 and 25.

However, the following two studies also provided the following information on the age in which injuries in GAA are most likely to occur:

Table 4: Age Players are Most Likely to get Injured

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
<td>6.4</td>
<td>Age Group</td>
<td>13</td>
</tr>
<tr>
<td>18-20</td>
<td>20.2</td>
<td>18-20</td>
<td>36</td>
</tr>
<tr>
<td>21-24</td>
<td>41.7</td>
<td>21-23</td>
<td>27</td>
</tr>
<tr>
<td>25-29</td>
<td>11.5</td>
<td>24-26</td>
<td>16</td>
</tr>
<tr>
<td>30+</td>
<td>-</td>
<td>27-29</td>
<td>4</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>30-32</td>
<td>4</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>33+</td>
<td>-</td>
</tr>
</tbody>
</table>

1.4 Principles of Injury Prevention

In recent years, there has been an abundance of literature on the principles of injury prevention. The IAAF (2012) suggests seven principles to adhere to prevent injury, which are as follows:

- Physical conditioning- strength, balance, flexibility, endurance.
- Appropriate training methods- Exercises that are include strength, relaxation, and flexibility specifically geared to the demands made on the body of that sport, i.e. relaxation, strength, flexibility, progression.
- Rest and recovery- adequate sleep in order to avoid overexertion and fatigue.
- Appropriate equipment- properly fitted shoes, equipment must meet biomechanical requirements of the sport.
The following principles of injury prevention were also identified by Kents Sports Development Unit (2012):

- **Warm up/cool down** - a warm up should allow muscles and tendons to become more elastic, which enables muscles to be stretched further without the fear of injury. While a cool down helps to stabilize blood pressure and lower heart rate to help the body return to its resting state.

- **Flexibility** - poor flexibility can result in awkward or uncoordinated movements which may lead to injury.

- **Recovery** - following the advice of a medical practitioner will aid recovery and a return to performing in the recommended time frame, will help to minimise the chance of the original injury re-occurring. It is also advised to include adequate rest periods in between trainings and games to aid recovery.

- **Muscle balance** - among stabilisers and mobilisers i.e. muscle groups that work alongside each other, e.g. hamstrings and quadriceps.

- **Withdraw from participation if injured** - it is stated by Jackman (2011) that players play through the pain of injury in the fear of losing their place in the team for the future.

It is also stressed by Newell (2011) that allowing adequate time to recover from injury can help reduce the incidence of non-contact injuries. In addition, Quinn (2012) says that returning early from an injury increases the chances of a re-occurrence or developing a chronic problem that will lead to a longer recovery.

### 1.5 The Importance of a Warm Up & Cool Down

According to the GAA Warm Up Guidelines (2012) a warm up is vital in helping an athlete prepare the muscles and mind for both physical and mental exercise as well as reducing the risk of injury. It helps to gradually increase heart rate, circulate blood flow, and put the body through a range of movements that will be performed in a training or game.

It is also suggested by King (2012) that a warm up helps to reduce the risk of injury by increasing body temperature and muscle plasticity in addition to awakening the neuromuscular system.
In order to reduce muscle stiffness and to get the nervous system tuned in and increase blood flow, it is necessary to include sort specific movements and change in direction. It will then be necessary to introduce full pace and end range body movements relevant to the sport. It is also suggested by Bach (2006) that coaches should ensure the warm up athletes perform is proper and includes relevant stretches both before and after games. This will enhance flexibility and protect against unwanted aches and pains.

A report by Hennessey (2008) also investigates how dynamic and static stretching are both very important in the GAA and should be used appropriately. Static stretching before a training or game may blunt power, speed and strength, while dynamic stretching may improve power.

In another major study Junge et al., (cited in Newell 2011) investigated injury incidences amongst male soccer players. A specific prospective intervention and education programme for players and coaches was created which included appropriate warm-ups, the inclusion of exercises designed to improve knee and ankle joint stability, coordination, reaction time, and endurance. The study was then undertaken for one year in which the authors then reported that those who participated in the injury prevention programme sustained 21% fewer injuries.

A recommendation by Krivickas (1999) acknowledges that performing a cool down after a game, workout, etc. helps to get rid of metabolic waste products i.e. lactic acid from muscle, reduce the potential for muscle soreness as well as reducing the chances of dizziness or fainting that can be the result of pooling of venous blood in the extremities. Cooling down should consist of 5 to 10 minutes of jogging or walking prior to 5 to 10 minutes of static stretch exercises.

1.6 Injury Prevention Policies
It is highlighted by Askling et al., (2006) that several studies have evaluated the use of strength training in the prevention of hamstring strains used a randomised control trial (RCT) in soccer players which evaluated a pre-season hamstring strengthening programme which showed results of a 70% decrease in hamstring injuries. Appropriate conditioning programmes also reduces the risk of injury, decreases the severity of an injury, and also aids in preventing a recurrence. In order to maximise the chance for safe athletic performance,
adequate muscular strength and balance, power, endurance, neuromuscular coordination, joint flexibility, cardiovascular endurance and good body composition are all required.

A study by Griffin et al., (2000) identified poor physical conditioning as a risk factor in non contact injuries, with muscular strength, body movement, skill level neuromuscular control all relevant. Training should involve exercises that focus on strength, relaxation, and flexibility that are specific to the demands made on the body in the relevant sport.

A number of common ways in which athletes can prevent injuries in GAA, rugby and soccer have been identified by GAA (2007), Wassilak (2011) and FIFA (2013):

- Perform warm-up and protective exercises that can protect against injuries before vigorous and non vigorous activities
- Participate at a level relevant to one’s ability- don't overdo!
- Wear properly fitted and quality protective equipment i.e. mouthguard, braces, etc.
- Adhere to the rules of the game i.e. don’t be guilty of dangerous play, etc.
- Ensure you get adequate recovery in between training and games.
- Ensure you are fully recovered from an injury i.e. do not return to play unless a previous injury has fully healed.

However, numerous differences also exist, GAA (2007):

- Cool down following exercise e.g. walk or jog for five minutes to bring your pulse down gradually.
- Boost immune system to avoid winter colds/flu
- Combat dehydration by consuming fluids before, during and after exercise.
- Beware of the symptoms of burn out and the actions that should be taken if you feel you are suffering from burn out.
- Ensure you get adequate recovery in between training and game.

A recent study by Wassilak (2011) also highlights additional ways of how injuries in rugby can be avoided:

- Always use the correct technique when tackling.
- Have knowledge of proper positioning for game play to minimize risky moves.
- Ask your athletic trainer or other sports medicine professional about any training or injury queries you may wish to know.
1.7 Conclusion

There is significant evidence throughout this literature review to suggest that injury is largely prevalent throughout the GAA as well as other sports. There are a number of different injuries that are common in the GAA however; the hamstring injury remains most prominent. Despite this, there is still a large amount of money paid out on insurance claims for a vast amount of injuries such as cruciate ligament damage, groin injuries, etc.

The large sporting organisations around the world provide a number of guidelines, tips, etc. as to how athletes and coaches can help to prevent and minimise the risk of injury. These guidelines differ depending on the sport you are involved in. However, despite all these guidelines being available for clubs, injuries are inevitable in such a multi-directional contact sport.

The causes of injury don’t seem to differ largely from sport to sport or year to year. Non contact injuries continue to dominate GAA despite its high pace and high contact elements. However, there is no doubt that age, position, conditions, equipment worn and physical condition all contribute to whether an athlete sustains an injury and how severe that injury may be.
2 Methodology

2.1 Introduction

The methodology will differentiate between quantitative and qualitative research methods, outline the process of gathering data, give details of the sample participants, highlight the relevant ethical issues, acknowledge the limitations experienced and the method used to analyse the data.

2.2 Research Methods

In his writing, Bryman (2004) states that quantitative research is outlined as a distinctive research strategy. It can be defined as imposing numerical data collected and as exhibiting a view of the relationship between theory and research as deductive, a predilection for a natural science approach and as having an objectivist conception of social reality.

According to Hogan et al., (2009) qualitative research refers to a number of different approaches that investigates culture, society and behaviour by analysing and synthesising the words and actions of people. It differentiates itself from quantitative research as it does not transform verbal symbols into numerical ones; the information remains in words of the participant, in the documents or the researcher to explain the activities, images and environment observed. It aims to determine what led to decisions that were made and how these decisions were determined.

Traditionally, qualitative research was usually conducted by means of a direct observation of a sample, case studies, personal experiences, interviews, focus groups, etc. However, with technology and media constantly changing direct observation in qualitative research has dramatically improved. Additions to qualitative research includes emails, text messages, instant messages, Twitter, online chat, as well as various online forums and blogs that can be examined.

The method I have chosen to obtain the relevant data is quantitative research in the form of a questionnaire. It is stated by Bryman (2004) that questionnaires are cheap and quick to administer cost effective and is convenient for respondents. The questionnaire was designed based on the objectives and literature review. This method is particularly effective for me as
I’m a student and cannot afford an expensive method and a large amount of information was being sought so therefore a convenient method was needed.

The method I have chosen is aligned to my aim and objectives. Questions 1-13 in the questionnaire are designed to help me achieve my first objective: to investigate the cause and type of injury among the Ballymachugh GAA football senior men’s team. Questions 14-22 will attempt to gather data to fulfill objective 2: to identify injury prevention, treatment and recovery amongst players in Ballymachugh GAA senior football men’s team.

The objectives require a large amount of information and that is why I chose a questionnaire.

2.3 Sample

The respondents chosen by the researcher are the Ballymachugh GAA football senior men’s team in county Cavan. This team was chosen as it was the researcher’s home club and was convenient. Thirty questionnaires were distributed to the team. Questionnaires were specifically given first to players who were over the age of 21, followed by members of the U21 team and finally the U18 team. Non probabilty sampling was used in order to obtain the information needed to satisfy the aim and objectives.

2.4 Procedure

The first step that was taken by the researcher was to get the permission of the chairman and manager of Ballymachugh GAA senior team. After permission was granted and before distributing the questionnaire in the dressing room after the first home game of the season, the author read a detailed explanatory sheet to make the participants aware of the aim and objectives of the research.

A pilot study was also conducted with 3 respondents of the Athlone I.T. GAA Intermediate team in the dressing room after a game in order to ensure the question fluency and proper structure. According to Bryman (2004) this also helps in ensuring that the research instrument functions well and that the questions can be easily understood by participants. The participants were all asked to sign a consent form which would allow the author to use the information gathered in the questionnaire for the purpose of the study.
2.5 Bias
The researcher was aware of the need to formulate neutral questions when designing the questionnaire. As I am a member of the team myself, I needed to be extra vigilant regarding bias. The piloting of the questionnaire represented an additional anti-bias safeguard.

2.6 Ethical Considerations
It is stated by Cresswell (2003) that researchers need to take into account respect for the participants and the sites for research when anticipating the gathering of data. It is important that participants are not put at risk and that vulnerable populations are respected. A consent form should also be developed for participants to sign before taking part in the research.

Participants were assured of confidentially and anonymity. They were made aware of the purpose of the study to ensure they understood the nature of the research and how it may impact on them. Participants were also informed they could withdraw at any point if they wished. In addition they were assured that all data would be destroyed at a stipulated point in the future. Consent was given by all respondents. Results will also be given to participants if requested.

2.7 Limitations
The sample size was a major limitation of this study. Although there are 35 members in the senior squad only 30 were present on the day the questionnaire was distributed. There was also only one club involved in the research which meant results could not be compared. Generalisation is also represented of this group. Nevertheless the information gathered was valid.

2.8 Method Analysis
Descriptive statistics will be presented using Microsoft Excel to accomplish the relevant aims and objectives. Results will be produced in a graph format and can be viewed in the research section of the project. Not all questions will be illustrated graphically. Those with many variables lend themselves to graphic illustration.
3. Results

3.1 Introduction
The following chapter will present the results obtained from the questionnaire handed out to senior players on the Ballymachugh GAA men’s team. The results of respondents were analysed and the following information was found.

3.2 Background information

3.21 Age group
84% of players reported that they sustained an injury recently, while the remaining 16% said they hadn’t. Of the respondents who indicated they had suffered an injury 44% were forwards, 32% defenders, 16% midfielders and 8% goalkeepers. 4% of these participants were aged under 18 when the injury occurred, 48% between the age of 18-21, 20% aged between 22-25, 12% between 26-29 and the remaining 12% between the age of 30-33.

Three of the squad have represented the Cavan minor team and their school in the last two years, another 2 individuals are in the Cavan U21 squad and the same 2 also play hurling at club level. The remainder of the squad has not played for any other team in the last two years.

3.3 Time & Location of Injury

3.31 Time of Occurrence
As stated in the table below majority of injuries occurred at:

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Training</th>
<th>Game</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15 minutes</td>
<td>4%</td>
<td>8%</td>
</tr>
<tr>
<td>15-30 minutes</td>
<td>0%</td>
<td>12%</td>
</tr>
<tr>
<td>30-45 minutes</td>
<td>20%</td>
<td>24%</td>
</tr>
<tr>
<td>45-60 minutes</td>
<td>0%</td>
<td>20%</td>
</tr>
<tr>
<td>60-75 minutes</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>75-90 minutes</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
What month of the year did the injury occur?

As illustrated in figure 3.1 the majority of injuries occurred in February following by January, May, March, July, October, June, September and December.

Figure 1: Occurrences of Injuries

Where did the injury occur?

68% of participants said the injury occurred on the club’s main pitch and 28% on the training pitch. The other 4% of injuries occurred on the astroturf, while 0% of injuries were suffered on gravel and the gym. 32% of participants described the pitch conditions as dry when they suffered the injury. Another 32% also described the pitch as wet, 20% said it was muddy and 16% said it was hard. 0% described the pitch was frozen.
Cause of Injury

92% said they warmed up and stretched prior to getting injured, while 8% said they did not. Of those who did take part in a warm up 83% said they did a dynamic warm up while 17% said the warm up was static. Furthermore, 48% said their warm up lasted 10 minutes, 30% said it lasted 15 minutes and 22% said it lasted for 20 minutes. The majority of participants who suffered an injury were wearing moulded boots 52% when they obtained the injury, which was followed by 24% wearing studs and the remaining 24% wearing blades. 0% stated they wore runners when suffered their injury.

Figure 3: Footwear Worn
Did you warm up and stretch prior to the training/game you were injured in?

92% of participants had warmed up while the other 8% hadn’t prior to obtaining the injury. Of those who did a warm up 83% done a dynamic warm up, while 17% did a static warm up.

Was your injury a contact or non contact injury?

The results indicate that of the 25 participants who suffered an injury, 16% said the injury was a result of contact, of which 50% stated was the result of a tackle, 25% collision and the remaining 25% as the result of being struck by an opponent.

Figure 4: Cause of Contact Injury

The remaining 84% acknowledged non contact as the reason for occurrence. The majority of these injuries occurred when running 38% followed by turning 33%, fall 10%, catching 10%, 5% slip/trip and 5% twisting. 0% of participants who suffered from a non contact injury identified blocking, kicking, diving, jumping or landing as the nature of the injury.
Regional Distribution of Injury

What body part did you injure?

The most frequent injury among the Ballymachugh senior team was hamstring 28%, 20% of injuries occurred to the knee, 16% were suffered to the groove, another 16% the shoulder, 8% ankle, 4% back, 4% leg and 4% face.
How would you best describe the injury suffered?

Of the 25 participants who suffered an injury, the majority 52% described it as a strain, sprain was used to describe the injury by 24%, dislocation then followed with 12%, 4% also stated their injury was a fracture and the remainder 8% fluid.

Figure 7: Description of Injury

Prevention of Injury

Were you wearing any protective equipment when you got injured?

100% of respondents were not wearing protecting equipment when they obtained the injury stated.
Has the club or an individual made you aware of any way you may be able to prevent or minimise injury?

For this question participants could choose multiple answers. The following table highlights the responses to Question 15:

Table 6: Ways to Prevent or Minimise Injury

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear protective equipment</td>
<td>20%</td>
</tr>
<tr>
<td>The importance of a warm up</td>
<td>43%</td>
</tr>
<tr>
<td>The importance of a cool down</td>
<td>0%</td>
</tr>
<tr>
<td>Good physical conditioning</td>
<td>15%</td>
</tr>
<tr>
<td>Wear appropriate footwear</td>
<td>0%</td>
</tr>
<tr>
<td>Not participating until injury has fully healed</td>
<td>17%</td>
</tr>
<tr>
<td>Other please state:</td>
<td>0%</td>
</tr>
<tr>
<td>None</td>
<td>5%</td>
</tr>
</tbody>
</table>

What have you done to prevent the injury re-occurring?

The following graph illustrates what participants have done to prevent injury re-occurring.

Figure 8: What Have you done to Prevent the Injury Re-occurring?
Recovery from injury

If you suffered an injury when did you stop participating?

68% answered that they stopped participating immediately when they got injured, 24% said they played on until full time and the other 8% said they stopped at half time.

How long did the injury stop you from participating?

The table below illustrates the length of time the respondents were injured for:

<table>
<thead>
<tr>
<th>Length of Time Injured</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4 weeks</td>
<td>64%</td>
</tr>
<tr>
<td>6-8 weeks</td>
<td>8%</td>
</tr>
<tr>
<td>16-20 weeks</td>
<td>8%</td>
</tr>
<tr>
<td>24-48 weeks</td>
<td>16%</td>
</tr>
<tr>
<td>48 weeks +</td>
<td>4%</td>
</tr>
</tbody>
</table>

Did you return to participation before you felt you were fully recovered from the injury? If yes why?

In this question 68% replied that they did not participate until they felt the injury was fully healed, with the other 32% stating they had returned before they felt the injury was fully healed. Of this 32%, 80% said they felt pressurised by the club while 20% stated they feared they would lose their place in the team for the future.

Injury Treatment

How do you feel the club treated you when you were off injured?

The respondents to this question indicated that 48% felt they were treated excellently, 12% stated very good, 28% said good, 8% felt they were poorly treated with the remaining 4% describing the treatment as very poorly.
Do you feel the club could have treated you better when you were off injured?

Out of the participants, 56% were of the belief the club could not have treated them any better while the other 44% believed they could have been treated better.

How do you feel the club could have treated you better?

For this question, participants could again choose multiple answers. Of the 44% who stated the club could have treated them better, 64% said the club should have organised physio treatment for them, 18% stated they should not have been rushed back to participation, 9% said they should have been made aware of how to treat the injury and the remaining 9% said the club should have immediate medical care on hand.
4. Discussion

4.1 Introduction

In this chapter the results obtained from the use of the questionnaire will be discussed under the desired objectives. The aims and objectives are significant as they provide this research project with shape and purpose. The results are based on previous studies and findings set out in the literature review.

4.2 Objective 1: To investigate the cause and type of injury among Ballymachugh GAA senior football men’s team

The results show that players aged 18 and 21 have picked up the majority of injuries in Ballymachugh GAA senior team. It is plausible to assume that the reason behind this is that a vast amount of players who are 18 and 21 are involved in more sports than the rest of the team. The team has three 18 year olds who have taken part in a large amount of trainings and games for the Cavan minor team as well as their schools GAA team.

The club also has two players who play for the Cavan under 21 team and who also play hurling for the club’s senior team as well. This is in contrast to Newell (2011) who stated that the majority of injuries are most likely to occur between the ages of 21-23. It was also stated by Murphy et al., (2012) that players between the ages of 25-29 stand the greatest danger of becoming injured.
Participants were then asked what position they were playing in when they got injured, 44% said forward, 32% said defender, 16% state midfield and the remaining 8% were goalkeepers. These results support Newell’s findings in 2011. It may be assumed that incidence of injury is higher among forwards as the team has more players who play forward than in any other position.

Participants were asked whether they had warmed up and stretched prior to sustaining the injury. The results showed that 92% had warmed up while the other 8% hadn’t. Perhaps the number of injuries would be higher if players had not had warmed up and stretch before a game or training. It was suggested by King (2012) that a warm up helps to reduce the risk of injury by increasing body temperature and muscle plasticity in addition to awakening the neuromuscular system. Of those who did warm up and stretch 83% performed a dynamic warm up with the remaining 17% doing a static warm up. This figure is important as it is stated by Hennessey (2008) that a static stretch before training or game can blunt power, speed and strength while dynamic stretching may improve power.

When participants were asked if their injury was obtained as a result of contact or non contact, 16% stated contact while the remaining 84% said non-contact. These results are similar to those of Newell (2011) who found that 60% of all injuries were non-contact and the remaining 40% contact. The author believes that the pitch conditions may have been a key reason for a large number of non-contact injuries occurring. For the teams home games the warm up is performed on the training pitch before the team go onto the main pitch just before the start of the game. The main pitch is usually very wet as opposed to the training pitch which is a lot dryer. This increases the risk of injury as a change in the playing conditions (hardening of ground) is a potential cause of injury (Wilson et al., 2007).

Participants whose injury was a result of contact were then asked to describe the nature of their injury. 50% said it was a collision, 25% stated they were tackled and another 25% said they were struck by an opponent. This is consistent with the finding of Newell (2011) which shows the majority of contact injuries recorded occurred as a result of collision, tackle or being struck by an opponent. All of the 16% who said their injury was a result of contact were aged 21 or under.

This may indicate that their bodies were not fully developed for the physicality of senior football when they obtained the injury. After analysing the results it was also the case that three of these participants were also playing for other teams such as their school and county
teams. As a result they were at a higher risk of obtaining an injury due to the number of times they were training or playing a match each week.

The majority of participants stated their non-contact injury was picked up while running 38%, 33% said turning, 9% fall, 9% slip/trip, 10% while catching and 1% when twisting. These results support those of Cromwell (2000) cited in Newell (2011) whose findings show that non-contact injuries resulting from turning, sprinting and landing are more prevalent than contact injuries.

The next question then found that the most occurring injury amongst respondents was the hamstring injury 28%, followed by knee and then shoulder and groin which accounted for 16% each. These results are similar again to those of Newell (2011) who identified hamstring as the most occurring injury, followed by knee. Murphy et al., (2012) also indicates hamstring as the most frequent, then knee and third, ankle.

It may be plausible to assume that a static stretch could be more beneficial than a dynamic stretch as 92% of those injured did a dynamic stretch prior to becoming injured. However, 44% of injuries occurred in the second half of games which may indicate that participants need to stretch before resuming play in the second half. This will help in avoiding hamstring and groin strains, etc. as if players sit down for a period at half time then their muscle strength, especially of the hamstring is likely to be lower in the second half if they do not stretch (Excelsiorgroup, 2011).

The club do not organise any strength and conditioning programmes for the team and therefore a number of participants do their own workout in the club’s gym. This may lead to muscular imbalance between the front and back of the leg which is said to be a common reason for the prevalence of hamstring injuries Kent Sports Development Unit (2012). Furthermore, Askling et al., (2006) highlights that use of hamstring strengthening programmes among soccer players showed results of a 70% decrease in hamstring injuries.

Participants were then asked about the nature of their injury in which the responses were as follows 52% strain, 24% sprain, 12% dislocation, 4% fracture and 8% fluid. These results were again similar to Newell (2011) who found that the majority of injuries were hamstring
or groin strains. These figures demonstrate that these players may not carry out the proper stretches prior to participating as the number of strains and sprains are particularly high.

Dislocation is also very high which may suggest that the team need to start doing some training sessions in the gym in order to improve physical condition. These results are important as the IAAF (2012) state that good physical conditioning and appropriate strength and flexibility exercises can prevent injury.

Furthermore, a hard fall or collision with another individual is a common cause of shoulder dislocation (Cunha, 2007). This highlights that good physical condition is very important among GAA players. It is also suggested by Mayo Clinic (2011) that those taking part in a high level of physical activity are more likely to suffer from a dislocation. This is prevalent here as all those who suffered a dislocated shoulder were playing for at least one other team.

4.3 Objective 2: To identify injury prevention, treatment and recovery amongst players in Ballymachugh GAA senior football men’s team.

When asked if they were wearing any protective equipment when they suffered the injury, 100% of respondents indicated they weren’t. If participants had been wearing protective equipment the incidence of injury may be slightly lower as athletes are at a lower risk of injury if they use protective equipment or taping (Fuller, 2007). Participants were then asked whether they were aware of any protective measures that can be used to prevent injury occurring again 57% of respondents said yes while the other 43% said no. Of the 57% who said yes strapping was the most recognised with 47%, then gumshield 41% and finally shoulder support 12%.

The reason behind the balance between those who are aware of protective measures and who aren’t may be due to 5 of the current team representing a county team. County players are more likely to be given information regarding injuries and prevention than club players. There are also 6 minors who are in the senior squad and these players have been made aware that a gumshield is compulsory (GAA, 2013).

In question 16, where participants could select multiple answers, they were asked whether the club or an individual had made them aware of any ways to prevent or minimise injury. 20% stated to wear protective equipment, 43% stressed importance of warm up, 15% stated good
physical conditioning, 17% said not participating until injury is fully healed and the remaining 5% said they were made aware of none. This is significant as not wearing protective equipment, inadequate warm up and poor strength all increase the risk of injury (Sports Medicine Australia, 2011).

Participants have been made aware of these methods of preventing injury from their time off injured. The club have their own physiotherapist and I am told that each individual who suffers an injury is informed by the physiotherapist how they can prevent a re-occurrence of the injury. After analysing the results, the 5% who were not aware of any measures to prevent or minimise injury, hadn’t suffered one recently.

Despite 68% withdrawing from participation when they got injured, 24% played on until full time while the other 8% played until half time. This indicates a lack of responsibility by the management and the club that they did not withdraw an injured player. However, it also may indicate that the 24% who played on until full time and the 8% who played until half time did not pick up a serious injury as they did not feel they were in enough pain to stop participating immediately. Participants may also have feared that they would lose their place in the team for the next game if they withdrew from play (Jackman 2011).

Participants were also asked what they have done to prevent the injury re-occurring. The responses given indicated that 32% did extra warm up/stretches, 28% obtained physio treatment, 20% improved physical condition, 8% researched details of injury, 4% wore protective equipment, another 4% attended doctors and the other 4% did nothing. This indicates that the club have made players aware of the importance of taking action to prevent the re-occurrence of injury and that the players realise they need to take action in order to do so as 96% have taken some action. This is important as according to Sherry et al., (2011) states that using an appropriate dynamic warm-up program, integrating neuromuscular control and trunk stabilization exercises into sports performance programs as well as the use of functional eccentric strengthening can prevent an injury reoccurring.

The findings from the questionnaire also stated that 68% of participants did not participate until they felt the injury was fully healed, with the other 32% stating they had returned before they felt the injury was fully healed. Of this 32%, 80% said they felt pressurised by the club, while 20% stated they feared they would lose their place in the team for the future. This is again similar to the findings of Jackman (2011) which states players play through the pain of injury in the fear of losing their place in the team for the future.
However, participants also need to be more responsible themselves by declaring themselves unavailable if injured. According to Campion (2008) individuals place their physical, psychological, social and moral health at risk by participating while injured. Players need to ensure they have adequate rest and recovery periods as this is very important in reducing the risk of injury.

According to Newell (2011) allowing adequate time to recover can help reduce the incidence of non-contact injuries. In addition, Quinn (2012) also says that returning early from an injury increases the chances of a re-occurrence or developing a chronic problem that will lead to a longer recovery.

When asked in question 21 how participants felt they were treated by the club, 48% said excellent, 28% said good, 12% very good, 8% felt they were treated poorly and the remaining 4% said very poorly. This indicates that there is a mixed view within the club how they are treated but in general participants feel they have been treated well. However, the fact that only 48% said they were treated excellently may indicate that the club shows bias in terms of treating key players better than others.

Having analysed the results further, all those who stated they were treated excellently were all prominent members of the senior team who started the majority of games when fit. Three of these players also represented the county team at various age groups.

Participants were then asked if they believed the club could have treated them better with 56% saying no and the other 44% stating yes. Those who answered yes were then asked how they felt they could have been treated better with 64% saying organise physio treatment, 18% saying not to rush players back to participation, 9% saying make them aware of how to treat the injury and the other 9% saying have immediate medical care on hand. These results show that players are expected take care of their own injury and treat the injury themselves. It is also indicated by the results that players usually have the responsibility of organising their own treatment.

4.4 Evaluation of Method

The questionnaire that was given out to participants proved very efficient and obtained the relevant information that was needed for the research project. The questionnaire was time efficient as it did not take up much of the participant’s time to complete and was seen as the most effective way to gather the necessary information in the shortest time possible. This
quantitative research method also contributed in ensuring that all objectives were achieved. Overall, the questionnaire was successful.

4.5 Limitations of Method

The first problem encountered was the size sample participating in the questionnaire. Despite the team having 35 players in the squad only 30 players including 4 minors were in attendance on the day the questionnaire was distributed. The author believes that a larger sample size would have provided more efficient information. The author also knew a large number of the respondents personally and this may have caused some bias in answering some of the questions. The participants had also no information available to help them recall the exact details of the injury so there is likely to be some recall bias prominent.
5. Conclusion

The aim and objectives set by the author at the beginning of this project were achieved. This aim and objectives were achieved from thoroughly researching literature regarding sports injuries. However, it was evident that there is scant research conducted on injuries among GAA players.

A vast amount of significant information was obtained from the quantitative approach (questionnaire) which was completed and returned by thirty members of the Ballymachugh GAA senior team. From analysing the questionnaire data it was clear that there was a high incidence of injury prominent among the Ballymachugh GAA senior team with 25 out of the 30 respondents having suffered an injury recently.

Although the participants were made aware of ways to minimise or prevent injury it was evident that a number of participants felt that the club could have better ways of treating and dealing with injuries. It is also demonstrated in this project that non-contact injuries are hugely prevalent within the GAA and that more research is needed to get to the root of this problem.

The GAA club also needs to consider making their participants more aware of protective equipment as this can not only be beneficial to the individual but also to the club as well. Another important point arising from this project is the fact that a number of players continue to participate despite suffering an injury. This suggests that more consultation is needed between the club, players and management as this may have drastic effects for the health of participants in the future.

Overall the author feels that the club and the majority of participants need to be more aware of ways to prevent, treat and recover from injury. Channels of communication can be improved between club officials and players regarding the injuries as the author felt that participants were grateful for the opportunity to voice their opinion via the questionnaire.

Having conducted this research the author believes further research and a detailed analysis is needed in the area of injuries within GAA.
5.1 Recommendations

The author believes that the club needs to be more proactive in the treatment of injured players. Access to a physiotherapist would be of great benefit at both matches and regular training sessions in terms of minimizing the risk of injury as well as the effects. The players themselves also need to not participate until the injury is fully healed. The club and management may also look at having some training sessions in the gym as a number of the injuries such as dislocations may have been avoided if players were stronger.

A structured pre planned schedule with regard to treatment of injuries should be discussed and agreed upon at the season outlet. The players may consider wearing the appropriate footwear for the various pitch conditions to help reduce the number of non-contact injuries. The club may also liaise with physiotherapists and GAA best practice to see how they can contribute to reducing the incidence of injury as well as gaining knowledge of the best practices to help players treat certain injuries and recover. Finally, an ongoing strength and conditioning programme will be vital to minimize injuries and help prevent said occurrence.
Bibliography


Available at: HYPERLINK "http://www.stopsportsinjuries.org/files/pdf/AOSSM_Rugby.pdf"
[Accessed 7th January 2013].

Appendix

Cover Letter
Hi,

I am currently a fourth year student in Athlone I.T. where I am studying a Bachelor of Business (honours) in Tourism Management in Sport. As part of my degree I am required to conduct a mini-project, in which I have chosen to explore the incidence of injury, treatment and prevention guidelines in Ballymachugh GAA senior football men’s team’. I was wondering if I could hand out a questionnaire to your senior team to answer and give back to me. I can assure all participants of confidentiality and anonymity. All date collected will also be destroyed at a stipulated point in the future. Participants may also withdraw from the procedure if they wish. I hereby request informed consent.

Yours Sincerely,

Ronan Baxter.

Signed: ________________                                               Date: ________________
Consent Form

I agree to take part in the research on the incidence of injury, treatment and prevention guidelines in Ballymachugh GAA senior football men’s team. The research being conducted as part of the Bachelor of honours degree in Tourism Management in Sport.

Signed: ______________  Date:_____________________

Questionnaire

I would be grateful if all senior players could fill out this questionnaire and return it to Ronan Baxter as part of my research project: to explore the incidence of injury, treatment and prevention guidelines in Ballymachugh GAA senior football men’s team. I ensure all participants of confidentiality and anonymity. Participants may withdraw at any point if they wish. All data obtained will be destroyed at a stipulated point in the future. Anyone who is willing to take part are requested to fill out the consent form prior to filling out the questionnaire. Results will also be given to participants if requested.

Name:

Most frequent position:

Q1. Have you suffered any injury recently (last 2 seasons) playing for Ballymachugh GAA either in training or in a game? If so what? Please state the most recent

_________________________________

Q2. What age were you when this injury occurred?

Please state: __________

Time & Location of Injury

Q3. Time of occurrence

<table>
<thead>
<tr>
<th>Training</th>
<th>Game</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15 minutes □</td>
<td>0-15 minutes □</td>
</tr>
<tr>
<td>15-30 minutes □</td>
<td>15-30 minutes □</td>
</tr>
<tr>
<td>30-45 minutes □</td>
<td>30-45 minutes □</td>
</tr>
<tr>
<td>60-75 minutes □</td>
<td>45-60 minutes □</td>
</tr>
<tr>
<td>75-90 minutes □</td>
<td>Injury time □</td>
</tr>
<tr>
<td>Other: □</td>
<td>Other: □</td>
</tr>
</tbody>
</table>

Q4. What month of the year did the injury occur?
Please state: ______________________________

Q5. Where did the injury occur?

Training pitch □

Main pitch □

Gravel □

Gym □

Astroturf □

Other: please specify: _____________

Q6. If the injury occurred on the training or main pitch how would you best describe the pitch conditions when you suffered the injury?

Dry □

Wet □

Hard □

Muddy □

Frozen □

Other: please specify_________

Q7. What type of footwear were you wearing when you suffered the injury?

A) Studs □

B) Moulded □

C) Blades □

D) Runners □

E) Other: please state: _______________
**Cause of Injury**

**Q8. Did you warm up and stretch prior to the training/game you were injured in?**

A) Yes □  
B) No □

*If yes, what type of warm up did you perform?*

A) Dynamic □  
B) Static □

**Q9. Was your injury a contact or non contact injury?**

A) Contact □  
B) Non-contact □

*If non-contact skip to question 10*

**Q10. Which of the following describes the nature of the contact injury most accurately?**

A) Tackled □  
B) Collision □  
C) Struck by an opponent □  
D) Foul play □  
E) Other: please state:________________

**Q11. Which of the following describes the nature of the non-contact injury suffered most accurately?**

A) Fall □  
B) Slip/trip □  
C) Running □  
D) Blocking □  
E) Catching □  
F) Kicking □  
G) Turning □  
H) Diving □
I) Jumping □
J) Landing □
K) Twisting □
L) Other: please state:________________

Regional Distribution of Injury

Q12. What body part did you injure?

Please state: ________________________

Q13. How would you best describe the injury you suffered?

A) Abrasion □
B) Dislocation □
C) Strain e.g. muscle tear □
D) Sprain e.g. ligament tear □
E) Open wound □
F) Concussion □
G) Fracture □
H) Blisters □
I) Loss of consciousness □
J) Other: please state:_______________

Prevention of Injury

Q14. Were you wearing any protective equipment when you got injured?

A) Yes □
B) No □

If yes, please specify: ____________

Q15. Has the club or an individual made you aware of any way you may be able to prevent or minimise injury? Please tick all that apply

A) Wear protective equipment i.e. mouth guard □
B) The importance of a warm up □
C) The importance of a cool down □
D) Good physical conditioning □
E) Wear appropriate footwear □
F) Not participating until injury has fully healed □
G) None □
H) Other: please state: __________

Q16. What have you done to prevent the injury re-occurring? Please tick all that apply

A) Wore protective equipment □
B) Do extra warm up/stretches □
C) Improve physical condition □
D) Research details of the injury □
E) Physio □
F) Nothing □
G) Other: please state: __________

**Recovery from Injury**

Q17. If you suffered an injury when did you stop participating?

A) Immediately □
B) Half time □
C) Full time □
D) Other, please state: ________________

Q18. How long did the injury stop you from participating?

*Please state:* ________________

Q19. Did you return to training/game before you felt you were fully recovered from the injury?

A) Yes □
B) No □

*If yes why?* ________________
**Injury Treatment**

Q20. How do you feel the club treated you when you were off injured?

A) Excellent □
B) Very good □
C) Good □
D) Poorly □
E) Very poorly □

Q21. Do you feel the club could have treated you better while you were injured?

a) Yes □
b) No □

*If no you have completed the questionnaire*

Q22. How do you feel the club could have treated you better? Please tick all that apply

A) Organised physio treatment □
B) Make you aware of how you could treat the injury □
C) Don’t rush you back to participation □
D) Other: please state__________

*Thank you for participating in this questionnaire.*