

## INTRODUCTION

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

Tendon-related pain is a common musculoskeletal condition characterised by pain during an activity which applies load to a tendon (Rio et al., 2014). For example, pain related to Achilles tendon-related pain can be commonly experienced with heel raises and pain related to the rotator cuff can be commonly experienced with lifting the arm away from the body. Tendon-related pain affects a wide range of people and affects both function and quality of life (Grimaldi et al., 2015; Malliaras et al., 2015). A wide range of treatments are used to treat people with tendon-related pain, including exercise therapy, injection therapy, shockwave therapy and acupuncture (Mitham et al., 2020; Van Der Vlist et al., 2020).

Why some people with recent onset tendon-related pain recover and others go on to experience persistent pain and disability is unclear. One unknown factor is whether management decisions during early consultations influence prognosis. Passive treatments, such as complete rest, have a high variability in tendon load and may lead to persistent pain and disability in runners with Achilles tendon-related pain (Cardoso et al., 2019; Lagas et al., 2020), suggesting a possible link between treatment and persisting symptoms, and the need to consider this further.

To allow early access to expert musculoskeletal treatment, a recent change has been the evolution of the role of First Contact Practitioners (FCP within the NHS (Addley et al., 2010; NHS England, 2019). FCPs are physiotherapists working directly in GP practices and treating people with musculoskeletal problems.

The practice of this wide range of healthcare professionals within a primary contact setting for people with recent onset tendon-related pain has not been investigated. Given the potential importance of initial management strategies, it is important to understand healthcare professional's current practice and any variability between FCPs and other clinicians (OCs). This survey aimed to report the practice used by different healthcare professionals for two

26 recent onset tendon-related pain scenarios in a primary contact setting. A secondary aim of  
27 the survey was to understand if practice differed between locations of pain.

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

## MATERIALS AND METHODS

### Design

49 We undertook a cross-sectional online survey hosted by Qualtrics ([X](#)).

### Survey Development

51 The survey was designed by the study team with reference to two scenarios that reflect recent  
52 onset tendon-related scenarios in the shoulder and Achilles (*Table 1*). Recent onset was  
53 defined as less than three month duration. The shoulder and Achilles were chosen as locations  
54 due to the high prevalence in upper limb and lower limb tendon pain (Littlewood et al., 2013;  
55 Riel et al., 2019).

56 The survey was piloted by three members of the study team and two clinical physiotherapists.  
57 The survey was then modified accordingly, including adding 'not applicable' responses where  
58 indicated and amalgamating questions and changing wording to improve flow and  
59 understanding. Based on the findings from the pilot testing, the survey took less than 10  
60 minutes to complete. The survey was open for one month to 17 December 2020.

### Participants

62 We recruited a convenience sample of healthcare professionals, of any professional  
63 background, involved in the management of recent onset musculoskeletal conditions in a  
64 primary contact setting, for example, GPs, physiotherapists including FCPs, and chiropractors.  
65 Potential respondents were invited to participate via personal email, professional networks,  
66 and Twitter.

### Data Analysis

68 Ethical approval to conduct this research was granted by the University Ethics Science and  
69 Health Faculty, University of X (ETH2021-0325). Data were exported from Qualtrics to IBM  
70 SPSS Statistics, version 25, and Microsoft Excel. The difference in proportion of responses  
71 between the shoulder and Achilles scenarios, and between FCPs and OCs were analysed

72 using the Chi-Square test. Statistical significance was set at  $p \leq 0.05$ . For questions which  
73 allowed multiple answers, analysis between FCPS and OCs, descriptive statistics were  
74 presented.

75

76

77

78

79

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

## RESULTS

95 In total, 118 surveys were completed; 103 (87%) respondents completed both scenarios and  
96 118 (100%) respondents completed just the first. The response by professional background  
97 is shown in *Table 2*. The descriptive data from the survey is displayed in *Appendix 1*.

### Diagnosis

99 *Rotator Cuff Related Shoulder Pain (RCRSP)* was the preferred diagnostic term by 64/118  
100 (54.2%) for the shoulder scenario. *Achilles tendinopathy* was the preferred term by 86/103  
101 (83.5%) for the Achilles scenario.

### Management

103 Rest was not advised for the shoulder or Achilles scenario by 96/118 (81.4%) and 73/103  
104 (70.9%) respondents, respectively. The difference between scenarios for rest was not  
105 statistically significant ( $p=0.07$ ). Rest was not advised by 18/23 (78.3%) FCPs, and 77/95  
106 (81.1%) OCs for the shoulder scenario. Rest was not advised by 13/23 (65.0%) FCPs and  
107 60/83 (72.3%) OCs for the Achilles scenario. The difference between FCPs and OCs advising  
108 rest for the shoulder and Achilles was not statistically significant ( $p=0.44$ ;  $p=0.54$ )

109 Medication was not recommended by 53/118 (44.9%) for the shoulder scenario and 66/103  
110 (64.1%) for the Achilles. Non-opioid medication was recommended by 53/118 (44.9%) for the  
111 shoulder scenario and 28/103 (27.2%) for the Achilles. The difference between scenarios  
112 regarding medication was not statistically significant ( $p=0.1$ ). NSAIDs were recommended by  
113 3/23 (13.0%) FCPs compared to 5/95 (5.3%) OCs for the shoulder scenario ( $p=0.006$ ).  
114 NSAIDs were recommended by 4/20 (20.0%) FCPs compared to 4/83 (4.8%) OCs for the  
115 Achilles scenario ( $p=0.046$ ) (*Table 3*).

116

117 Injections were not recommended by 113/118 (95.8%) for the shoulder scenario and 103/103  
118 (100%) for the Achilles.

119 Amended duties were advised for manual workers by 37/118 (31.4%) in the shoulder scenario  
120 and 14/103 (13.6%) for the Achilles. The difference between scenarios regarding return to  
121 work was statistically significant ( $p<0.0001$ ). This difference was not observed for office  
122 workers ( $p=0.49$ ). There was no statically significant difference in the management of return  
123 to work for manual workers between FCPs and OCs for the shoulder scenario ( $p=0.65$ ) or the  
124 Achilles ( $p=0.97$ ).

#### 125 Treatment Modalities

126 Adjuncts to exercise were not recommended by 44/118 (37.3%) for the shoulder scenario and  
127 39/103 (37.9%) for the Achilles, respectively. Nine different adjuncts were recommended at  
128 least once. “*Ice and/or heat*” was the most popular modality advised, 52/118 (44.1%) for the  
129 shoulder scenario and 52/103 (50.5%) for the Achilles. “*Massage*” was selected by 4/118  
130 (3.4%) for the shoulder scenario and 14/103 (13.6%) respondents for the Achilles. There was  
131 no statistically significant difference between the two scenarios regarding the use of adjuncts  
132 to exercise ( $p=0.782$ ).

133 Exercise was recommended by 116/118 (98.3%) for the shoulder scenario and 102/103 (99%)  
134 for the Achilles. Isometric and isotonic exercises were the most popular treatment advised for  
135 both scenarios (*Fig. 2*). Eccentric exercises were recommended by 22/118 (18.6%) of the  
136 respondents for the shoulder scenario compared to 35/103 (34.0%) for the Achilles. Heavy  
137 slow resistance exercises were recommended by 17/118 (14.4%) of the respondents for the  
138 shoulder scenario compared to 29/103 (28.2%) respondents for the Achilles. There was no  
139 statistically significant difference between the two scenarios ( $p=0.086$ ).

#### 140 Lifestyle factors

141 The role of obesity was discussed by 82/118 (69.5%) for the shoulder scenario compared to  
142 95/103 (94.1%) for the Achilles (*Fig. 3*). The role of alcohol was discussed by 60/118 (51.7%)  
143 for the shoulder scenario and 55/103 (54.5%) for the Achilles.

#### 144 Psychosocial factors

145 Occupational factors were discussed by 111/118 (94.1%) for the shoulder scenario compared  
146 to 87/118 (84.5%) for the Achilles. Support of friends and family was discussed by 70/118  
147 (59.3%) for the shoulder scenario and 59/103 (57.3%) for the Achilles.

148 Prognosis

149 Resolution of symptoms within one month was expected by 18/118 (15.3%) for the shoulder  
150 scenario compared to 8/103 (7.8%) for the Achilles. Resolution of symptoms within one to two  
151 months was expected by 51/118 (43.2%) for the shoulder scenario compared to 29/103  
152 (28.2%) for the Achilles (*Fig. 4*). Resolution of symptoms within one month was expected for  
153 the shoulder scenario by 1/23 (4.3%) FCP compared to 17/95 (17.9%) OCs (*Fig. 5*).

154 A follow up visit with a healthcare professional was advised recommended by 102/118 (86.4%)  
155 for the shoulder scenario and 91/103 (88.3%) for the Achilles. A follow-up appointment was  
156 advised by 84/95 (88.4%) and 75/83 (90.4%) OCs for the shoulder and Achilles scenarios,  
157 respectively. A follow-up appointment was advised by 18/23 (78.3%) and 16/20 (80.0%) FCPs  
158 for the shoulder and Achilles scenarios, respectively.

159

160

161

162

163

164

165

166

167

168

## DISCUSSION

169 We conducted a survey to investigate current practice in relation to recent onset tendon-  
170 related pain in a primary contact setting. To the authors' knowledge, this is the first survey to  
171 investigate this and compare both FCPs and OCs, and different locations of pain for  
172 management of recent onset tendon-related pain.

173 Despite both scenarios being identical except the location in pain, there were significant  
174 differences in the approach to the management, prognosis, and recommendations for  
175 modifications in workload. Reasons for the difference of management are uncertain, but it is  
176 suggested that a similar approach between healthcare professionals to recent-onset  
177 atraumatic musculoskeletal conditions should be adopted (Caneiro et al., 2020).

178 Diagnostic labels may influence patients understanding, expectations and beliefs regarding  
179 musculoskeletal conditions (Carroll et al., 2016). This survey highlighted some uncertainty  
180 regarding diagnostic label due to a wider range of diagnostic labels suggested for the shoulder  
181 scenario compared to the Achilles. This is unsurprising; recent expert consensus was gained  
182 for the diagnostic label for the Achilles tendon-related pain, but consensus could not be  
183 reached for tendon-related pain at the shoulder (Scott et al., 2020). Nevertheless, clinicians  
184 should be aware the impact of language and diagnostic labels they use with patients and how  
185 it may influence understanding, behaviour and therefore outcomes from treatment (Cuff &  
186 Littlewood, 2018).

187 NSAIDs are frequently prescribed drugs to ease pain and reduce inflammation for recent-  
188 onset musculoskeletal conditions (NHS, 2019). Paracetamol and/or NSAIDs are  
189 recommended in the early stage of both shoulder tendon-related pain and Achilles tendon-  
190 related pain, but are not recommended in the longer term (NICE, 2017, 2020). Maquirriain &  
191 Kokalj (2014) found significant improvement in pain intensity for recent-onset Achilles tendon-  
192 related pain when treated with NSAIDs. NSAIDs have been shown to be superior to placebo  
193 but there is no evidence about how they compare to other treatments such as exercise for



194 shoulder tendon-related pain (Steuri et al., 2017). In this survey, FCPs were more likely to  
195 recommend NSAIDs for both scenarios compared to OCs.

196 Imaging is not considered necessary for a clinical diagnosis of tendon-related pain, and should  
197 only be used for differential diagnosis (Scott et al., 2020). The majority of respondents did not  
198 recommend further investigations or steroid injections for the either scenario. This compares  
199 favourably to the management of shoulder tendon-related pain by GPs with research reporting  
200 up to 53% of new shoulder tendon-related pain presentations being referred by GPs for  
201 imaging (Naunton et al., 2020).

202 Healthcare professionals have an important role in the return-to-work process for people  
203 complaining of shoulder and Achilles tendon-related pain and early intervention has been  
204 suggested a key recommendation (Doiron-Cadrin et al., 2020). Amended duties were more  
205 likely to be recommended for the shoulder scenario compared to the Achilles for manual  
206 workers ( $p < 0.0001$ ). Given our understanding of the negative impact of not being at work for  
207 other musculoskeletal conditions (Foster et al., 2018), exploring reasons for this advice for  
208 would be beneficial.

209 Isometric exercises were the most popular for both scenarios, despite the limited evidence of  
210 effectiveness (Mitham et al., 2020; van der Vlist et al., 2020). Both eccentric and heavy slow  
211 resisted exercises were preferred for Achilles scenario, despite current research suggesting  
212 no superiority between exercises (Head et al., 2019; Van Der Vlist et al., 2020). This is  
213 particularly interesting given the majority of respondents recommended a follow up visit with  
214 a healthcare professional for both scenarios. The wide variety of exercise modalities chosen  
215 by the participants, suggests further research is needed to improve our understanding around  
216 treatment effectiveness for recent onset tendon-related pain, including a wait and see  
217 approach.

218 Moderate alcohol consumption has been suggested as a potential risk factor for Achilles  
219 tendon-related pain (Van Der Vlist et al., 2019), as well as metabolic factors for both shoulder

220 and Achilles tendon-related pain (Burne et al., 2019; O'Neill et al., 2016). Respondents in this  
221 survey were more likely to discuss obesity, smoking and physical activity for the Achilles  
222 scenario compared to the shoulder, despite the association between these factors and  
223 shoulder pain (Özkuk & Ateş, 2020; Rechartt et al., 2010). In non-athletic individuals,  
224 metabolic factors have been suggested to be more prevalent and can negatively influence the  
225 recovery of tendon-related pain with exercise treatment (Millar et al., 2021).

226 In regards to resolution of symptoms, the difference between FCPs and OCs was not  
227 statistically significant, but we observed a trend towards OCs recommending a more  
228 favourable recovery. Improvement in Achilles tendon-related pain can be observed after 12  
229 weeks of a loading exercise program, but some people may still have ongoing pain and  
230 reduced function (Murphy et al., 2018). Discussions between clinicians and patients are  
231 important in healthcare. The respondents in this survey may have been too optimistic for an  
232 earlier recovery as 43.2% of respondents expected resolution of symptoms within one to two  
233 months for the shoulder scenario. Patients want clear and consistent information regarding  
234 prognosis for musculoskeletal pain (Lim et al., 2019). It is important clinicians provide clear  
235 and consistent information regarding prognosis to facilitate realistic expectations for patients  
236 (Lim et al., 2019).

### 237 Study limitations

238 The limited number of self-selected responders means the results might not be generalisable  
239 to the wider population of clinicians involved in the management of recent onset tendon-related  
240 pain in a primary care setting. Recruitment for this survey was conducted, in part, via Twitter  
241 which may have excluded healthcare professionals who do not use this platform or other  
242 platforms instead. Survey studies are also susceptible to response, social and acquiescence  
243 bias as individuals with an interest are more likely to respond. However, the use of additional  
244 recruitment strategies including email and professional networks may have gone some way to  
245 mitigate this.

246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257  
258  
259  
260  
261  
262  
263  
264  
265  
266  
267

CONCLUSION

Data from this survey highlights some consistency between clinicians in their management of recent onset tendon-related pain; the majority of clinicians recommend against further investigations, steroid injections and recommending for exercise as an intervention. Understanding whether these approaches are clinically effective requires further investigation.

- 269 Addley, K., Burke, C., & McQuillan, P. (2010). Impact of a direct access occupational  
270 physiotherapy treatment service. *Occupational Medicine*, 60(8), 651–653.  
271 <https://doi.org/10.1093/occmed/kqq160>
- 272 Babatunde, O. O., Jordan, J. L., Van Der Windt, D. A., Hill, J. C., Foster, N. E., & Protheroe,  
273 J. (2017). Effective treatment options for musculoskeletal pain in primary care: A  
274 systematic overview of current evidence. In *PLoS ONE* (Vol. 12, Issue 6).  
275 <https://doi.org/10.1371/journal.pone.0178621>
- 276 Burne, G., Mansfield, M., Gaida, J. E., & Lewis, J. S. (2019). Is there an association between  
277 metabolic syndrome and rotator cuff-related shoulder pain? A systematic review. *BMJ*  
278 *Open Sport and Exercise Medicine*, 5(1). <https://doi.org/10.1136/bmjsem-2019-000544>
- 279 Caneiro, J. P., Alaiti, R. K., Fukusawa, L., Hespanhol, L., Brukner, P., Sullivan, P. P. B. O.,  
280 An, L., & Pain, A. S. (2020). There is more to pain than tissue damage : eight principles  
281 to guide care of acute non- - traumatic pain in sport. *British Journal of Sports Medicine*,  
282 0(0), 1–2. <https://doi.org/10.1136/bjsports-2019-101705>
- 283 Cardoso, T. B., Pizzari, T., Kinsella, R., Hope, D., & Cook, J. L. (2019). Current trends in  
284 tendinopathy management. *Best Practice and Research: Clinical Rheumatology*, 33(1),  
285 122–140. <https://doi.org/10.1016/j.berh.2019.02.001>
- 286 Carroll, L. J., Lis, A., Weiser, S., & Torti, J. (2016). How Well Do You Expect to Recover, and  
287 What Does Recovery Mean, Anyway? Qualitative Study of Expectations After a  
288 Musculoskeletal Injury. *Physical Therapy*, 96(6), 797–807.  
289 <https://doi.org/10.2522/ptj.20150229>
- 290 Cuff, A., & Littlewood, C. (2018). Subacromial impingement syndrome – What does this  
291 mean to and for the patient? A qualitative study. *Musculoskeletal Science and Practice*,  
292 33(August 2017), 24–28. <https://doi.org/10.1016/j.msksp.2017.10.008>

293 Doiron-Cadrin, P., Lafrance, S., Saulnier, M., Cournoyer, É., Roy, J. S., Dyer, J. O.,  
294 Frémont, P., Dionne, C., MacDermid, J. C., Tousignant, M., Rochette, A., Lowry, V.,  
295 Bureau, N. J., Lamontagne, M., Coutu, M. F., Lavigne, P., & Desmeules, F. (2020).  
296 Shoulder Rotator Cuff Disorders: A Systematic Review of Clinical Practice Guidelines  
297 and Semantic Analyses of Recommendations. *Archives of Physical Medicine and*  
298 *Rehabilitation*, 101(7), 1233–1242. <https://doi.org/10.1016/j.apmr.2019.12.017>

299 Foster, N. E., Anema, J. R., Cherkin, D., Chou, R., Cohen, S. P., Gross, D. P., Ferreira, P.  
300 H., Fritz, J. M., Koes, B. W., Peul, W., Turner, J. A., Maher, C. G., Buchbinder, R.,  
301 Hartvigsen, J., Cherkin, D., Foster, N. E., Maher, C. G., Underwood, M., van Tulder, M.,  
302 ... Woolf, A. (2018). Prevention and treatment of low back pain: evidence, challenges,  
303 and promising directions. *The Lancet*, 391(10137), 2368–2383.  
304 [https://doi.org/10.1016/S0140-6736\(18\)30489-6](https://doi.org/10.1016/S0140-6736(18)30489-6)

305 Grimaldi, A., Mellor, R., Hodges, P., Bennell, K., Wajswelner, H., & Vicenzino, B. (2015).  
306 Gluteal Tendinopathy: A Review of Mechanisms, Assessment and Management. *Sports*  
307 *Medicine*, 45(8), 1107–1119. <https://doi.org/10.1007/s40279-015-0336-5>

308 Head, J., Mallows, A., Debenham, J., Travers, M. J., & Allen, L. (2019). The efficacy of  
309 loading programmes for improving patient-reported outcomes in chronic midportion  
310 Achilles tendinopathy: A systematic review. *Musculoskeletal Care*, 17(4), 283–299.  
311 <https://doi.org/10.1002/msc.1428>

312 Lagas, I. F., Fokkema, T., Bierma-Zeinstra, S. M. A., Verhaar, J. A. N., van Middelkoop, M.,  
313 & de Vos, R. (2020). How many runners with new-onset Achilles tendinopathy develop  
314 persisting symptoms? A large prospective cohort study. *Scandinavian Journal of*  
315 *Medicine & Science in Sports*, sms.13760. <https://doi.org/10.1111/sms.13760>

316 Lim, Y. Z., Chou, L., Au, R. T., Seneviwickrama, K. M. D., Cicuttini, F. M., Briggs, A. M.,  
317 Sullivan, K., Urquhart, D. M., & Wluka, A. E. (2019). People with low back pain want  
318 clear, consistent and personalised information on prognosis, treatment options and self-

319 management strategies: a systematic review. *Journal of Physiotherapy*, 65(3), 124–  
320 135. <https://doi.org/10.1016/j.jphys.2019.05.010>

321 Littlewood, C., May, S., & Walters, S. (2013). Epidemiology of Rotator Cuff Tendinopathy: A  
322 Systematic Review. *Shoulder & Elbow*, 5(4), 256–265.  
323 <https://doi.org/10.1111/sae.12028>

324 Malliaras, P., Cook, J., Purdam, C., & Rio, E. (2015). Patellar Tendinopathy: Clinical  
325 Diagnosis, Load Management, and Advice for Challenging Case Presentations. *Journal*  
326 *of Orthopaedic & Sports Physical Therapy*, 45(11), 887–898.  
327 <https://doi.org/10.2519/jospt.2015.5987>

328 Maquirriain, J., & Kokalj, A. (2014). Acute Achilles tendinopathy: Effect of pain control on leg  
329 stiffness. *Journal of Musculoskeletal Neuronal Interactions*, 14(1), 131–136.

330 Millar, N. L., Silbernagel, K. G., Thorborg, K., Kirwan, P. D., Galatz, L. M., Abrams, G. D.,  
331 Murrell, G. A. C., McInnes, I. B., & Rodeo, S. A. (2021). Tendinopathy. *Nature Reviews*  
332 *Disease Primers*, 7(1), 1. <https://doi.org/10.1038/s41572-020-00234-1>

333 Mitham, K., Mallows, A., Seneviratne, G., Debenham, J., & Malliaras, P. (2020).  
334 Conservative Management of Acute Lower Limb Tendinopathies: A Systematic Review.  
335 *Musculoskeletal Care*.

336 Murphy, M., Travers, M., Gibson, W., Chivers, P., Debenham, J., Docking, S., & Rio, E.  
337 (2018). Rate of Improvement of Pain and Function in Mid-Portion Achilles Tendinopathy  
338 with Loading Protocols: A Systematic Review and Longitudinal Meta-Analysis. *Sports*  
339 *Medicine*, 48(8), 1875–1891.  
340 <http://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=130551969&site=eho>  
341 st-live

342 Naunton, J., Harrison, C., Britt, H., Haines, T., & Malliaras, P. (2020). General practice  
343 management of rotator cuff related shoulder pain: A reliance on ultrasound and

344 injection guided care. *PLoS ONE*, 15(1), 1–14.  
345 <https://doi.org/10.1371/journal.pone.0227688>

346 NHS. (2019). *NSAIDs*. <https://www.nhs.uk/conditions/nsaids/>

347 NHS England. (2019). *Elective Care High Impact Interventions: First Contact Practitioner for*  
348 *MSK Services*.

349 NICE. (n.d.). *Scenario: Rotator cuff disorders | Management | Shoulder pain | CKS | NICE*.  
350 2017. Retrieved January 8, 2021, from [https://cks.nice.org.uk/topics/shoulder-](https://cks.nice.org.uk/topics/shoulder-pain/management/rotator-cuff-disorders/)  
351 [pain/management/rotator-cuff-disorders/](https://cks.nice.org.uk/topics/shoulder-pain/management/rotator-cuff-disorders/)

352 NICE. (2020). *Scenario: Management | Management | Achilles tendinopathy | CKS | NICE*.  
353 <https://cks.nice.org.uk/topics/achilles-tendinopathy/management/management/>

354 O'Neill, S., Watson, P. J., & Barry, S. (2016). a Delphi Study of Risk Factors for Achilles  
355 Tendinopathy- Opinions of World Tendon Experts. *International Journal of Sports*  
356 *Physical Therapy*, 11(5), 684–697.  
357 <http://www.ncbi.nlm.nih.gov/pubmed/27757281>[http://www.pubmedcentral.nih.gov/a](http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC5046962)  
358 [rticlerender.fcgi?artid=PMC5046962](http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC5046962)

359 Özkuk, K., & Ateş, Z. (2020). The effect of obesity on pain and disability in chronic shoulder  
360 pain patients. *Journal of Back and Musculoskeletal Rehabilitation*, 33(1), 73–79.  
361 <https://doi.org/10.3233/BMR-181384>

362 Public Health England. (2019). *Musculoskeletal conditions profile: short commentary,*  
363 *December 2019 - GOV.UK*.  
364 [https://www.gov.uk/government/publications/musculoskeletal-conditions-profile-](https://www.gov.uk/government/publications/musculoskeletal-conditions-profile-december-2019-update/musculoskeletal-conditions-profile-short-commentary-december-2019)  
365 [december-2019-update/musculoskeletal-conditions-profile-short-commentary-](https://www.gov.uk/government/publications/musculoskeletal-conditions-profile-december-2019-update/musculoskeletal-conditions-profile-short-commentary-december-2019)  
366 [december-2019](https://www.gov.uk/government/publications/musculoskeletal-conditions-profile-december-2019-update/musculoskeletal-conditions-profile-short-commentary-december-2019)

367 Rechart, M., Shiri, R., Karppinen, J., Jula, A., Heliövaara, M., & Viikari-Juntura, E. (2010).  
368 Lifestyle and metabolic factors in relation to shoulder pain and rotator cuff tendinitis: A

369 population-based study. *BMC Musculoskeletal Disorders*, 11.  
370 <https://doi.org/10.1186/1471-2474-11-165>

371 Riel, H., Lindstrøm, C. F., Rathleff, M. S., Jensen, M. B., & Olesen, J. L. (2019). Prevalence  
372 and incidence rate of lower-extremity tendinopathies in a Danish general practice: A  
373 registry-based study. *BMC Musculoskeletal Disorders*, 20(1), 4–9.  
374 <https://doi.org/10.1186/s12891-019-2629-6>

375 Rio, E., Moseley, L., Purdam, C., Samiric, T., Kidgell, D., Pearce, A. J., Jaberzadeh, S., &  
376 Cook, J. (2014). The pain of tendinopathy: Physiological or pathophysiological? *Sports*  
377 *Medicine*, 44(1), 9–23. <https://doi.org/10.1007/s40279-013-0096-z>

378 Scott, A., Squier, K., Alfredson, H., Bahr, R., Cook, J. L., Coombes, B., De Vos, R. J., Fu, S.  
379 N., Grimaldi, A., Lewis, J. S., Maffulli, N., Magnusson, S. P., Malliaras, P., Mc Auliffe,  
380 S., Oei, E. H. G., Purdam, C. R., Rees, J. D., Rio, E. K., Gravare Silbernagel, K., ...  
381 Zwerver, J. (2020). ICON 2019: International Scientific Tendinopathy Symposium  
382 Consensus: Clinical Terminology. *British Journal of Sports Medicine*, 54(5), 260–262.  
383 <https://doi.org/10.1136/bjsports-2019-100885>

384 Steuri, R., Sattelmayer, M., Elsig, S., Kolly, C., Tal, A., Taeymans, J., & Hilfiker, R. (2017).  
385 Effectiveness of conservative interventions including exercise, manual therapy and  
386 medical management in adults with shoulder impingement: a systematic review and  
387 meta-analysis of RCTs. *British Journal of Sports Medicine*, bjsports-2016-096515.  
388 <https://doi.org/10.1136/bjsports-2016-096515>

389 Van Der Vlist, A. C., Breda, S. J., Oei, E. H. G., Verhaar, J. A. N., & De Vos, R. J. (2019).  
390 Clinical risk factors for Achilles tendinopathy: A systematic review. *British Journal of*  
391 *Sports Medicine*, 53(21), 1352–1361. <https://doi.org/10.1136/bjsports-2018-099991>

392 van der Vlist, A. C., van Veldhoven, P. L. J., van Oosterom, R. F., Verhaar, J. A. N., & de  
393 Vos, R. J. (2020). Isometric exercises do not provide immediate pain relief in Achilles  
394 tendinopathy: A quasi-randomized clinical trial. *Scandinavian Journal of Medicine and*



395 *Science in Sports*, 30(9), 1712–1721. <https://doi.org/10.1111/sms.13728>

396 Van Der Vlist, A. C., Winters, M., Weir, A., Arden, C. L., Welton, N. J., Caldwell, D. M.,  
397 Verhaar, J. A. N., & De Vos, R.-J. (2020). Which treatment is most effective for patients  
398 with Achilles tendinopathy? A living systematic review with network meta-analysis of 29  
399 randomised controlled trials. *Br J Sports Med*, 0, 1–8. [https://doi.org/10.1136/bjsports-](https://doi.org/10.1136/bjsports-2019-101872)  
400 2019-101872

401

402

403

404

405

406

407

408

409

410

411

412

413

414

415

416

417 **Table 1.** Presenting condition, subjective and objective findings for the shoulder and Achilles scenarios

Patient Characteristics	Referral	Duration	Aggravating Factors	Easing Factors	Physical Examination
50 year old person	Non-traumatic right shoulder pain	3-week history	<ul style="list-style-type: none"> <li>Lifting kettle</li> <li>Taking a coat on and off</li> <li>Moving the arm away from the body</li> </ul>	<ul style="list-style-type: none"> <li>Resting arm by their side</li> <li>Avoiding provocative positions</li> </ul>	<ul style="list-style-type: none"> <li>Resisted shoulder abduction and external rotation are painful.</li> <li>Full passive shoulder external rotation.</li> <li>Examination of neck does not reproduce shoulder pain.</li> <li>No redness, bruising or swelling present.</li> </ul>
50 year old person	Non-traumatic right Achilles pain	3-week history	<ul style="list-style-type: none"> <li>At the start of light jogging</li> <li>Stiff with prolonged rest</li> </ul>	<ul style="list-style-type: none"> <li>Eases after a few minutes of jogging.</li> </ul>	<ul style="list-style-type: none"> <li>Pain with palpation of mid-portion Achilles tendon.</li> <li>Pain on double leg calf raise</li> <li>Full passive dorsiflexion and plantarflexion</li> <li>Examination of knee and does not reproduce any heel pain</li> <li>No redness, bruising or swelling present.</li> </ul>

418

419 **Table 2.** Respondents by professional background

Scenario	Professional Background (n)	
Shoulder (118)	Physiotherapist (97)	Physiotherapist (69)
		First Contact Practitioner (23)
		Advanced Practice Physiotherapist (5)
	General Practitioner (6)	
	Chiropractor (12)	
	Sports Rehabilitator (1)	
	Orthopaedic Surgeon (1)	
Sport & Exercise Medicine Physician (1)		
Achilles (103)	Physiotherapist (87)	Physiotherapist (62)
		First Contact Practitioner (20)
		Advanced Practice Physiotherapist (5)
	General Practitioner (4)	
	Chiropractor (9)	
	Sports Rehabilitator (1)	
	Orthopaedic Surgeon (1)	
Sport & Exercise Medicine Physician (1)		

420

421

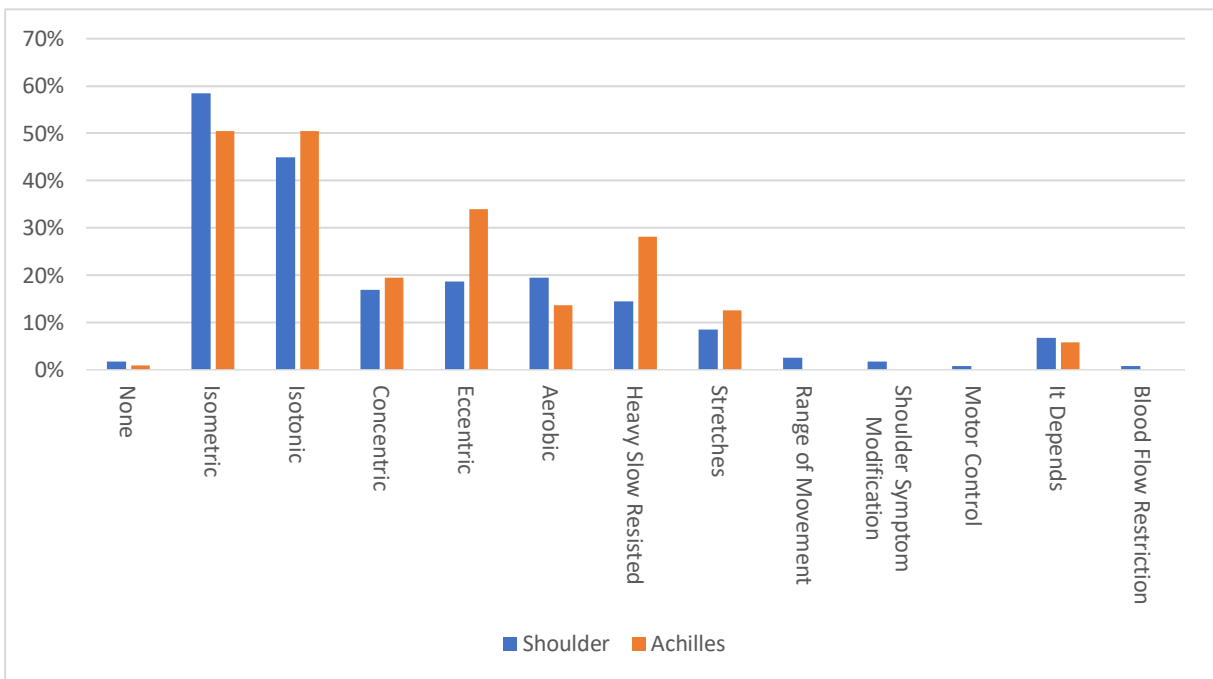
422

423 **Table 3.** Respondent's data for medication for shoulder and Achilles scenario, and FCPs and OCs

Medication	FCP Shoulder	FCP Achilles	OC Shoulder	OC Achilles
None	9/23 (39.1%)	11/20 (55.0%)	44/95 (46.3%)	55/83 (66.3%)
Non-Opioid	10/23 (43.5%)	4/20 (20.0%)	43/95 (45.3%)	24/83 (28.9%)
NSAID	3/23 (13.0%)	4/20 (20.0%)	5/95 (5.3%)	4/83 (4.8%)
Mild-Opioid	0/23 (0.0%)	0/20 (0.0%)	2/95 (2.1%)	0/83 (0.0%)
It Depends	1/23 (4.3%)	1/20 (5.0%)	1/95 (1.1%)	0/83 (0.0%)

424

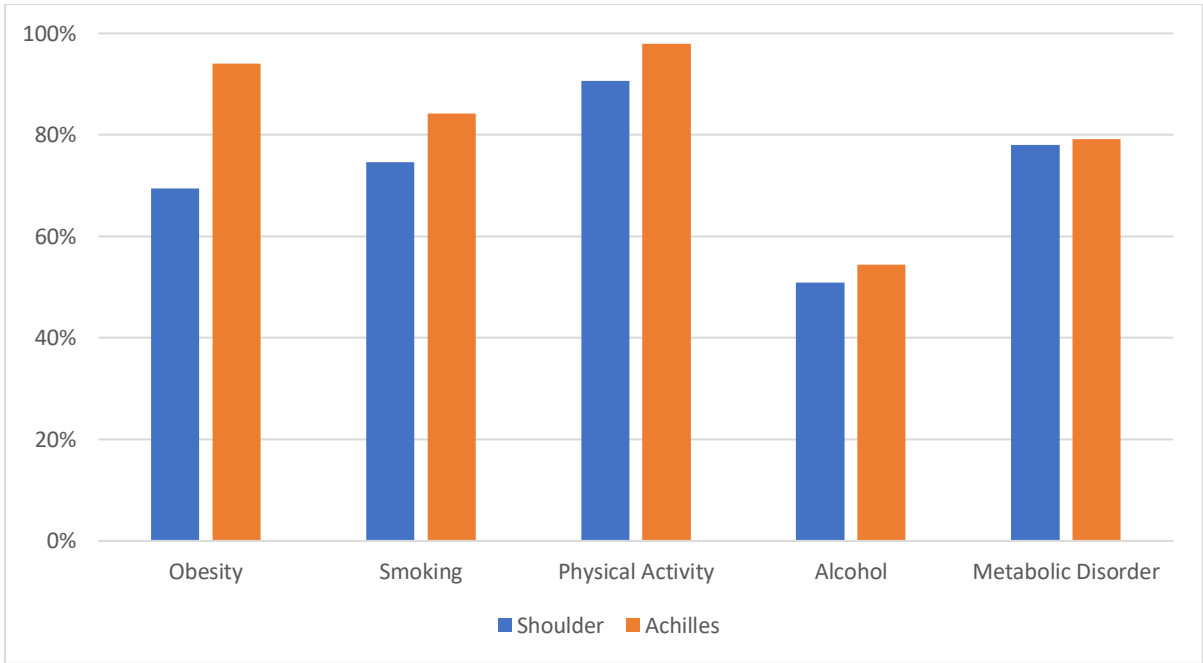
425



426

**Figure 1.** Active treatment modalities selected for the shoulder and Achilles scenarios

427

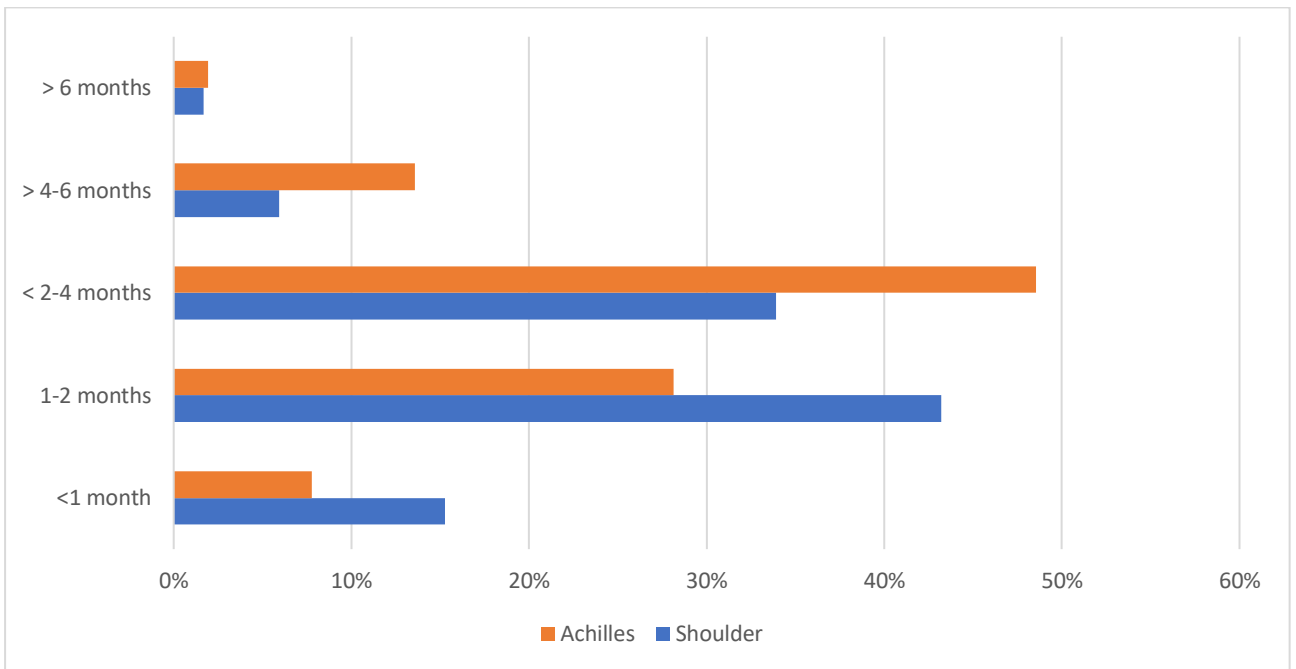


428

429

**Figure 2.** Lifestyle factors discussed by respondents for the shoulder and Achilles

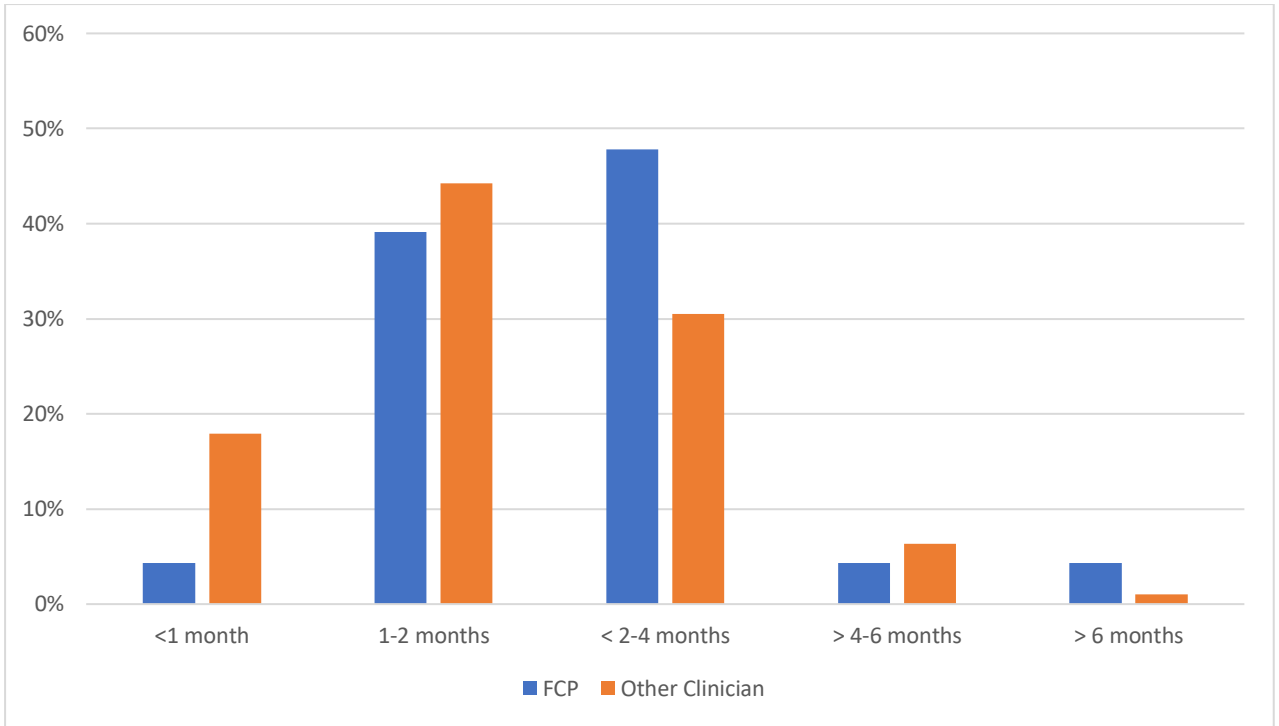
430



431

432

**Figure 3.** Prognosis advised by respondents for the scenarios



433

434

**Figure 4.** Prognosis advised by FCPs and OCs for the shoulder scenario

435

Would you choose to refer for further investigation at this stage?

	<i>n</i> (%)	No	X-Ray	MRI	USS	Bloods
<b>Shoulder</b>						
	All	112 (94.9)	0	1 (0.8)	4 (3.4)	1 (0.8)
	FCP (23)	23 (100)	0 (0)	0 (0)	0 (0)	0 (0)
	Other (95)	89 (93.7)	0 (0)	1 (1.1)	4 (4.2)	1 (1.1)
<b>Achilles</b>						
	All	98 (96.1)	0 (0)	0 (0)	4 (3.9)	1 (1)
	FCP (20)	20 (100)	0 (0)	0 (0)	0 (0)	0 (0)
	Other (83)	78 (94)	0 (0)	0 (0)	4 (4.8)	1 (1.2)

Would you recommend rest for this person, if so, how long?

	No	Relative Rest	<1 week	1-2 weeks	>2-4 weeks	>4-6 weeks	>6 weeks	
<b>Shoulder</b>								
	All (118)	96 (81.4)	6 (5.1)	9 (7.6)	5 (4.2)	1 (0.9)	1 (0.9)	0 (0)
	FCP (23)	18 (78.3)	0 (0)	1 (4.4)	1 (4.4)	1 (4.4)	0 (0)	0 (0)
	Other (95)	77 (81.1)	5 (5.3)	8 (8.4)	4 (4.2)	0 (0)	1 (1.1)	0 (0)
<b>Achilles</b>								
	All (103)	73 (70.9)	9 (8.7)	9 (8.7)	5 (4.9)	5 (4.9)	0 (0)	2 (1.9)
	FCP (20)	13 (65)	4 (20)	1 (5)	0 (0)	2 (10)	0 (0)	0 (0)
	Other (83)	60 (72.3)	7 (8.4)	8 (9.6)	5 (6)	1 (1.2)	0 (0)	2 (2.4)

Would you recommend any medication for this person?

	No	Non-Opioid	NSAID	Mild Opioid	It Depends	
<b>Shoulder</b>						
	All (118)	53 (44.9)	53 (44.9)	8 (6.8)	2 (1.7)	2 (1.7)
	FCP (23)	9 (39.1)	10 (43.5)	3 (13)	0 (0)	1 (1.1)
	Other (95)	44 (46.3)	43 (45.3)	5 (5.3)	2 (2.1)	1 (1.1)
<b>Achilles</b>						
	All (103)	66 (64.1)	28 (27.2)	8 (7.8)	0 (0)	1 (1)
	FCP (20)	11 (55)	4 (20)	4 (20)	0 (0)	1 (5)
	Other (83)	55 (66.3)	24 (28.9)	4 (4.8)	0 (0)	0 (0)



If this person were a manual or office worker, would you advise them to continue to work?

	No (Manual)	No (Office)	Amended Duties (Manual)	Amended Duties (Office)	Full Duties (Manual)	Full Duties (Office)	It Depends (Manual)	It Depends (Office)
<b>Shoulder</b>								
All (118)	2 (1.7)	0 (0)	94 (79.7)	37 (31.4)	12 (10.2)	73 (61.9)	10 (8.5)	8 (6.8)
FCP (23)	0 (0)	0 (0)	20 (87)	3 (13)	1 (4.3)	17 (73.9)	2 (8.7)	3 (13)
Other (95)	2 (2.1)	0 (0)	74 (79.6)	34 (25.8)	9 (9.7)	56 (58.9)	8 (8.6)	5 (5.3)
<b>Achilles</b>								
All (103)	3 (2.9)	1 (1)	54 (52.4)	14 (13.6)	39 (37.9)	83 (80.6)	7 (6.8)	5 (4.9)
FCP (20)	1 (5)	1 (5)	10 (50)	1 (5)	7 (35)	18 (90)	2 (10)	0 (0)
Other (83)	2 (2.4)	0 (0)	44 (53)	13 (15.7)	32 (38.6)	65 (78.3)	5 (6)	5 (6)

Would you discuss any of the following if they were evident? Some respondents checked more than one option

	No	Obesity	Smoking	Physical Activity	Alcohol	Metabolic Disorders
<b>Shoulder</b>						
All (118)	4 (3.5)	82 (70.7)	88 (75.9)	107 (92.2)	60 (51.7)	92 (79.3)
FCP (23)	1 (4.4)	18 (78.3)	17 (73.9)	20 (87)	13 (56.5)	18 (78.3)
Other (95)	3 (3.2)	64 (67.4)	71 (74.7)	87 (91.6)	47 (49.5)	74 (77.9)
<b>Achilles</b>						
All (103)	0 (0)	95 (94.1)	85 (84.2)	99 (98.0)	55 (54.5)	80 (79.2)
FCP (20)	0 (0)	18 (90)	17 (85)	19 (95)	10 (50)	17 (85)
Other (83)	0 (0)	77 (92.8)	68 (81.9)	80 (96.4)	45 (54.2)	63 (75.9)



Would you discuss any of the following if they were evident? Some respondents checked more than one option

	No	Emotional Factors	Cognitive Factors	Behavioural Factors
<b>Shoulder</b>				
All (118)	2 (1.7)	99 (83.9)	100 (84.7)	103 (87.3)
FCP (23)	1 (4.3)	17 (73.9)	20 (87)	20 (87)
Other (95)	1 (1.1)	82 (86.3)	80 (84.2)	83 (87.4)
<b>Achilles</b>				
All (103)	3 (2.5)	85 (72)	94 (79.7)	89 (75.4)
FCP (20)	1 (5)	14 (70)	17 (85)	17 (85)
Other (83)	2 (2.4)	71 (85.5)	77 (92.8)	72 (86.7)

Would you discuss any of the following if they were evident? Some respondents checked more than one option

	No	Occupation	Friends & Family Support	Social Participation
<b>Shoulder</b>				
All (118)	3 (2.5)	111 (94.1)	70 (59.3)	73 (61.9)
FCP (23)	0 (0)	21 (91.3)	14 (60.9)	14 (60.9)
Other (95)	3 (3.2)	90 (94.7)	56 (58.9)	59 (62.1)
<b>Achilles</b>				
All (103)	9 (8.7)	87 (84.5)	59 (57.3)	75 (72.8)
FCP (20)	1 (5)	16 (80)	10 (50)	15 (75)
Other (83)	8 (9.6)	71 (85.5)	49 (59)	60 (72.3)

How long would you expect it to take for this person to experience meaningful recovery from the first time they see you?

	<1 month	1-2 months	>2-4 months	>4-6 months	>6 months	I would not expect meaningful recovery
<b>Shoulder</b>						

All (118)	18 (15.3)	51 (43.2)	40 (33.9)	7 (5.9)	2 (1.7)	0 (0)
FCP (23)	1 (4.3)	9 (39.1)	11 (47.8)	1 (4.3)	1 (4.3)	0 (0)
Other (95)	17 (17.9)	42 (44.2)	29 (30.5)	6 (6.3)	1 (1.1)	0 (0)
<b>Achilles</b>						
All (103)	8 (7.8)	29 (28.2)	50 (48.5)	14 (13.6)	2 (1.9)	0 (0)
FCP (20)	1 (5)	4 (20)	14 (70)	1 (5)	0 (0)	0 (0)
Other (83)	7 (6.8)	25 (24.3)	36 (35)	12 (12.6)	2 (1.9)	0 (0)

Would they benefit from a future appointment with a musculoskeletal health care professional at this stage i.e., physiotherapist, osteopath, chiropractor etc?

	Yes	No
<b>Shoulder</b>		
All (118)	102 (86.4)	16 (13.6)
FCP (23)	18 (78.3)	5 (21.7)
Other (95)	84 (88.4)	11 (11.6)
<b>Achilles</b>		
All (103)	91 (88.3)	12 (11.7)
FCP (20)	16 (80)	4 (20)
Other (83)	75 (90.4)	8 (9.6)

