

1 **Fear-Avoidance Following Musculoskeletal Injury in Male Adolescent**
2 **Gaelic Footballers**

Proof

Abstract

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Context: Gaelic football participation provides a wealth of benefits but a risk of musculoskeletal injury also exists. Injury is associated with physical consequences, including pain, discomfort, loss of function, time absent from school/sport, considerable medical expenses along with placing undue pressure on emergency services and hospital staff. Concurrent psychological consequences, such as fear-avoidance, can also occur causing psychological distress. There is a current dearth of available research examining the psychology of injury in male adolescent Gaelic footballers.

Objective: To examine fear-avoidance post-injury in male adolescent Gaelic footballers, the effect of pain, time-loss, injury severity and previous injury on the extent of fear-avoidance and the usefulness of a modified Athlete Fear Avoidance Questionnaire (mAFAQ) as a screening tool for predicting injury.

Design: Prospective cohort study.

Setting: Recreational clubs.

Participants: 97 male adolescent club Gaelic footballers (13.4±1.1 years).

Interventions: Musculoskeletal injuries sustained during Gaelic football participation, defined as any injury sustained during training or competition causing restricted performance or time lost from play,¹ were assessed and recorded weekly by a Certified Athletic and Rehabilitation Therapist. Injuries requiring time loss from participation were classed as time-loss injuries. Injury characteristics that included type, nature, location, severity and pain were recorded.

Main Outcome Measures: Injured players completed the Athlete Fear Avoidance Questionnaire (AFAQ), a measure of injury-related fear-avoidance following injury assessment (AFAQ1). With time-loss injuries, the AFAQ was completed again (AFAQ2) prior to return to play. mAFAQ was completed at baseline.

27 **Results:** Twenty-two injuries were recorded during the season with fear-avoidance evident
28 post-injury that significantly decreased before returning to play. Fear-avoidance post-injury
29 was higher in those with greater pain but time-loss, injury severity and previous injury did not
30 significantly affect the extent of fear-avoidance. Baseline fear-avoidance did not predict injury.

31 **Conclusions:** Psychological rehabilitation is recommended for managing post-injury
32 psychological distress in male adolescent Gaelic footballers.

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34 **Keywords**

35 Psychological distress, Gaelic games, teenage, boys, injuries

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Introduction

37 The Gaelic Athletic Association plays an important role in the physical activity practices of
38 Irish society with Gaelic football recognized as the most popular club sport for adolescent
39 males.² Gaelic football is a high-intensity, high-velocity contact game that requires large
40 volumes of strength, endurance, flexibility and speed³ where the primary aim of the game is to
41 outscore the opposing team.⁴ Matches last up to 60 minutes in duration in adolescents¹ and
42 players may be involved with club, school and county teams simultaneously. Gaelic football
43 participation is associated with an inherent risk of musculoskeletal injury.⁵ Musculoskeletal
44 injuries are defined as injuries resulting from direct trauma or overuse sustained during sports
45 participation.⁶ Injuries are common in male adolescent Gaelic footballers. Recent research
46 reported one-third of all players sustain an injury over one year and almost half of injured
47 participants suffer a subsequent injury.¹

48 Musculoskeletal injury can elicit negative emotional responses that stimulate feelings of
49 depression, anxiety, low vigor, fatigue, grief and burnout, with depression and anger also
50 negatively affecting wound healing.⁷ Cognitive appraisal of the injury situation and the
51 psychological response to injury is subjective to each athlete,⁸⁻¹⁰ where one athlete may
52 perceive their injury situation to be more stressful than a teammate's perception of a similar
53 situation. Although negative emotional post-injury responses, like frustration, mild depression
54 and irritability may be normal,¹¹ it is estimated that 10% to 20% of athletes report extreme
55 post-injury responses, including clinical levels of depression, low self-esteem and suicidal
56 ideation, indicating the need for clinical referral.⁷ Concern is warranted when the psychological
57 responses are excessive, do not resolve, exacerbate over time, or the athlete is unable to cope.¹²
58 Injured athletes report depression symptoms that are similar to levels of depression reported by
59 patients receiving outpatient medical treatment for mental health issues,¹³ which highlights the
60 extent of psychological distress post-injury. Research to date has shown that elite male Gaelic

61 footballers, who have sustained one or more severe musculoskeletal injuries during their career,
62 increase their chances of experiencing symptoms of psychological distress compared to those
63 who had not suffered severe musculoskeletal injuries during their career.¹⁶ In addition, history
64 of injury results in an increased risk of re-injury.¹⁴⁻¹⁵

65 The importance of psychological rehabilitation in conjunction with physical rehabilitation is
66 becoming increasingly recognised as a necessity for holistic recovery from injury. According
67 to the Integrated Model of Response to Sport Injury, the psychological reaction to injury is
68 dependent upon situational and personal factors along with differing behavioral and emotional
69 responses to an injury situation.¹⁷ Fear-avoidance, defined as the avoidance of movements or
70 activities based on fear, is a psychological reaction to injury that can influence the experience
71 of pain¹⁸ and subsequently lead to dysfunction,¹⁹ which may hinder recovery and rehabilitation
72 following injury. Musculoskeletal injury can elicit pain-related fear-avoidance behavioural
73 responses, which stimulate either a confrontation or avoidance approach in the injured player.¹⁸

74 With confrontation, athletes maintain engagement in physical activity through rehabilitation
75 and involvement in the team environment where functional recovery is promoted.²⁰ In contrast,
76 dysfunctional interpretations of pain escalate pain-related fear, forcing the athlete to adopt
77 safety-seeking behaviours of avoidance.²⁰ These avoidance behaviours can reinforce mood
78 disturbances, such as irritability, frustration and depression.¹⁸

79 Fear-avoidance has predominantly been measured to date in patients from the general
80 population with chronic low back pain or those who have undergone anterior cruciate ligament
81 reconstruction utilising the Tampa Scale for Kinesiophobia, Pain Catastrophizing Scale and the
82 Fear-Avoidance Beliefs Questionnaire.²¹⁻²³ However, these questionnaires have not been
83 developed primarily for use with athletes or have not been validated in physically active
84 cohorts. The Athlete Fear-Avoidance Questionnaire (AFAQ) is a measure of sports injury-
85 related fear-avoidance developed specifically for use with athletes.¹⁹ Athletes are viewed as

86 having different mental traits to the general population due to their greater reliance on sport
87 and physical activity and thus, require a unique questionnaire.¹⁹ AFAQ is a valid tool for
88 measuring fear-avoidance in athletes and can be easily administered efficiently in a short period
89 of time.¹⁹

90 Returning a player to sport without the necessary psychological capacity can lead to fear,
91 anxiety, re-injury, injury to other parts of the body, depression or an overall decline in
92 performance.²⁴ The implementation of psychological interventions post-injury can moderate
93 any dysfunctional beliefs that may hinder the rehabilitation phase⁸ and can facilitate recovery.
94 However, in order for sports medicine clinicians to facilitate rehabilitation using psychological
95 interventions, an adequate understanding of the psychological processes involved with injury
96 is essential^{8, 25} and the extent of psychological distress experienced by male adolescent Gaelic
97 footballers needs to be understood. No research to date has examined fear-avoidance
98 behaviours in the Gaelic football population and the effect of associated injury characteristics
99 on fear-avoidance. Examining the psychological effect of injury in adolescent Gaelic
100 footballers is crucial as younger athletes under the age of 18 years are at an increased risk of
101 experiencing injury-related psychological distress.²⁶ Managing the psychological response to
102 injury in the adolescent years may teach the young player how to manage the psychological
103 symptoms associated with athletic injury when they progress into adult level Gaelic football,
104 allowing for longer and more successful sports participation. Thus, this study aimed to establish
105 (i) the extent of fear-avoidance post-injury in male adolescent Gaelic footballers (ii) the effect
106 of pain and days lost from Gaelic football participation on fear-avoidance experienced, (iii) if
107 injury severity and previous injury predict fear-avoidance, and (iv) if a modified version of
108 AFAQ completed at baseline is a useful screening tool in predicting injury.

Methods

109

110 *Participants*

111 Ninety-seven male adolescent Gaelic football players (13.4 ± 1.1 years) that played at under-
112 14 ($n=66$) and under-16 ($n=31$) were recruited from three local Irish Gaelic football clubs.
113 Participants had been playing Gaelic football for 6.2 ± 2.1 years. Ethical approval was granted
114 by the institutes Research Ethics Committee and parental/guardian consent and participant
115 assent was gained prior to the study beginning.

116 *Measures*

117 The validated Athlete Fear Avoidance Questionnaire (AFAQ)¹⁹ is composed of ten statements
118 detailing an athlete's post-injury fear-avoidance thoughts and feelings (Table 1). Each
119 statement is rated on a 5-point Likert scale from 1 (not at all) to 5 (completely agree) and
120 summed to give a total fear-avoidance score. The total score ranges from 10 to 50, with a
121 greater overall AFAQ score indicating greater fear-avoidance. AFAQ showed significant
122 correlations with previously validated catastrophizing and fear-avoidance assessment tools,
123 indicating validity of the measure.¹⁹ The AFAQ was modified (mAFAQ) by authors to create
124 a screening tool for fear-avoidance (Table 2). Each of the ten statements were adapted by
125 adding 'If I was injured' in order to measure injury-related fear-avoidance that a player expects
126 they would experience if they became injured. The mAFAQ was ranked and scored the same
127 as the original AFAQ. A pilot study was conducted in recreational athletes from a variety of
128 sports ($n=120$; 20.1 ± 3.9 years) to examine the psychometric properties of the mAFAQ.
129 Internal consistency was evident with Cronbach α coefficient of 0.733, indicating high
130 reliability.²⁸ Construct validity was determined by factor analysis, which identified eigenvalues
131 >1 for 3 items of the mAFAQ, explaining a cumulative percentage variance of 57.2%.
132 However, the first item accounted for 30.7% of the variance, indicating the mAFAQ is a one-
133 dimensional scale. The original AFAQ was also identified as being a one-dimensional scale

134 and the findings suggest both questionnaires measure different traits of the fear-avoidance
135 model, including fear-avoidance beliefs, kinesiophobia and catastrophizing.¹⁹ The results
136 identify mAFAQ as a valid and reliable measure of baseline fear-avoidance.

137 A standardized injury report form¹ was utilized to record injuries that occurred during the
138 season. The characteristics of injury, including injury type, nature, location, severity and
139 associated pain both at the time of sustaining the injury and at the time of injury assessment
140 were documented. Pain was recorded using the Visual Analogue Scale (VAS) 0 to 10 scale,
141 which is a valid method for measuring pain.²⁹ Injury severity was defined according to number
142 of days missed from participation; minor (<7 days), moderate (7-21 days) or severe (>21
143 days).¹

144 [Insert Table 1]

145 [Insert Table 2]

146 ***Procedure***

147 An injury history questionnaire documenting injuries sustained in the previous 12 months and
148 their characteristics was completed at the beginning of the season. Injury history was limited
149 to the previous 12 months to minimize recall errors associated with the collection of
150 retrospective injury data.³⁰ Participants also completed the mAFAQ to screen for beginning of
151 the season fear-avoidance.

152 Any participant who sustained an injury during the season (15.2 ± 8.9 weeks duration) reported
153 to the Certified Athletic and Rehabilitation Therapist present at weekly training sessions for an
154 injury assessment. Injuries, recorded using the standardized injury report form,¹ were defined
155 as any injury sustained during training or competition resulting in restricted performance or
156 time lost from play.¹ Injuries that required the participant to miss time from Gaelic football
157 participation were classed as time-loss injuries, whereas non-time-loss injuries did not require
158 the participant to miss participation from Gaelic football. Immediately following the injury

159 assessment, the injured participant completed the AFAQ, ¹⁹ which will be termed the AFAQ1
160 for the purpose of clarity in this paper. Those who sustained a time-loss injury completed the
161 AFAQ a second time immediately before their first training or match when returning to play,
162 termed the AFAQ2.

163 *Data Analysis*

164 Data was analysed using IBM SPSS version 24 (IBM, New York, USA). Normality was
165 examined using Shapiro-Wilks test, which identified normally distributed data with a
166 significance value greater than 0.05. The mean and standard deviation were calculated for the
167 score of each individual statement and overall mAFAQ, AFAQ1 and AFAQ2 scores.
168 Independent samples T-test compared the difference between AFAQ1 scores for time-loss and
169 non-time-loss injuries. Paired samples T-tests compared AFAQ1 and AFAQ2 scores in those
170 who sustained a time-loss injury and mAFAQ and AFAQ1 scores in participants who sustained
171 an injury during the season. Effect sizes for T-tests, calculated using eta squared, were
172 determined according to Cohens' classification; small=0.01, moderate=0.06 and large=0.14.³¹
173 Pearson correlations identified the relationship between (i) mAFAQ, AFAQ1, AFAQ2 and
174 time-loss from Gaelic football participation and (ii) AFAQ1, AFAQ2 and VAS pain rating and
175 were interpreted using the following classifications: 0.00-0.19=very weak, 0.20-0.39=weak,
176 0.40-0.59=moderate, 0.60-0.79=strong and 0.80-1.00=very strong.³² Multiple regression
177 analysis was performed to determine if AFAQ1 scores could be predicted by injury severity
178 and injury history in the previous 12 months. Multicollinearity of the multiple regression
179 analysis was first examined by inspecting the correlation coefficients and variance inflation
180 factors (VIFs), with high correlation ($r>0.9$) and VIF (>10) indicating multicollinearity. No
181 multicollinearity was noted. Adjusted R square, which explains how much of the variance in
182 the dependent variable is explained by the model, was utilized to explain the variance in the
183 outcome variable. Adjusted R square was utilised for its increased accuracy over R square,

184 which tends to be an optimistic overestimation of the true value in the population.³³ Logistic
185 regression was conducted to analyse if total mFAQ score predicts injury, with the odds ratio
186 (OR) and 95% confidence interval examined. An OR value greater than one indicated an
187 increased risk of injury. A significance level of 0.05 was set for all statistical tests ($p \leq 0.05$).

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Results

189 Twenty-two injuries were recorded over the season, four of which resulted in time-loss from
190 play, with 18 non-time-loss injuries. The nature of injuries that required time-loss were
191 ligament sprains (n=3) and tendinopathies (n=1). Injury history identified that 54.6% of
192 participants sustained an injury in the previous 12 months, with 21.6% reporting two or more
193 injuries. Hamstring (22.6%) and ankle (18.9%) were the most commonly injured body parts,
194 with injuries predominantly occurring to muscle (39.6%), ligament (26.4%) and bone (24.5%).
195 The average mAFAQ score for all participants at baseline was 23.32 ± 6.01 (Table 3). Average
196 AFAQ1 and AFAQ2 scores for time-loss and non-time-loss injuries are presented in Table 4.
197 No significant differences were evident between average AFAQ1 scores for time-loss (26.75
198 ± 4.92) and non-time-loss injuries (21.00 ± 7.15) ($t(20)=1.52$; $P>0.05$; $\eta^2=0.10$). However,
199 AFAQ1 scores (26.75 ± 4.92) were statistically greater than AFAQ2 scores (14.25 ± 4.92) in
200 those who sustained a time-loss injury, with a large effect size ($t(3)=5.64$; $P=0.011$; $\eta^2=0.91$).
201 In addition, there was no significant difference between mAFAQ and AFAQ1 in those who
202 sustained an injury during the season ($t(21)=1.503$; $P>0.05$; $\eta^2=0.10$). No significant
203 relationships were evident between mAFAQ, AFAQ1, AFAQ2 or days lost from Gaelic
204 football participation ($r= 0.014$ to 0.595 ; $P>0.05$). Significant moderate correlations were
205 evident between AFAQ1 and VAS at the time of injury ($r= 0.563$; $P=0.006$) and between
206 AFAQ1 and VAS at the time of injury assessment ($r= 0.596$; $P=0.003$). No significant
207 correlations were evident between AFAQ2 and VAS pain rating ($r= -0.160$ to -0.336 ; $P>0.05$).
208 Multiple regression analysis identified that injury severity and previous injury explain 8.1% of
209 the variance in AFAQ1 scores in those who sustained an injury during the season, however,
210 the model was not found to be statistically significant ($F_{2,19} = 1.93$; $P>0.05$; $R^2= 0.081$). Injury
211 severity ($\beta= 0.24$; $t= 1.13$; $P>0.05$) and previous injury ($\beta= -0.28$; $t= 1.13$; $P>0.05$) when
212 examined individually did not contribute significantly to the model. Baseline fear-avoidance

213 was not a significant predictor of injury explaining 0.6% to 0.9% of the variance ($P>0.05$).

214 However, the odds of sustaining an injury was slightly higher for those with higher baseline

215 fear-avoidance (OR=1.03; 95% CI=0.95-1.12; $P>0.05$).

216 [Insert Table 3]

217 [Insert Table 4]

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Discussion

219 This study aimed to establish the extent of fear-avoidance post-injury in male adolescent Gaelic
220 footballers, the effect of pain, days lost from Gaelic football participation, injury severity and
221 previous injury on the amount of fear-avoidance reported and the usefulness of a modified
222 AFAQ as a screening tool for predicting injury.

223 **Fear-avoidance post-injury**

224 The average AFAQ score reported in this study (22.1 ± 7.1) is similar to that of a sample of
225 currently injured and previously injured collegiate athletes ($n=103$) from a variety of sports
226 (23.7 ± 7.0)¹⁹ and a sample of adults ($n=102$; 25 ± 8.5 years) with a sports-related injury (26.0
227 ± 8.0).³⁴ Despite age differences between the adolescent, collegiate and adult participants,
228 similar fear-avoidance is evident, outlining that adolescent Gaelic footballers experience
229 psychological distress levels comparable to their adult counterparts. No research to date has
230 identified fear-avoidance in Gaelic footballers, therefore, comparisons to other Gaelic football
231 populations are unable to be completed. Nevertheless, there is a clear necessity for
232 psychological intervention programs following injury in those that display fear-avoidance.

233 **Fear-avoidance and pain**

234 Fear-avoidance post-injury was higher in those with greater pain scores as measured by the
235 VAS scale. Similar findings were found between pain and fear-avoidance in adults with a
236 sports-related injury,³⁴ in physically active individuals with osteoarthritis³⁵ and patients with
237 acute³⁶ and chronic low back pain.³⁷ These results support the fact that pain tolerance is a
238 moderator of the psychological response to injury¹⁷ and has significant physical and
239 psychological effects on recovery.³⁸ In contrast, fear-avoidance has been defined as the fear of
240 pain in chronic low back pain literature to date.^{23, 39} The lack of a significant relationship
241 between fear-avoidance prior to return to play and VAS pain ratings, which indicates that pain
242 experienced when the injury was sustained does not relate to fear-avoidance prior to return to

243 play, highlights that this definition of fear-avoidance may not be appropriate in a high-
244 functioning, physically active population. If fear-avoidance was solely to describe a fear of
245 pain, an association between fear-avoidance and pain would be anticipated at any point
246 following injury, particularly at a point of return to play post-injury. Fear-avoidance in injured
247 athletes may instead be associated with the greater injury experience and the avoidance of
248 movements or activities based on fear¹⁸ and the negative emotional response to injury that
249 stimulate feelings of depression, anxiety, low vigor, fatigue, grief and burnout.⁷

250 **Fear-avoidance, time-loss and injury severity**

251 Similar fear-avoidance was identified for participants who sustained time-loss and non-time-
252 loss injuries, which suggests the duration of time loss from Gaelic football participation does
253 not affect the extent of fear-avoidance. In addition, no significant relationships were noted
254 between the duration of time-loss from Gaelic football participation and fear-avoidance at
255 baseline, post-injury and prior to return to play. However, this finding conflicts with previous
256 research that identified time loss duration as a moderator of the psychological response to
257 injury.¹⁷ Time loss duration may not be a moderating factor in the current study due to the low
258 number of injuries that required missed participation from Gaelic football. Current injury
259 severity (i.e. minor, moderate or severe based on the number of days lost from Gaelic football
260 participation) was also not a significant predictor of fear-avoidance post-injury, despite
261 previous research identifying that more severely injured athletes experience greater mood
262 disturbances following injury when compared to those who suffer moderate to acute injuries.⁸
263 Most injuries in the current study were minor in nature requiring less than 7 days absence from
264 Gaelic football participation and only four time-loss injuries were noted, which may have
265 impacted this finding. The lack of significant difference between fear-avoidance in participants
266 who sustained time-loss and non-time-loss injuries and the lack of interaction between injury
267 severity, days lost from Gaelic football participation and fear-avoidance could be attributed to

268 the prevalence of male adolescent Gaelic footballers who continue to play through injury.¹
269 Playing through injury results in no time-loss from Gaelic football participation, thus meaning
270 time-loss may not affect fear-avoidance in this youth sample of the population. In addition,
271 fear-avoidance was measured following the injury assessment where participants were aware
272 of the nature of their injury but the extent of time loss from Gaelic football participation was
273 not clear at that time.

274 **Baseline fear-avoidance**

275 Fear-avoidance was evident at the beginning of the season, but greater fear-avoidance did not
276 increase the likelihood of sustaining an injury over one season. Similarly, fear-avoidance
277 following injury was not significantly greater than baseline fear-avoidance and previous injury
278 did not predict fear-avoidance post-injury. To our knowledge, no research to date has identified
279 fear-avoidance at baseline prior to sustaining an injury so comparisons to similar research
280 cannot be made. The baseline mFAQ measured players' perceptions of fear-avoidance at the
281 start of the season that may be experienced if they became injured. However, male adolescents'
282 perceptions of their fear-avoidance may differ from their actual fear-avoidance experienced
283 post-injury. Situational factors (level of competition, time in season, playing status,
284 teammate/coach influences, family dynamics or social support), personal factors (player
285 demographics, injury characteristics, injury history, pain tolerance, motivation, athletic
286 identity, social support or mood states) or behavioural and emotional responses (risk-taking
287 behaviours, rehabilitation adherence, tension, anger, depression, grief or emotional coping) can
288 alter the psychological response to injury.¹⁷ The stress-athletic injury model highlights that an
289 athlete who exhibits increased amounts of stress due to their personality, history of stressors or
290 subjective coping resources, may be at increased risk of sustaining an injury.⁴⁰ Therefore, fear-
291 avoidance is highly subjective and situationally based so solely implementing baseline
292 screening or post-injury measurement of fear-avoidance may not be useful. Instead clinicians

293 should screen for athletes who show elevated stress levels at the beginning of the season that
294 can increase their risk of injury but also measure fear-avoidance post-injury that may
295 overwhelmingly influence the physical and psychological response to injury that has the
296 potential to hinder rehabilitation.

297 **Fear-avoidance prior to return to play**

298 Male adolescent Gaelic footballers experience fear-avoidance and psychological distress when
299 they sustain an injury but following a period of time-loss from Gaelic football participation and
300 rehabilitation, fear-avoidance reduces. Similar trends have been identified in previous research
301 with negative emotions of tension, depression, anger, fatigue and confusion shown to decrease
302 from the time of injury evaluation to the point of full recovery.²⁴ This difference could be due
303 to the benefits of rehabilitation and the return to play process, which focuses on returning the
304 athlete to sports participation and their pre-injury level of performance.⁴¹ Meeting
305 rehabilitation goals and successfully improving the components of performance, such as
306 strength, flexibility and proprioception, could potentially help to reduce fear-avoidance by
307 improving confidence in the injured body part. However, only four time-loss injuries were
308 observed so the clinical applicability of this finding is limited. A clearer image of fear-
309 avoidance in participants who sustain a time-loss injury may be evident with a greater number
310 of time-loss injuries.

311 ***Limitations***

312 A substantially low number of time-loss injuries were observed in this study, which may be
313 due to the short season over which data was collected. The small number of time-loss injuries
314 may impact the ability of this study to examine time-loss and its relationship to fear-avoidance.
315 Furthermore, injury history was only determined for injuries sustained by participants in the
316 previous 12 months in order to reduce the effects of recall bias. However, previous injury is a
317 risk factor for re-injury and its relationship with the extent of fear-avoidance at baseline and

318 following injury may be different when examined over a longer period. In addition, this study
319 failed to account for the occurrence of serious traumatic injury occurring greater than 12
320 months previous requiring surgical repair and substantial rehabilitation, despite the fact that
321 these injuries may still insight increased levels of fear greater than 12 months post-injury.
322 However, the incidence of sports injuries in youth participants requiring operative treatment is
323 expected to be low with only 8.8% of sports injuries presenting to paediatric hospitals requiring
324 surgery⁴² and 6.7% of adolescents requiring surgery due to a Gaelic football injury.¹ In
325 addition, this study solely examined fear-avoidance in male adolescent Gaelic footballers,
326 which makes it difficult to apply the findings to collegiate and elite players or female Gaelic
327 footballers. Future research should examine fear-avoidance and the psychological reaction to
328 musculoskeletal injury across Gaelic football populations in a larger cohort of male adolescents
329 and across a number of seasons.

330

Conclusions

331 Fear-avoidance is evident in male adolescent Gaelic footballers comparable to levels
332 experienced by injured collegiate and adult athletes. Fear-avoidance post-injury was higher in
333 those with greater pain scores. However, baseline measures of fear-avoidance did not predict
334 the likelihood of sustaining an injury over one season, which indicated that fear-avoidance
335 should be examined when a Gaelic footballer sustains an injury. The findings highlight the
336 need for psychological rehabilitation in conjunction with physical rehabilitation in the
337 management of an injured Gaelic footballer and their successful return to sport. Awareness of
338 the extent of fear-avoidance in injured players allows clinicians to design an effective
339 rehabilitation plan that can manage both the physical and psychological recovery required and
340 may consequently reduce the period of time loss from participation.

341

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