

TITLE

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

AUTHOR

Arvinen-Barrow, Monna; Clement, D.; Hamson-Utley, Jennifer J.; et al.

JOURNAL

Journal of Sport Rehabilitation

DATE DEPOSITED

28 September 2016

This version available at

<https://research.stmarys.ac.uk/id/eprint/1239/>

COPYRIGHT AND REUSE

Open Research Archive makes this work available, in accordance with publisher policies, for research purposes.

VERSIONS

The version presented here may differ from the published version. For citation purposes, please consult the published version for pagination, volume/issue and date of publication.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

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

23

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.

48

49

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

52

53

54 Sport and exercise-related injury statistics in the United States (US),¹ United Kingdom
55 (UK),² and Finland³ indicate that sport injuries throughout the world can be considered an
56 inevitable part of most athletes' careers. Injured athletes often experience emotional distress,⁴
57 including feelings of anxiety and depression,⁴ which may cause other negative responses such as
58 panic and helplessness,⁵ in addition to feelings of being "powerless and dependent."⁶ 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,^{7,8} 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.^{7,9} 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.^{10,11} These expectations can become an integral part in the effectiveness of the
67 assistance received¹² and may ultimately influence the efficiency of the rehabilitation process.⁸
68 When coupled with athletes' efficacy beliefs, these hopes can also play an important role in
69 influencing their behavior during the rehabilitation process.¹³ Indeed, they may have an influence
70 on whether injured athletes: (a) use the sports medicine services provided,¹⁴ 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.¹⁵

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.¹⁰ found that gender and previous experience with an SMP can influence athletes'
78 expectations of ATs and the injury rehabilitation process. Feltham and Horton¹⁶ 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,¹⁸
82 which can ultimately influence expectations of treatment.¹⁷

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.¹⁸ 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.¹⁹ 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.²⁰ 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

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 ± 5.49 years of sport experience ($M =$ US 9.61 ± 28.00 ; UK
134 8.85 ± 27.75 ; Finland 13.02 ± 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.²⁶ 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).^{27,28} 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 18th 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.²⁹ 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 0.50-0.89.¹⁰

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 18th scale, Realism, being dependent upon a local rehabilitation situation^{10,29},
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.¹¹ 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.²⁶ 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.^{26,30} 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 Coakley²⁶ 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.²⁶ According to
311 Kenow and Kamphoff,³¹ 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 play³¹; 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.³²⁻³⁶ 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 origin³⁹ (see Arivnen-Barrow & Walker, 2013 for more details on use of range
335 of intervention techniques used in sport injury rehabilitation, see ³⁷rehabilitation). 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)²⁶ 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.^{28,40} 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.¹⁰ 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.^{26,38} 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.³⁹ 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.⁴⁰ 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.”⁴⁰ 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.⁴¹ 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.^{18,20,42,43} 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,^{32,34-36,44} as well as positive rehabilitation outcomes (e.g., enhanced recovery).⁴⁵

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)^{8,40}

402 and apply their SMP Expertise (through injury education, use of targets/goal setting, answering
403 questions and cutting edge treatments/exercises).⁴⁰ 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^{10,11}
418 as well as previous rehabilitation experience.¹⁰

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.⁴⁶ 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^{10,11} 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,⁴⁷ 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

References

- 468
- 469 **1.** Conn JM, Annest JL, Gilchrist J. Sports and recreation related injury episodes in the US
470 population, 1997-99. *Inj Prev.* June 1, 2003 2003;9(2):117-123.
- 471 **2.** Uitenbroek DG. Sports, exercise, and other causes of injuries: Results of a population
472 survey. *Research Quarterly for Exercise and Sport.* 1996;67:380-385.
- 473 **3.** Konttinen N, Mononen K, Pihlaja T, Sipari T, Arvinen-Barrow M, Selanne H.
474 Urheiluvammojen esiintyminen ja niiden hoito nuorisourheilussa - Kohderyhmänä 1995
475 syntyneet urheilijat [Sport injury occurrence and treatment in youth sports - athletes born
476 in 1995 as a target population]. *KIHUn julkaisusarja nro 25 (PDF-julkaisu).* 2011:1-16.
477 <http://www.kihu.jyu.fi/tuotokset/haku/index.php?hae=Tee+haku#TOC2011>.
- 478 **4.** Appaneal RN, Levine B, Perna FM, Roh L. Measuring postinjury depression among male
479 and female competitive athletes. *Journal of Sport & Exercise Psychology.* 2009;31:60-76.
- 480 **5.** Washington-Lofren L, Westerman BJ, Sullivan PA, Nashman HW. The role of the
481 athletic trainer in the post-injury psychological recovery of collegiate athletes.
482 *International Sports Journal.* 2004;8:94-104.
- 483 **6.** Ermler KL, Thomas CE. Interventions for the alienating effect of injury. *Journal of*
484 *Athletic Training.* 1990;25:269e271.
- 485 **7.** Hovarth AO, Greenberg LS. *The working alliance: Theory, research, and practice* New
486 York, NY: Oxford University Press; 1994.
- 487 **8.** Russell H, Tracey J. What do injured athletes want from their health care professionals?
488 *International Journal of Athletic Therapy & Training.* 2011;16(5):18-21.

- 489 **9.** Andersen MB. Collaborative relationship in injury rehabilitation: Two case examples. In:
490 Pargman D, ed. *Psychological bases of sport injuries*. 3rd ed. Morgantown, WV: Fitness
491 Information Technology; 2007:219-236.
- 492 **10.** Clement D, Hamson-Utley JJ, Arvinen-Barrow M, Kamphoff C, Zakrajsek RA, Martin
493 SB. College athletes' expectations about injury rehabilitation with an athletic trainer.
494 *International Journal of Athletic Therapy & Training*. 2012;17(4):18-27.
- 495 **11.** Arvinen-Barrow M, Clement D, Bayes N. Athletes attitudes towards physiotherapist.
496 *International Journal of Multi-Disciplinary Studies and Sports Research*.
497 2012;2(July):324-334.
- 498 **12.** Hardin SI, Subich LM, Holvey JM. Expectancies for counseling in relation to premature
499 termination. *Journal of Counseling Psychology*. 1988;35:37-40.
- 500 **13.** Bandura A. *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman and
501 Company; 1997.
- 502 **14.** Leffingwell TR, Rider SP, Williams JM. Application of the transtheoretical model to
503 psychological skills training. *The Sport Psychologist*. 2001;15:168-187.
- 504 **15.** Fisher AC, Hoisington LL. Injured athletes' attitudes and judgements toward
505 rehabilitation adherence. *Journal of Athletic Training*. 1993;28(1):48-54.
- 506 **16.** Feltham C, Horton I, eds. *Handbook of counseling and psychotherapy*. London: Sage
507 Publications; 2000.
- 508 **17.** Fitzgerald MH. Multicultural clinical interactions. *Journal of Rehabilitation*.
509 1992;April/May/June:38-42.

- 510 **18.** Johnson R, Shah SA, J, Beach M, Cooper L. Racial and ethnic differences in patient
511 perceptions of bias and cultural competence in health care. *Journal of General Internal*
512 *Medicine*. 2004;19:101-110.
- 513 **19.** Saha S, Komaromy M, Koepsell T, Bindman A. Patient-physician racial concordance and
514 perceived quality and use of health care. *Arch Intern Med*. 1999;159:997-1004.
- 515 **20.** Dover Wandner L, Devlin AS, Christler JC. Sports-related pain: Exploring the perception
516 of athletes' pain. *Athletic Insight*. 2011;3(1):41-57.
- 517 **21.** Nixon HL. Explaining pain and injury attitudes and experiences in sport in terms of
518 gender, race, and sports status factors. *Journal of Sport and Social Issues*. 1996;20:33-44.
- 519 **22.** National Athletic Trainers' Association. *Athletic Training Educational Competencies*. 5th
520 ed ed. Dallas, TX: National Athletic Trainers' Association; 2011.
- 521 **23.** Jyväskylä University of Applied Sciences. Koulutusohjelma: Fysioterapian
522 koulutusohjelma (Syllabus: Physiotherapy degree syllabus). . 2013;
523 https://asio.jamk.fi/pls/asio/asio_rakenne_julkaisu.rakenne_komp_osaamisalue?ckohj=SP
524 [T&csuunt=99999&cvuosi=2S&caste=N&cark=2012-2013](https://asio.jamk.fi/pls/asio/asio_rakenne_julkaisu.rakenne_komp_osaamisalue?ckohj=SP). Accessed March 10th, 2013.
- 525 **24.** Schinke RJ, Hanrahan SJ, Catina P. Introduction to cultural sport psychology. In: Schinke
526 RJ, Hanrahan SJ, eds. *Cultural Sport Psychology*. Champaign; IL: Human Kinetics;
527 2009:3-12.
- 528 **25.** Marra J, Covassin T, Shingles RR, Branch Canady R, Mackowiak T. Assessment of
529 certified athletic trainers's level of cultural competence in the delivery of health care.
530 *Journal of Athletic Training*. 2010;45(4):380-385.

- 531 **26.** Coakley JJ. *Sport in society: Issues and controversies*. 11th ed. Boston, MA: McGraw-
532 Hill; 2014.
- 533 **27.** Martin SB, Akers A, Jackson AW, et al. Male and female athletes' and nonathletes
534 expectations about sport psychology consulting. *Journal of Applied Sport Psychology*.
535 2001;13(1):18-39.
- 536 **28.** Tinsley HEA. *Expectations about counseling*. Carbonale, IL, Southern Illinois
537 University; 1982.
- 538 **29.** Levant RF, Pollack WS, eds. *A new psychology of men*. New York, NY: Basic Books;
539 1995.
- 540 **30.** Chandler TJJ, Goldberg AD. The academic All-American as vaunted adolescent role-
541 identity. *Sociology of Sport Journal*. 1990;7(3):287-293.
- 542 **31.** Kenow LJ, Kamphoff C. Socio-cultural aspects of injury and injury response. In:
543 Granquist MD, Hamson-Utley JJ, Kenow L, Stiller-Ostrowski J, eds. *Psychosocial*
544 *strategies for athletic trainers: An applied and integrated approach*. Philadelphia, PA:
545 FA Davis Publishers; in press.
- 546 **32.** Arvinen-Barrow M, Penny G, Hemmings B, Corr S. UK chartered physiotherapists'
547 personal experiences in using psychological interventions with injured athletes: an
548 interpretative phenomenological analysis. *Psychology of Sport & Exercise*.
549 2010;11(1):58-66.
- 550 **33.** Hemmings B, Povey L. Views of chartered physiotherapists on the psychological content
551 of their practice: a preliminary study in the United Kingdom. *British Journal of Sports*
552 *Medicine*. 2002;36(1):61-64.

- 553 **34.** Lafferty ME, Kenyon R, Wright CJ. Club-based and non-clubbased physiotherapists'
554 views on the psychological content of their practice when treating sports injuries
555 *Research in Sports Medicine*. 2008;16:295-306.
- 556 **35.** Larson GA, Starkey C, Zaichkowsky LD. Psychological aspects of athletic injuries as
557 perceived by athletic trainers. *The Sport Psychologist*. 1996;10(1):37-47.
- 558 **36.** Clement D, Granquist MD, Arvinen-Barrow M. Psychosocial aspects of athletic injuries
559 as perceived by athletic trainers *Journal of Athletic Training*. 2013;48(4):512-521.
- 560 **37.** Arvinen-Barrow M, Walker N, eds. *Psychology of sport injury and rehabilitation*.
561 Abington: Routledge; 2013.
- 562 **38.** Martin SB, Andersen MB. Helping intercollegiate athletes in and out of sport. In: Van
563 Raalte JL, Brewer BW, eds. *Exploring sport and exercise psychology*. 3rd ed.
564 Washington, DC: American Psychological Association; 2013.
- 565 **39.** Armentrout S, Kamphoff C, Thomae J. Photographic images in sports illustrated for kids:
566 An analysis of sport coverage and gender representation. *Manuscript submitted for*
567 *publication*. 2012.
- 568 **40.** Arvinen-Barrow M, Massey WV, Hemmings B. Role of sport medicine professionals in
569 addressing psychosocial aspects of sport-injury rehabilitation: Professional athletes'
570 views. *Journal of Athletic Training*. 2014;49:764–772.
- 571 **41.** Casa DJ, Anderson SA, Baker L, et al. The inter-association task force for preventing
572 sudden death in collegiate conditioning sessions: Best practices recommendations.
573 *Journal of Athletic Training*. 2012;47(477-480).

- 574 **42.** Douglas M. Pain is the fifth vital sign: Will cultural variations be considered? *Journal of*
575 *Transcultural Nursing*. 1999;10:285.
- 576 **43.** Trawalter S, Hoffman K, Waytz A. Racial bias in perceptions of others' pain. *PLOS*
577 *ONE*. 2012;7(11):1-8.
- 578 **44.** Arvinen-Barrow M, Hemmings B, Weigand DA, Becker CA, Booth L. Views of
579 chartered physiotherapists on the psychological content of their practice: A national
580 follow-up survey in the United Kingdom. *Journal of Sport Rehabilitation*. 2007;16:111-
581 121.
- 582 **45.** Brewer BW, Cornelius AE, Van Raalte JL, et al. Rehabilitation adherence and anterior
583 cruciate ligament reconstruction outcome. *Psychology, Health, & Medicine*. 2004;9:163-
584 175.
- 585 **46.** Rathod S, LaBruna A. Questionnaire length and fatigue: Does size really matter?
586 *ESOMAR. Worldwide Panel Research Conference 2005 Proceedings*. 2005.
587 [http://www.esomar.org/web/research_papers/Web-Panel_1092_Questionnaire-length-](http://www.esomar.org/web/research_papers/Web-Panel_1092_Questionnaire-length-and-fatigue.php)
588 [and-fatigue.php](http://www.esomar.org/web/research_papers/Web-Panel_1092_Questionnaire-length-and-fatigue.php). Accessed August 15, 2013.
- 589 **47.** Tomczak M, Tomczak E. The need to report effect size estimates revisited. An overview
590 of some recommended measures of effect size *TRENDS in Sport Sciences*.
591 2014;1(21):19-25.