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**Athletes' expectations about sport injury rehabilitation: A cross-cultural study**

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## Abstract

24 **Context:** Athletes enter injury rehabilitation with certain expectations about the recovery  
25 process, outcomes, and the professional providing treatment. Their expectations influence the  
26 effectiveness of the assistance received and affect the overall rehabilitation process.  
27 Expectations may vary depending on numerous factors such as sport experience, gender, sport-  
28 type and cultural background. Unfortunately, limited information is available on athletes'  
29 expectations about sport injury rehabilitation. **Objective:** To examine possible differences in  
30 athletes' expectations about sport injury rehabilitation based on their country of residence and  
31 type of sport (physical contact versus non-physical contact). **Design:** A cross-sectional design.  
32 **Setting:** Recreational, collegiate, and professional athletes from the United States (US), United  
33 Kingdom (UK) and Finland were surveyed. **Participants:** Of the 1209 athletes ranging from 12  
34 to 80 years of age ( $M_{age} = 23.46 \pm 7.91$ ), of which 529 US [80%], 253 UK [86%], and 199  
35 Finnish [82%] provided details of their geographical location, were included in the final  
36 analyses. **Main Outcome Measures:** The Expectations about Athletic Training (EAAT)  
37 questionnaire was used to determine athletes' expectations about personal commitment,  
38 facilitative conditions, and the expertise of the sports medicine professional (Clement et al.,  
39 2012). **Results:** 3x2 MANCOVA revealed significant main effects for country ( $p = .0001$ ,  $\eta_p^2 =$   
40  $.055$ ) and sport type ( $p = .0001$ ,  $\eta_p^2 = .023$ ). Specifically, US athletes were found to have higher  
41 expectations of personal commitment and facilitative conditions than their UK and Finnish  
42 counterparts. Athletes participating in physical contact sports had higher expectations of  
43 facilitative conditions and the expertise of the sports medicine professional (SMP) as compared  
44 to athletes participating in non-physical contact sports. **Conclusions:** SMPs, especially those in  
45 the US, should consider the sport and environment when providing services. In addition, SMPs  
46 need to highlight and demonstrate their expertise during the rehabilitation process, especially for  
47 those who compete in physical contact sports.

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50 **Key words:** injury, cultural issues, athlete-practitioner interactions, expectations, sports medicine  
51 professionals

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54 Sport and exercise-related injury statistics in the United States (US),<sup>1</sup> United Kingdom  
55 (UK),<sup>2</sup> and Finland<sup>3</sup> indicate that sport injuries throughout the world can be considered an  
56 inevitable part of most athletes' careers. Injured athletes often experience emotional distress,<sup>4</sup>  
57 including feelings of anxiety and depression,<sup>4</sup> which may cause other negative responses such as  
58 panic and helplessness,<sup>5</sup> in addition to feelings of being "powerless and dependent."<sup>6</sup> Therefore,  
59 it is not surprising that injured athletes place a great deal of trust and hope in the skills and  
60 knowledge of their sports medicine professionals (SMPs), such as an athletic trainer (AT),  
61 physiotherapist, and sport therapist.

62 According to the literature,<sup>7,8</sup> trust and hope play a vital role in the relationship between  
63 injured athletes and their SMPs, and that association has been shown to be a significant predictor  
64 of effective treatment.<sup>7,9</sup> Consequently, athletes who enter injury rehabilitation typically do so  
65 with certain expectations about their rehabilitation outcomes, and the SMP with whom they will  
66 be working.<sup>10,11</sup> These expectations can become an integral part in the effectiveness of the  
67 assistance received<sup>12</sup> and may ultimately influence the efficiency of the rehabilitation process.<sup>8</sup>  
68 When coupled with athletes' efficacy beliefs, these hopes can also play an important role in  
69 influencing their behavior during the rehabilitation process.<sup>13</sup> Indeed, they may have an influence  
70 on whether injured athletes: (a) use the sports medicine services provided,<sup>14</sup> and (b) engage in the  
71 required tasks as suggested by their SMP (e.g., home exercises and rest). Moreover, these  
72 expectations can subsequently have an influence on the working relationship between injured  
73 athletes and SMPs, which may influence the rehabilitation process (e.g., treatment compliance  
74 and adherence), as well as overall rehabilitation outcomes.<sup>15</sup>

75           Unfortunately, literature documenting athletes' expectations about sport injury  
76 rehabilitation is sparse. However, there are recent research studies that should be noted. In 2012,  
77 Clement et al.<sup>10</sup> found that gender and previous experience with an SMP can influence athletes'  
78 expectations of ATs and the injury rehabilitation process. Feltham and Horton<sup>16</sup> argue that  
79 cultural differences can significantly impact the formation of opinions and attitudes, as well as  
80 expectations about the efficacy of professional help. Thus, cultural background may also play a  
81 significant role in the knowledge, experiences, beliefs, values, and attitudes of various groups,<sup>18</sup>  
82 which can ultimately influence expectations of treatment.<sup>17</sup>

83           Research indicates that ethnic minority groups (i.e., Black, Hispanic, and Asian) in the  
84 US in general are more likely to have lower expectations of medical care than their White  
85 counterparts.<sup>18</sup> It would seem from these reports that competence may also contribute to the  
86 expectations from patients. In fact, research in the US has shown that patients with race-  
87 concordant care providers (i.e., patients and providers who are of similar race) are more satisfied  
88 with care than when served by race-discordant care providers.<sup>19</sup> Thus, it is reasonable to presume  
89 that athletes' expectations of the sport injury process depend upon their cultural predispositions,  
90 norms, and values.

91           It is likely that cultural differences may also exist due to the type of sport that is played.  
92 For example, National Collegiate Athletic Association (NCAA) Division III collegiate athletes  
93 who had participated in individual sports were found to have perceived pain as more legitimate  
94 than did team sport participants.<sup>20</sup> In a similar way, cultural differences may also exist depending  
95 upon the amount of physical contact a sport requires. That is to say, physical contact sport

96 environments which emphasize dominance and toughness may reinforce athletes' acceptance of  
97 experiencing physical risk, pain, and injury in silence, without expressing emotions.<sup>21</sup>

98       In regards to athletic training, understanding potential cultural differences and possessing  
99 cultural competence have been recognized as foundational behaviors ATs should possess.<sup>22</sup> More  
100 specifically, ATs should: (a) show awareness of the influence clients'/patients' cultural  
101 differences have on their own attitudes and behaviors toward healthcare; (b) demonstrate  
102 knowledge, attitudes, behaviors, and skills necessary to achieve optimal health outcomes for  
103 diverse patient populations; and (c) be able to work respectfully and effectively with diverse  
104 populations in diverse work environments.<sup>22</sup> The importance of understanding cultural  
105 differences has also been recognized in other countries outside of the US, such as in Finland,  
106 where physiotherapy students are trained in "internationalization skills," that include "training in  
107 multicultural cooperative working skills."<sup>23</sup>

108       In recent years, a SMP having the ability to provide culturally-appropriate health care has  
109 been magnified, especially in an increasingly multicultural environment.<sup>24</sup> Despite the  
110 importance of addressing cultural differences when working with injured athletes, it appears that  
111 the concept of culture in the context of sport injury rehabilitation practices has yet to be  
112 investigated in detail.<sup>25</sup> Likewise, investigations that have examined cultural differences as they  
113 relate to expectations about sport injury rehabilitation are limited. Therefore, the purpose of the  
114 present study was to examine if differences exist in athletes' expectations about sport injury  
115 rehabilitation based on their country of residence and type of sport.

## 116 **Methods**

### 117 *Research Design and Setting*

118           The present study used a cross-sectional research design to conveniently sample athletes  
119 from both the US and Europe. The US-based athletes were collegiate athletes, who were  
120 recruited from five universities across the nation. The European athletes were a mixture of  
121 collegiate, professional, and recreational club athletes from the West and East Midlands regions  
122 of the UK and Finland.

### 123 *Participants*

124           A total of 1262 athletes (462 women, 800 men,  $M_{\text{age}} = 23.46 \pm 7.91$ ; age range: 12-80  
125 years) residing in the US, UK, and Finland completed the Expectations about Athletic Training  
126 (EAAT) questionnaire (Clement et al., 2012). Of these, 53 were excluded due to incomplete data,  
127 leaving a total of 1209 athletes (of which 529 US [80%], 253 UK [86%] and 199 Finnish [82%]  
128 provided details of their geographic location) to be included in the final analyses. Of the  
129 respondents with complete data, 821 (66.9%) had seen a sports medicine professional at least  
130 once (US  $n = 442$  [66.2%], UK  $n = 207$  [65.3%], and Finland  $n = 172$  [70.8%]).

131           All of the US based athletes were collegiate athletes. However, athletes from the UK and  
132 Finland were a mixture of collegiate, professional, and recreational club athletes (see Table 1).  
133 The athletes had an average of  $10.09 \pm 5.49$  years of sport experience ( $M = \text{US } 9.61 \pm 28.00$ ; UK  
134  $8.85 \pm 27.75$ ; Finland  $13.02 \pm 30.00$ ). The sports represented by the sample were separated into  
135 two categories: Physical Contact sports and Non-Physical Contact sports (see Table 2). Physical  
136 Contact sports were defined as those sports that involved bodily contact, physical and verbal  
137 intimidation, as well as possible physical injury due to another competitor as part of the  
138 strategies of the game; whereas, Non-Physical Contact sports were considered to be those sports  
139 in which physical intimidation and physical contact with another individual rarely if ever

140 occurred during competition.<sup>26</sup> A total of 687 athletes **who provided details of their type of**  
141 **sport** (182 women, 504 men) participated most often in Physical Contact sports representing  
142 American football ( $n = 207$ ), soccer ( $n = 190$ ) basketball ( $n = 93$ ), ice hockey ( $n = 59$ ), baseball  
143 ( $n = 55$ ), rugby ( $n = 27$ ), Brazilian jujitsu ( $n = 16$ ), lacrosse ( $n = 7$ ), cricket ( $n = 6$ ), mixed martial  
144 arts and hockey (both  $n = 5$ ), boxing, flag football, and submission wrestling (all  $n = 4$ ), and  
145 fencing, judo, karate, taekwondo, water polo, wheelchair basketball and wrestling (all  $n = 1$ ). In  
146 Non-Physical Contact sports, a total of 563 athletes **who provided details of their type of sport**  
147 (263 women, 284 men) participated in triathlon ( $n = 156$ ), track and field ( $n = 137$ ), swimming  
148 ( $n = 61$ ), volleyball ( $n = 32$ ), running ( $n = 24$ ), softball ( $n = 23$ ), cheerleading ( $n = 21$ ), netball ( $n$   
149  $= 15$ ), gymnastics and floorball (both  $n = 11$ ), cross country and badminton (both  $n = 8$ ),  
150 weightlifting ( $n = 7$ ), tennis ( $n = 6$ ), dance, exercise, golf, and horseback riding (all  $n = 5$ ),  
151 racquetball ( $n = 4$ ), skiing ( $n = 3$ ), climbing, diving, orienteering, and trampolining ( $n = 2$ ), and  
152 bike trial, cycling, fencing, Frisbee golf, ice skating and yoga (all  $n = 1$ ).

### 153 *Measure*

154         The EAAT is a 66-item self-report questionnaire which assesses an athlete's expectations  
155 about athletic training. The EAAT consists of 18 scales, 17 of which measure three factors  
156 (Personal Commitment, Facilitative Conditions, and Athletic Trainer Expertise).<sup>27,28</sup> More  
157 specifically, the Personal Commitment factor includes the following scales: (a) motivation; (b)  
158 openness; (c) responsibility; (d) attractiveness; (e) concreteness; (f) immediacy; and (g) outcome.  
159 The Facilitative Conditions factor includes: (a) acceptance; (b) confrontation; (c) genuineness;  
160 (d) nurturance; (e) self-disclosure; (f) tolerance; and (g) trustworthiness. Finally, the factor  
161 representing Athletic Training Expertise consists of: (a) directiveness; (b) empathy; and (c)

162 expertise. The 18<sup>th</sup> scale, Realism, assesses how realistic an athlete's expectations are  
163 concerning the rehabilitation process. Since this scale is based on the local situation, it is often  
164 examined separately in order to obtain meaningful results.<sup>29</sup> In the present study, participants  
165 were asked to respond to items based on the above-mentioned 18 scales using a 7-point Likert  
166 scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The EAAT also includes a  
167 demographic section with questions that are primarily aimed at gaining background information  
168 about each participant's experiences in sport, and with athletic injuries. Items asked in the  
169 demographic section include: (1) gender, (2) age, (3) level of sport competition, (4) sport  
170 currently involved in, (5) years participating in the sport, (6) past experience with athletic  
171 training, and (7) previous use of mental skills in injury rehabilitation. Internal consistency values  
172 for all the scales of the EAAT ranged from 0.63 and 0.80, and test-retest reliability over a 2-week  
173 period for all the scales ranged from 0.50-0.89.<sup>10</sup>

174 The EAAT was modified for the UK and Finnish sample to take into account cultural  
175 differences. In the UK, the term, "athletic trainer" was changed to "physiotherapist" to reflect the  
176 differences in professional titles that are used in different cultural contexts. In Finland, the  
177 original EAAT questionnaire was translated into Finnish as follows:

- 178 1. The original EAAT was translated from English to Finnish by an independent sport  
179 psychology researcher who is fluent in both languages. At this stage, the term,  
180 "athletic trainer" was also changed and translated to "physiotherapist" to reflect the  
181 differences in professional titles that are used in different cultural contexts.



- 182           2. The Finnish-translated version was then back-translated into English independent of  
183           the original EAAT questionnaire by a sport psychology professional who is fluent in  
184           both languages, but who was not involved in the initial translations.
- 185           3. The differences in the content and meanings between back-translated and the original  
186           EAAT were then identified.
- 187           4. Any items displaying discrepancy in either content or meaning were then discussed,  
188           and the items in the Finnish version of the EAAT were revised/reworded to ensure  
189           that the original meaning of the items, as well as grammatically correct Finnish had  
190           been maintained. Such adjustments were minor in nature, except for the word  
191           “problem” which was translated into three expressions. In the Finnish EAAT, the  
192           word “problem” had been translated with corresponding Finnish words to describe  
193           the problem of injury itself, the problematic situation caused by the injury, or just any  
194           general problem, since these meanings cannot be expressed with just one word.
- 195           5. The Finnish EAAT was subsequently tested for its psychometric properties. The  
196           overall internal reliability (Cronbach’s alpha coefficient) for the Finnish version of  
197           the EAAT was found to be 0.79., making it consistent with the reliability scores that  
198           were obtained for the original EAAT questionnaire.

199    *Procedure*

200           Institutional review board approvals were obtained at each of the institutions involved  
201           prior to administration of the questionnaires. The surveys were administered in a range of ways,  
202           depending on the country in which the data was collected. Participants at the US and the UK  
203           universities received the questionnaires in person, either prior to, or after their practices or

204 classes. Some of the athletes in the UK received the survey hosted in SurveyMonkey® via  
205 national governing body member mailing list. In Finland, surveys were administered in person to  
206 a convenient sample of both non-university competitive athletes (club athletes) and university  
207 athletes who were studying sport-related courses. In case of participants under 18 years of age,  
208 parental consent was also obtained. At the beginning, participants were introduced to the purpose  
209 of the study, and then given information on how to complete the survey. On the first page of the  
210 EAAT form, participants were provided with the following instructions:

211       As an athlete, imagine that you are injured and about to see an athletic trainer/  
212       physiotherapist for your first visit. We would like to know just what you think  
213       about visiting an athletic trainer/physiotherapist (word changed to represent  
214       cultural differences) for sports injury rehabilitation. On the following pages you  
215       will find a number of statements about athletic training/physiotherapy. In each  
216       instance you are to indicate your level of agreement regarding what you expect  
217       the athletic training visit to be like.

218 Subsequent to these instructions, participants were asked to rate a number of items related to  
219 their expectations for an initial session, such as "I expect to like the athletic  
220 trainer/physiotherapist" or "I expect the athletic trainer/physiotherapist to tell me what to do"  
221 Then they were asked to select one of the Likert scale response categories that ranged from 1  
222 (*strongly disagree*) to 7 (*strongly agree*). Following completion of the EAAT questionnaire the  
223 participants were thanked for their participation. The survey required approximately 15 minutes  
224 of the participants' time.

225 *Statistical Analyses*

226 Due to the 18<sup>th</sup> scale, Realism, being dependent upon a local rehabilitation situation<sup>10,29</sup>,  
227 it was excluded from the analyses, and the remaining three scales from the EAAT were used:  
228 Personal Commitment, Facilitative Conditions, and Athletic Training Expertise. The third scale  
229 (Athletic Training Expertise) will be henceforward referred to as Sports Medicine Professional  
230 (SMP) Expertise to account for both of the culturally-specific titles that were used for the  
231 purposes of this study. Thus, the mean response scores for Personal Commitment, Facilitative  
232 Conditions, and Sports Medicine Professional (SMP Expertise) were used to examine cross-  
233 cultural and sport type (Physical/Non-Physical Contact) differences. We conducted a 3x2 (US,  
234 UK, and Finland; Physical Contact and Non-Physical Contact) multivariate analysis of  
235 covariance (MANCOVA). Gender and past SMP Experience were controlled as the covariates  
236 because previous research has indicated that both influenced athletes' expectations.<sup>11</sup> We also  
237 conducted follow-up univariate ANOVAs to identify additional differences between the groups,  
238 and provided the relative importance of the dependent variables. Cronbach's alpha coefficients,  
239 for each of the subscales by country, were all above .70 (results for all countries: Personal  
240 Commitment  $\geq$  .80; Facilitative Conditions  $\geq$  .86; and SMP expertise  $\geq$  .70).

## 241 **Results**

242 The means and standard deviations of Physical Contact and Non-Physical Contact sport  
243 participants from the US, UK, and Finland are shown in Table 3. Results of the MANCOVA  
244 indicate a nonsignificant interaction for country by sport (Physical vs. Non-Physical Contact,  
245 Wilks' lambda = .99,  $F(6, 1952) = 1.041$ ,  $p = .396$ ), but in contrast, there were significant main  
246 effects for country and sport (Physical vs. Non-Physical Contact groups).

247 *Country*

248 The MANCOVA revealed a significant main effect for country, Wilks' lambda = .892,  
249  $F(6, 1952) = 19.080, p = .0001, \eta_p^2 = .055$ . Follow-up univariate ANOVAs were conducted to  
250 identify those factors that maximized differences in athletes' responses from the US, UK, and  
251 Finland. Although univariate ANOVAs indicate a significant effect for Personal Commitment,  
252  $F(1, 978) = 24.068, p = .0001, \eta_p^2 = .047$ , and Facilitative Conditions,  $F(1, 978) = 16.842, p =$   
253  $.0001, \eta_p^2 = .033$ , the magnitude of the effect size was small. US athletes ( $M = 5.53, SD = .80$ )  
254 had higher expectations of Personal Commitment to rehabilitation than did UK athletes ( $M =$   
255  $5.30, SD = .61$ ), or Finnish athletes ( $M = 5.14, SD = .61$ ). Likewise, US athletes ( $M = 5.42, SD =$   
256  $.83$ ) had higher expectations of Facilitative Conditions than did UK athletes ( $M = 5.10, SD =$   
257  $.73$ ), or Finnish athletes ( $M = 5.07, SD = .70$ ).

#### 258 *Sport Type*

259 The MANCOVA also indicated a significant main effect for sport type (Physical Contact  
260 vs. Non-Physical Contact), Wilks' lambda = .977,  $F(3, 976) = 7.572, p = .0001, \eta_p^2 = .023$ .  
261 Follow-up univariate ANOVAs were conducted to identify the factors that maximized  
262 differences among the responses from Physical Contact and Non-Physical Contact athletes. The  
263 univariate ANOVAs did indicate a significant effect both for Facilitative Conditions,  $F(2, 978) =$   
264  $7.900, p = .005, \eta_p^2 = .008$ ; and SMP Expertise,  $F(2, 978) = 10.131, p = .002, \eta_p^2 = .010$ ;  
265 however, the magnitude of the effect size was small. Physical Contact athletes ( $M = 5.34, SD =$   
266  $.83$ ) had higher expectancies of Facilitative Conditions than did Non-Physical Contact athletes  
267 ( $M = 5.18, SD = .75$ ). Likewise, Physical Contact athletes ( $M = 5.39, SD = .85$ ) had higher  
268 expectancies of AT Expertise than did Non-Physical Contact athletes ( $M = 5.20, SD = .83$ ).

269

### **Discussion**

270           The purpose of this study was to examine whether differences exist in athletes'  
271 expectations about sport injury rehabilitation based on their country of residence and type of  
272 sport (Physical Contact versus Non-Physical Contact). Overall, no significant interaction was  
273 found for country by sport type; however, statistically significant main effects were found for  
274 both country and sport type. The following information will highlight the existent literature that  
275 supports and potentially contests our findings.

276           The results of the current study indicate that US athletes had higher expectations of  
277 Personal Commitment to the rehabilitation process than did their UK or Finnish counterparts.  
278 The Personal Commitment scale explores athletes' personal motivations to engage in injury  
279 rehabilitation, openness to the rehabilitation process, and personal responsibility for actions in  
280 rehabilitation. It appears that athletes from the US place higher importance on rehabilitation and  
281 their own roles in the process, when compared to athletes from the UK or Finland. This finding  
282 is likely reflective of the importance of athletics within the US collegiate sport culture as well as  
283 how sports medicine professionals (SMPs) are typically situated within the sport culture (i.e.,  
284 athletic trainers work with the team on a day-to-day basis); whereas in the UK and Finland,  
285 SMPs are more common within higher-level sports only, and not among  
286 club/university/collegiate or recreational level sports. The highest levels within the  
287 university/collegiate structure in the US (i.e., NCAA Division I and II) also provide athletic  
288 scholarships, and athletes competing within these levels may be more committed to  
289 rehabilitation, and hence, more open to the rehabilitation process due to their need to earn or  
290 retain a scholarship. In addition, some professional sports in the US are more tied to success  
291 within the US university/collegiate system. While this is somewhat changing for some Physical

292 Contact Sports (e.g., basketball, and football), the main source of recruitment from professional  
293 organizations in the US are reliant upon the university system. Also, some students use college  
294 athletics to achieve their ultimate goal of playing at the professional sport level to have a career  
295 as a professional sport athlete which may provide additional incentive for compliance with their  
296 rehabilitation program. In contrast, for the sample of UK and Finland athletes, although they  
297 were mainly university/collegiate aged athletes, the structures of sports within the UK and  
298 Finland are more club-sport focused, and the hope of becoming an elite athlete is not tied as  
299 strongly to the university structure like in the US.

300 In addition, sports form an important part of the culture in the US and as such are  
301 strongly integrated into the American education system, with nearly all high schools and  
302 universities having athletic programs.<sup>26</sup> Typically, the role of “athlete” in the US is linked to  
303 popularity within the school or university, and receives more attention from within the collegiate  
304 community.<sup>26,30</sup> Hence, due to these additional social reasons, US athletes may have higher  
305 expectations of Personal Commitment to the rehabilitation process in general and may be more  
306 committed to return to their sports after injury.

307 Coakley<sup>26</sup> argues that sport ethic describes what it means to be an athlete and includes  
308 norms that impact injury. The four components of the sport ethic include: **(1)** athletes make  
309 sacrifices for the game, **(2)** athletes strive for distinction, **(3)** athletes accept risks and play  
310 through pain, and **(4)** athletes accept no limits in the pursuit of possibilities.<sup>26</sup> According to  
311 Kenow and Kamphoff,<sup>31</sup> sport ethic is considered to be a standard in the US sport culture, and as  
312 such, impacts sport injury occurrence, injury recovery, athletes’ expectation of SMPs, and the  
313 overall rehabilitation environment. This may be particularly true among those athletes who

314 engage in over-adherence to the sport ethic by playing to extremes and, when injured, they may  
315 do the same in the rehabilitation environment. For example, injured athletes may push their  
316 bodies above their healing limitations, and do everything in their power and beyond to return to  
317 play<sup>31</sup>; hence, their personal motivations and feeling of responsibility during the rehabilitation  
318 process will likely be higher.

319         Similar to the findings of Personal Commitment, US athletes had higher expectations of  
320 Facilitative Conditions than did their UK or Finnish counterparts. However, based on the mean  
321 scores, athletes from all three countries scored above the midpoint, indicating that such  
322 characteristics are valued across cultural contexts. Based on these results, it can be seen that  
323 athletes from the US appear to hold slightly higher expectations of SMPs to be honest, sincere,  
324 warm, interpersonally-skilled, calm, easy going, accepting, inspire confidence and trust, and  
325 facilitate positive regard. Such cultural differences are worth noting, particularly since previous  
326 research in both the US and UK have indicated that SMPs possess an appreciation for the  
327 psychological impact of injury and view addressing psychosocial aspects of injuries to be an  
328 important part of their role when rehabilitating injured athletes.<sup>32-36</sup> Moreover, being aware of  
329 athletes' cognitive and emotional processes during injury rehabilitation, as well as using  
330 psychosocial techniques to expedite the development of Facilitative Conditions (e.g., use of  
331 positive self-talk, social support, goal setting and other techniques aimed to increase  
332 interpersonal communication, build a trusting relationship, inspire confidence, facilitate positive  
333 regard, and demonstrate warmth and acceptance) are accepted practices of SMPs regardless of  
334 their country of origin<sup>39</sup> (see Arivnen-Barrow & Walker, 2013 for more details on use of range  
335 of intervention techniques used in sport injury rehabilitation, see <sup>37</sup>rehabilitation). Although a

336 firm conclusion cannot be made based on the above consensus about importance of attending to  
337 psychosocial aspects of injuries during rehabilitation, it does seem unlikely that athletes'  
338 expectations of Facilitative Conditions are due to differences in how SMPs approach "care"  
339 across countries.

340 Perhaps the difference in Facilitative Conditions by country is due to a concept of "entitlement"  
341 that is experienced by US athletes. Every university/college athlete has ready access to an  
342 athletic trainer or sports medicine professional, and they have likely come to expect such  
343 services when injured. Similarly, the larger or "big-time" athletic programs within US collegiate  
344 athletics spend over \$60 million at some Universities (with highest total revenue reported as  
345 \$163 million)<sup>26</sup> and these athletes are treated like professional athletes due to these large  
346 investments.

347 Athletes at big-time programs may feel that they generate millions of dollars for the  
348 university, and that this popularity is tied more closely to their status as an intercollegiate athlete  
349 instead of their academic achievement; as a result, that perceived popularity affects their  
350 behaviors to be less involved in academics than their athletic achievement.<sup>28,40</sup> Hence, the US  
351 collegiate culture may have created athletes that expect professionals to address and cater to their  
352 individual needs, including sports medicine professionals.<sup>10</sup> Such feelings of entitlement may not  
353 be the case in the UK and Finland simply due to cultural differences in the structure of  
354 competitive sports.

355 Our analysis also revealed significant differences for the sport types: Physical Contact  
356 and Non-Physical Contact. Specifically, athletes in Physical Contact sports had higher  
357 expectations of Facilitative Conditions than did athletes participating in Non-Physical Contact



358 sports. Similarly, athletes in Physical Contact sports had higher expectations of SMP Expertise  
359 than did athletes participating in Non-Physical Contact sports. Some of the Physical Contact  
360 sports such as basketball and football, which were well represented in the sample, are often  
361 considered revenue-generating sports, whereas *all* of the Non-Physical Contact sports are viewed  
362 as nonrevenue-generating sports.<sup>26,38</sup> Revenue-generating sports not only receive more financial  
363 support and resources, they also tend to receive more attention from fans and the media than  
364 nonrevenue-generating sports.<sup>39</sup> Hence, athletes in revenue-generating sports may expect higher  
365 Facilitative Conditions and SMP Expertise because they regularly receive specialized treatment  
366 more than nonrevenue-generating sport participants, or in this case, Non-Physical Contact sports.  
367 Not only do revenue-generating sport athletes feel pressured to perform at much higher levels,  
368 they also perceive injuries as an intrinsic part of playing sports, and therefore regularly expect to  
369 return to their sport soon after an injury.<sup>40</sup> The constant attention and available resources at their  
370 disposal may potentially lead revenue-generating sport athletes to expect higher levels of care  
371 from their SMPs. For example, athletes may be expecting SMPs to possess a broader range of  
372 facilitative personal qualities and much higher levels of expertise. Such findings may not be  
373 surprising, since many athletes who participate in Physical Contact sports are aware of the risks  
374 of participation, they expect that SMPs will be “there for them” when they become injured and  
375 will simply expect them to “Diagnose me, treat me, and make me fit again.”<sup>40</sup> Historically, and  
376 becoming more prevalent in recent years, SMPs have taken on additional roles in their  
377 professional capacities since they have saved lives on the sidelines of athletic events.<sup>41</sup> This  
378 newly-perceived role as life-savers could potentially add to the expectation of them facilitating  
379 care with higher levels of expertise.

380           The results from the present study add to the existing literature that emphasizes the  
381 importance of SMPs to possess both knowledge and understanding of athletes' expectations and  
382 their individual differences, with the hope of optimizing care which is provided to athletes during  
383 injury rehabilitation. More specifically, this study highlights the importance of possessing  
384 awareness of possible differences in such expectations due to culture and sport type. Athletes  
385 who travel often, or permanently reside in countries other than their native origin, may have  
386 perceptions that differ from those residing in that country. That is to say, they may have attitudes  
387 and beliefs about what 'SMPs do and don't do' that is not consistent with the cultural context in  
388 which they are currently located. To provide the best care, SMPs should understand and apply an  
389 evidence-based approach to care, that includes sensitivity to cultural norms, as they relate to  
390 Personal Commitment of the athlete and a more Facilitative Environment.<sup>18,20,42,43</sup> To best gain  
391 such sensitivity/knowledge, it might be beneficial for the SMPs to include a coursework on  
392 cultural communication and/or counselling to their training. Additionally, SMPs should be  
393 mindful of the attitudes and beliefs that are associated with certain sports (Physical Contact/Non-  
394 Physical Contact, revenue-generating/nonrevenue-generating, etc.) and how those factors may  
395 influence injured athletes' expectations of the Facilitative Environment and SMP Expertise.

396           From a practical perspective, facilitating Personal Commitment from athletes during  
397 injury rehabilitation is a relevant concern for SMPs. Extensive literature suggests that athletes'  
398 active involvement and adherence in the rehabilitation process leads to successful coping with  
399 injury,<sup>32,34-36,44</sup> as well as positive rehabilitation outcomes (e.g., enhanced recovery).<sup>45</sup>

400           In addition to facilitating Personal Commitment, SMPs should be concerned with ways  
401 to nurture a Facilitative Environment (offering social support, listening and being positive)<sup>8,40</sup>

402 and apply their SMP Expertise (through injury education, use of targets/goal setting, answering  
403 questions and cutting edge treatments/exercises).<sup>40</sup> Furthermore, it is possible that Personal  
404 Commitment, Facilitative Conditions, and SMP Expertise influence each other; for example,  
405 SMPs may enhance Personal Commitment through demonstrating expertise as well as fostering  
406 a facilitating environment. In this manner, the EAAT questionnaire may be a useful tool to aid  
407 SMPs in understanding the preconceived expectations by athletes who have just incurred an  
408 injury. This understanding up front could provide useful information for SMPs who are  
409 interested in building a quality relationship with the injured athletes that they are treating.  
410 Moreover, this approach would allow SMPs to continue to meet individual and group needs as  
411 well as to help athletes form realistic expectations about their treatments. Although  
412 generalizations cannot be made, the results of this study suggest that SMPs may need to  
413 approach athletes from different sports and countries by first determining their existing beliefs  
414 and expectations. Then, to further foster a Facilitative Environment and enhance Personal  
415 Commitment, SMPs must ensure that the fulfillment of those expectations are realistic within the  
416 athlete's current cultural context. In addition, previous findings have suggested that expectations  
417 and attitudes (i.e., Personal Commitment and Facilitative Conditions) may differ by gender<sup>10,11</sup>  
418 as well as previous rehabilitation experience.<sup>10</sup>

419 This study is not without its limitations and several are noteworthy. First, generalizability  
420 of the results from the present study may be limited because a convenient sample was used for  
421 obtaining participants. All participants from the US in this study were collegiate athletes, but the  
422 participation criterion of "athlete" was more inclusive with the sample of Finnish and UK  
423 participants. As mentioned previously, the structure and culture of sports among universities in

424 Finland and the UK is different, and consequently, athletes who had completed the survey  
425 included those who compete at various levels of competition (e.g., collegiate, professional, and  
426 recreational club athletes) and identified themselves as “athlete” regardless of whether they were  
427 attending college or not. This apparent lack of homogeneity among the sample can be seen as  
428 one disadvantage of the study. However, it also has an advantage to illustrate the apparent  
429 structural and cultural differences in how sports are organized among these different countries.

430 Another limitation was due to the researchers having limited control over the  
431 demographic characteristics gathered from the participants (e.g., age, ethnicity). Some  
432 institutional review boards had limited the type of demographic information that was allowed to  
433 be collected in order to preserve anonymity, especially with high profile athletes. Therefore, it  
434 was difficult to determine whether the current study precludes the researchers from knowing  
435 whether participants are represented in different cultural contexts (i.e., international students who  
436 were not in their native countries), and if their expectations may have varied from the majority  
437 (native participants) that had been sampled in each country. Given that the sample countries in  
438 this study were conveniently selected, it is suggested that future research should investigate the  
439 expectations of athletes from countries other than those investigated in this study, as well as  
440 assess athletes who are not residing in the country of their origin.

441 Another example of the present study’s limitations may have been the length of the  
442 EAAT questionnaire. The EAAT is a 66-item self-report questionnaire, and as such, some  
443 participants may have experienced questionnaire fatigue in their responses, and thus, did not  
444 provide accurate or truthful answers to the questions that were presented later.<sup>46</sup> Given the length  
445 of the EAAT, and in order for it to be a useful practical tool for SMPs, it may be worthwhile to

446 develop a shortened form in order to enhance the applied relevance of the measure. It may also  
447 be beneficial to expand upon the knowledge currently gained through the current study as well as  
448 other survey research<sup>10,11</sup> by using qualitative methodology, and conducting cross-cultural  
449 interviews with athletes and coaches about their expectations concerning sport medical services.

450 As noted earlier in the Results section, the magnitude of the effect size was small for both  
451 analyses and as such, can be seen as another limitation of the study. A small magnitude of the  
452 effect size indicates that the strength of the relationship between the variables may not be strong  
453 enough,<sup>47</sup> and interpretation along with discussion of the meaningfulness of these results should  
454 be done with caution. Future research should address this drawback by including a larger, yet  
455 more equally-balanced sample of athletes who have differing levels of competitive experiences  
456 from various countries in order to gain a better understanding of possible cultural differences.

#### 457 **Conclusions**

458 In conclusion, based on research findings to date, culturally-competent care of an injured  
459 athlete begins with acknowledgement of the athlete's differences based on gender, country of  
460 origin, and sport type. To facilitate sport-injury rehabilitation, care providers should factor in the  
461 athlete's own Personal Commitment, perceptions of Facilitative Conditions and perceptions of  
462 SMP Expertise. Those working with US athletes would likely benefit from considering the  
463 importance of sport participation to them academically, socially, and economically when  
464 providing a supportive rehabilitation environment. Likewise, when working with Physical  
465 Contact athletes, clinicians need to also demonstrate that their expertise in the recovery process  
466 meets the expectations of the injured athlete.

467

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