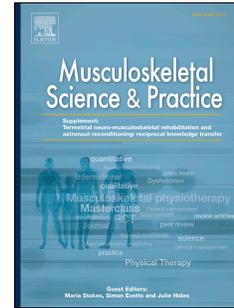


Accepted Manuscript

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PII: S2468-7812(18)30500-9

DOI: <https://doi.org/10.1016/j.msksp.2019.06.001>

Reference: MSKSP 2031

To appear in: *Musculoskeletal Science and Practice*

Received Date: 8 December 2018

Revised Date: 10 April 2019

Accepted Date: 11 June 2019

Please cite this article as: Pieters, L., Voogt, L., Bury, J., Littlewood, C., Feijen, S., Cavaggion, C., Struyf, F., Rotator CUFF disorders: A survey of current physiotherapy practice in Belgium and the Netherlands, *Musculoskeletal Science and Practice* (2019), doi: <https://doi.org/10.1016/j.msksp.2019.06.001>.

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ROTATOR CUFF DISORDERS: A SURVEY OF CURRENT PHYSIOTHERAPY PRACTICE IN BELGIUM AND THE NETHERLANDS

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Conflicts of interest

Declarations of interest: none.

Ethical approval

None declared" / "Not applicable

Acknowledgements

The authors would like to thank all the physiotherapists who took the time to complete the survey. The authors would also like to thank Twan Bruijstens and Laurence Joossens, both students at the University of Antwerp, who did the initial work of this survey as part of their Master's dissertation to obtain the degree of Master of Science in Rehabilitation Sciences and Physiotherapy.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

ABSTRACT

Background: Disorders of the rotator cuff are a common musculoskeletal pain presentation in the general population, and treatment by a physiotherapist is often prescribed. In 2011 and 2016, surveys of physiotherapy practice in the United Kingdom (UK) were performed, which reported that advice and exercise were the most common treatment strategies used. The aim of this current survey was to examine current physiotherapy practice in Belgium and The Netherlands, with consideration of differences between physiotherapists who were members of a shoulder network and physiotherapists who were not.

Methods: During February / March 2018, a cross-sectional online survey was conducted in Belgium and The Netherlands.

Results: 505 physiotherapists completed the survey. Advice (n=362/505), isotonic exercises (n=302/505) and scapular stabilisation exercises (n=359/505) were the most common treatment modalities for patients with rotator cuff disorders. Physiotherapists not part of a shoulder network group more commonly integrated mobilization (n=66/254 SN, n=125/251 N-SN), electrotherapy (n=1/254 SN, n=19/251 N-SN) and massage (n=48/254 SN, n=89/251 N-SN) compared to those who were member of the group.

Conclusion: Advice and exercise were the most common treatment prescriptions, which aligns with recommendations from current research evidence. Practice differs between physiotherapists involved with a shoulder network group compared to those who are not.

Keywords: Cross-sectional study, survey, shoulder pain, rotator cuff disorders, physiotherapy

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INTRODUCTION

Shoulder pain is a very common musculoskeletal pain presentation with 30 to 67% of the general population experiencing shoulder pain at any one time(1, 2). It is the third most common musculoskeletal disorder(3) with a high rate of persisting complaints: 54% of patients still report symptoms after a period of three years(4). Disorders of the rotator cuff (RC) are widely regarded as the most common cause of shoulder pain and physiotherapy is often the first line treatment option(5), although there is variation in physiotherapy practice for this type of disorder. Many randomized controlled trials have investigated the effectiveness of conservative interventions for RC disorders, and a systematic review reported that exercise appears to be a promising treatment option(6).

In 2011, Littlewood et al.(7) conducted a survey of physiotherapy practice for patients with rotator-cuff related shoulder pain in the United Kingdom (UK). The survey reflected variability in physiotherapy practice. Bury and Littlewood(8) repeated a similar survey in 2016, and concluded that advice and exercise were the preferred treatment strategies of the survey respondents, suggesting that practice had evolved in line with contemporary recommendations from research evidence. In 2011, Struyf et al. (9) conducted a similar survey among the members of the Belgian Physiotherapists Society to examine the use of evidence-based practice methods for the treatment of patients with shoulder impingement syndrome, a synonymous term for RC disorders. Conclusion was made that exercise therapy and manual therapy were reportedly used by most physiotherapists who are specialized in either manual therapy or sports therapy. These practices are in line with current evidence for the treatment of shoulder impingement syndrome.

24 In the Netherlands and Belgium, physiotherapy is organized in network groups. By being a
25 member of a shoulder network, you are granted access to practice-based guidelines
26 considering shoulder problems and you are informed about current evidence-based practice
27 in shoulder rehabilitation by the respective network board members. The impact of this
28 organisation and information provision remains uncertain though.

29

30 Evidence based practice is defined as the process of making clinical decisions based on the
31 best available evidence in combination with patient values and clinical expertise(10). Valid
32 physiotherapy guidelines, when followed, are a possible basis for avoiding or postponing the
33 need for surgery, minimizing the severity of surgery and improving surgical outcomes. Thus,
34 they can lead to a reduction of the societal and economic costs(11). Hence, the aim of this
35 current survey was to examine current physiotherapy practice in Belgium and The
36 Netherlands, with a focus on possible differences between physiotherapists who are
37 members of a shoulder network (SN) and physiotherapists who are not (N-SN), and to
38 identify whether practice is in line with current recommendations from research evidence.

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40

41

METHODS**Study design**

43 A cross-sectional study was performed, creating an online survey based on the study of Bury
44 and Littlewood(8) in 2016. The original survey was translated verbatim to Dutch and was
45 based around a clinical scenario of a typical patient with signs and symptoms of a RC
46 disorder (*box 1*). Eight questions were composed considering treatment options (*box 2*).
47 Patient case is proved as a valid tool for eliciting information on clinical practice and
48 increasing the chance of a reflective response(12).

49

Sampling and recruitment

51 Physiotherapists from The Netherlands and the Dutch speaking part of Belgium were
52 recruited. The inclusion criteria were being a physiotherapist who treats patients with RC
53 disorders. Several resources were used to reach and invite potential physiotherapists: the
54 online survey link was made available by e-mail, Facebook (community groups of
55 physiotherapists), online news letters (e.g. the Royal Dutch Society for Physical Therapy
56 (Koninklijk Nederlands Genootschap voor Fysiotherapie - KNGF), Association of the Belgian
57 physiotherapists profession (Axxon)) and via a variety of contacts (shoulder researchers).

58

Data collection

59

60 SurveyMonkey was used to publish the survey online during February / March 2018, for a
61 total duration of 1 month. There were no further requests to complete the survey after this
62 period.

63 **Statistical analysis**

64 All responses were exported to Excel 2016 (Microsoft Corp. Redmond, WA, USA). To
65 investigate any differences in the study groups, the non-parametric chi-square tests were
66 conducted using SPSS version 24 (IBM Corp., Armonk, NY, USA). Qualitative data generated
67 from the open-ended questions were evaluated using a thematic approach and were coded

A 54-year-old man presents to you with a 9-month history of right shoulder pain of gradual, insidious onset. The pain is located over the anterolateral aspect of his shoulder, with no radiation of symptoms. He describes the pain as intermittent, made worse by reaching up, lifting, reaching behind his back and lying on this side. Symptoms ease with rest. He has had no previous treatment or investigations for this problem so far and is otherwise in good general health. His occupation as a warehouse operative involves some heavy lifting onto shelves, which he is continuing to do. On examination, observation is unremarkable. Cervical spine range of movement is full and pain-free. Active shoulder movements are full, but with a painful arc on active abduction between 60 and 120 degrees. Passive shoulder movements are largely maintained. Isometric muscle testing produced pain on abduction and lateral rotation, with a power of 4/5

68 into categories / subcategories.

69 **Box 1 Clinical scenario of a typical patient with a RC disorder**

70 **Box 2 Questionnaire**

71

1. Would you request any further information or undertake any further clinical tests?
2. Which management strategies would you typically recommend for this patient?
3. When prescribing exercises, what instructions do you generally give to the patient?
4. What advice would you typically offer this patient?
5. Would you expect this person to recover with the prescribed physiotherapy period?
6. What would your main treatment goals be for this patient?
7. Would you consider this patient for a surgical opinion and if so, when?
8. Do you think that research could benefit your practice with regard to rotator cuff disorders?

72

RESULTS

73 In total, 792 respondents entered the survey. One respondent was excluded for not being a
 74 physiotherapist in Belgium or in The Netherlands. 287 surveys were excluded because they
 75 were not fully completed. The remaining 505 surveys were used in the data analysis.

76 The data of the physiotherapists in terms of years qualified, practice setting and being part
 77 of a shoulder network are shown in *table 1*. Overall, there was a balanced representation of

	SN	N-SN	Total (%)	Total (n)
<u>Years qualified (n = 505)</u>				
<5 years	12	67	15.6%	79
5-10 years	29	27	11.1%	56
10-15 years	55	29	16.6%	84
15-20 years	26	20	9.1%	46
>20 years	132	108	47.5%	240
	<u>TOTAL:</u>	254		505
<u>Role/practice setting (n = 505)</u>				
Private practice	230	229	90.9%	459
Neurological rehabilitation centre	1	8	1.8%	9
Non-neurological rehabilitation centre	4	6	2.0%	10
Geriatric rehabilitation centre	2	2	0.8%	4
Residential care facility	5	23	5.5%	28
Physiotherapist sports department	9	7	3.2%	16
Post-operative hospital department	15	9	4.8%	24
Other	24	23	9.3%	47

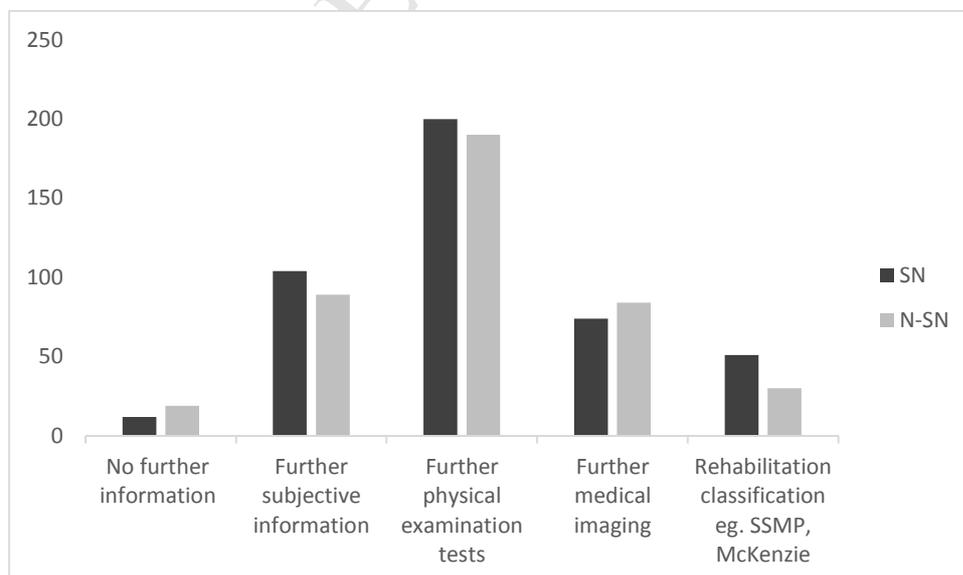
78 physiotherapists who are member of a shoulder network and physiotherapists who are not.

79 **Table 1 Respondents experience and practice settings**

80 (SN, shoulder network members; N-SN, non-member of a shoulder network)

81 **Outcome of survey questions**82 ***Would you request any further information or undertake any further clinical tests?***

83 The results of this question are shown in *Fig. 1*. No further information was requested by
 84 6.1% (n=31/505; 12/254 SN, 19/251 N-SN) of the survey respondents, 38.2% (n=193/505;
 85 104/254 SN, 89/251 N-SN) of the physiotherapists would request further subjective
 86 information (information considering e.g. sleep, stress, nutrition, medication and medical
 87 history), 77.2% (n=390/505; 200/254 SN, 190/251 N-SN) would undertake further physical
 88 examination tests (e.g. scapular position, orthopaedic tests, myofascial structures, thoracic
 89 spine and posture), 31.3% (n=158/505; 74/254 SN, 84/251 N-SN) would request medical
 90 imaging ($\chi^2 = 1.102$, $p = 0.294$) and 16% (n=81/505; 51/254 SN, 30/251 N-SN) would
 91 undertake further rehabilitation classification. The χ^2 -test showed a statistically significant
 92 difference between SN (n=51/254) versus N-SN (n=30/251) in utilizing rehabilitation
 93 classification systems e.g. Shoulder Symptom Modification Procedure (SSMP), McKenzie (χ^2
 94 = 6.191, $p = 0.013$).



96 **Figure 1 Would you request any further information or undertake any further clinical tests?**

97 SN, shoulder network members; N-SN, non-member of a shoulder network

98 SSMP, Shoulder Symptom Modification Procedure; MDT, Mechanical Diagnosis & Therapy

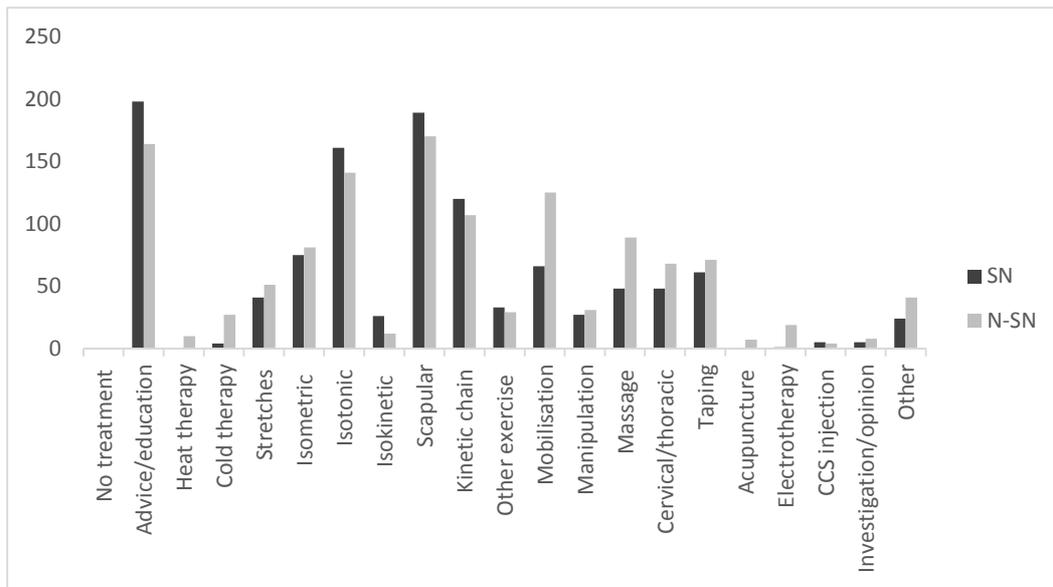
99 ***Which management strategies would you typically recommend for this patient?***

100 *Fig. 2* shows an overview of the multiple applicable treatment options for this patient. Most
101 of the physiotherapists (71.7%) would offer the patient advice / education related to their
102 shoulder complaint (n=362/505; 198/254 SN, 164 N-SN), 71.1% (n=359/505; 189/254 SN,
103 170/251 N-SN) would integrate scapular stabilisation exercises into their therapy, 59.8%
104 (n=302/505; 161/254 SN, 141/251 N-SN) would incorporate isotonic exercises, 45%
105 (n=227/505; 120/254 SN, 107/251 N-SN) of the respondents would prescribe a global
106 exercise approach involving the kinetic chain and 37.8% (n=191/505; 66/254 SN, 125/251 N-
107 SN) would use mobilisations.

108 Physiotherapists not part of a shoulder network would integrate the use of massage
109 (n=48/254 SN, n=89/251 N-SN), mobilisations (n=66/254 SN, n=125/251 N-SN),
110 electrotherapy (n=1/254 SN, n=19/251 N-SN) and other treatment modalities (e.g. dry
111 needling, shockwave therapy and Mulligan techniques) (n=24/254 SN, n=41/251 N-SN) more
112 than their colleagues that do belong to a network (massage: $\chi^2 = 17.514$, $p = 2.90 \cdot 10^{-5}$;
113 mobilisations: $\chi^2 = 30.450$, $p = 3.43 \cdot 10^{-8}$; electrotherapy: $\chi^2 = 17.092$, $p = 3.60 \cdot 10^{-5}$).

114
115 The use of heat therapy (n=10/505; 0/254 SN, 10/251 N-SN), acupuncture (n=7/505; 0/254
116 SN, 7/251 N-SN), corticosteroid injections (n=9/505; 5/255 SN, 4/251 N-SN) and referral for
117 further investigation (n=13/505; 5/254 SN, 8/251 N-SN) were rather uncommon answers in
118 the treatment of this case.

119



120

121 **Figure 2a Which management strategies would you typically recommend for this patient?**

122 SN, shoulder network members; N-SN, non-member of a shoulder network

123 CCS, corticosteroid

124

125 ***When prescribing exercises, what instructions do you generally give to the patient?***126 This question was open-ended. Considering the parameter **pain** during exercise, different

127 guidelines were given to the patient. Twenty-two percent (n=57/254) of the shoulder

128 network group would advise the patient to exercise without any form of pain, whereas

129 68.1% of the physiotherapists of the shoulder network (n=173/254) would recommend

130 exercising with some level of pain acceptable for the patient and only 6.3% (n=16/254)

131 would instruct the patient to perform exercises with a distinct pain. A small percentage,

132 3.5%, of the shoulder network group (n=8/254) would advise to exercise with a distinct pain

133 if the symptoms disappeared in the following 24 hours. Regarding the group of

134 physiotherapists not part of a shoulder network, 20.3% (n=51/251) would advise exercise

135 without any form of pain, 68.1% (n=171/251) would instruct to exercise with some level of

136 pain acceptable to the patient, 9.6% (n=24/251) would advise to exercise with a distinct pain

137 and 2% (n=5/251) would recommend exercising with a distinct pain with symptoms
138 disappearing in the next 24 hours.

139 In relation to the exercise parameter **repetitions**, 3.9% of the shoulder network group
140 (n=10/254) would advise the patient to do sets of less than 10 repetitions, 44.1%
141 (n=112/254) would recommend sets of 10 repetitions, 30.7% (n=78/254) would instruct sets
142 of 15 repetitions and 21.3% of the shoulder network group (n=54/254) would advise sets of
143 high repetitions (more than 15 repetitions). Regarding the group physiotherapists who are
144 not part of a shoulder network, 5.2% (n=13/251) would recommend sets of less than 10
145 repetitions, 51% (n=128/251) would advise sets of 10 repetitions, 15.9% (n=40/251) would
146 prescribe sets of 15 repetitions and 27.9% (n=70/251) would instruct sets of high repetitions
147 (more than 15 repetitions).

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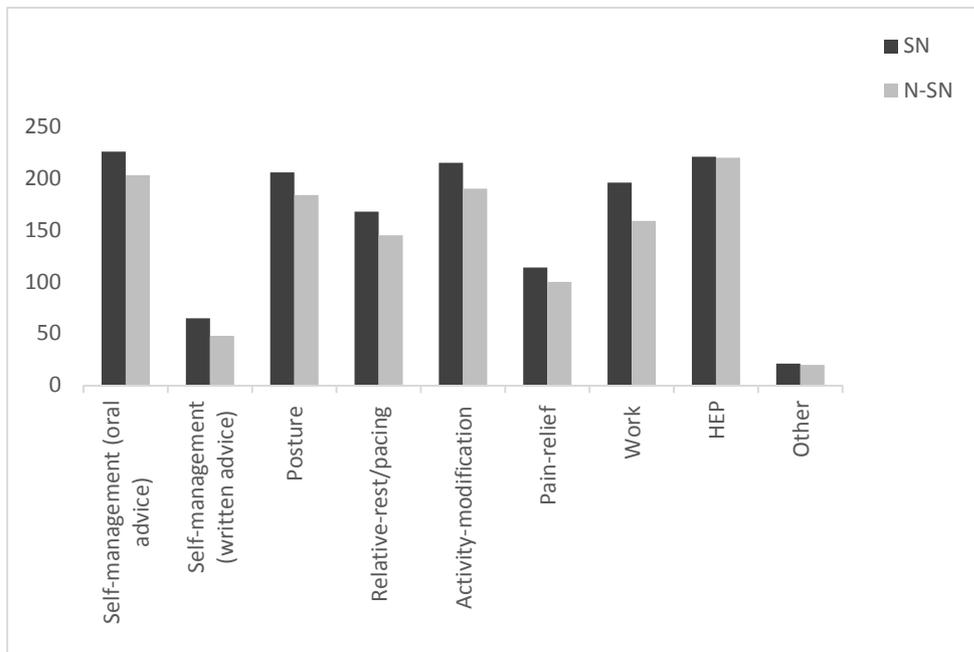
149 ***What advice would you typically offer this patient?***

150 The responses are shown in *Fig. 3*, from which it can be summarized that physiotherapists
151 offered a combination of advice about a wide range of topics. The following topics are the
152 most frequently advised-on: self-management based on oral advice (n=429/505; 226/254
153 SN, 203/251 N-SN), posture (n=390/505; 206/254 SN, 184/251 N-SN), activity modification
154 (n=405/505; 215/254 SN, 190/251 N-SN), work (n=355/505; 196/254 SN, 159/251 N-SN) and
155 options for exercises at home (n=441/505; 221/254 SN, 220/251 N-SN).

156 *Table 2* shows a detailed overview of how the respondents would treat this type of patient
157 in their clinical practice. The majority of the respondents would use a combination of face-

158 to-face appointments and a home-based programme (n=405/505; 201/254 SN, 204/251 N-
 159 SN). The patient would be typically seen 5-10 times, spread over six weeks to three months.

160



161

162 **Figure 3 What advice would you typically offer this patient?**

163 SN, shoulder network members; N-SN, non-member of a shoulder network

164 HEP, home exercise programme

165

166

167

	SN (n)	N-SN (n)	Total (%)	Total (n)
<u>Treatment setting (n = 505)</u>				
Face-to-face appointments	88	70	31.3%	158
Home-based programme	3	2	1%	5
Face-to-face and home-based program	201	204	80.2%	405
Group class(es)	10	1	2.2%	11
Other	9	6	3%	15
<u>Number of times typically seen (n = 505)</u>				
Once	1	3	0.8%	4
Twice	5	21	5.2%	26
3 or 4 times	17	16	6.5%	33
5 or 6 times	71	46	23.2%	117
7 or 8 times	95	39	26.5%	134
9 or 10 times	46	91	27.1%	137
More than 10 times	19	35	10.7%	54
<u>Typical duration of treatment (n = 505)</u>				
Up to 3 weeks	2	14	3.2%	16
Up to 6 weeks	43	73	23%	116
Up to 8 weeks	50	57	21.2%	107
Up to 3 months	126	70	38.8%	196
Up to 6 months	12	11	4.6%	23
Up to 12 months	2	3	1%	5
Other	19	23	8.3%	42

168

Table 2 Treatment delivery

169

SN, shoulder network members; N-SN, non-member of a shoulder network

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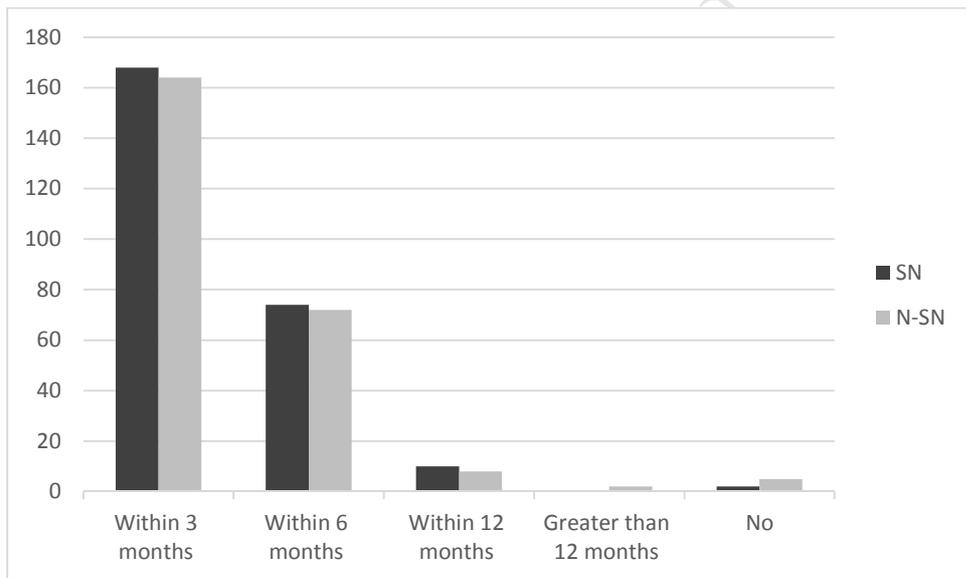
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174 **Would you expect this person to recover with the prescribed physiotherapy period?**

175 The responses for this question are shown in *Fig. 4*. Of all the respondents, 65.7%
 176 (n=332/505; 168/254 SN, 164/251 N-SN) designated that this person would recover within
 177 three months with the prescribed treatment. A smaller group of 28.9% (n=146/505; 74/254
 178 SN, 72/251 N-SN) designated that recovery will occur within six months. The minority of
 179 respondents considered that this person would recover between six and twelve months
 180 (n=18/505; 10/254 SN, 8/251 N-SN), greater than 12 months (n=2/505; 0/254 SN, 2/251 N-
 181 SN) or no recovery (n=7/505; 2/254 SN, 5/251 N-SN) with the prescribed treatment.

182



183

184 **Figure 4 Would you expect this person to recover with the prescribed physiotherapy?**

185 SN, shoulder network members; N-SN, non-member of a shoulder network

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188 ***What would your main treatment goals be for this patient?***

189 This was an open-ended question. It was required to give at least two treatment goals.
190 Because of the variety of responses, no clear trend emerged, but it seems that the most
191 commonly reported themes were: pain reduction, increase the range of motion, improve
192 functionality in activities of daily living and improvement of posture during activities/work
193 (cervico-thoracic spine and scapula-thoracic positioning).

194

195 ***Would you consider this patient for a surgical opinion and if so, when?***

196 The respondents were able to designate 'Yes' or 'No' in this question. When designated
197 'Yes', it was possible to substantiate the answer. Almost 30% (n=149/505; 54/254 SN,
198 95/251 N-SN) of the respondents would consider referral for a surgical opinion, provided
199 that no effect was achieved with the prescribed treatment. Almost 70% (n=352/501;
200 200/254 SN, 152/251 N-SN) of the respondents would not consider referring this patient for
201 a surgical opinion.

202

203 ***Do you think that research could benefit your practice with regard to rotator cuff***
204 ***disorders?***

205 A clear majority of the respondents (n=445/505, 88.1%) considered that research could
206 benefit their practice. Minor differences were found comparing study groups ('Yes': SN
207 230/254, N-SN 215/251). There were various recommendations for further research themes,
208 such as: easy-to-use assessment guidelines, exercise guidelines (type, frequency, duration,
209 intensity), the relation of the cervico-thoracic spine and RC, and the effectiveness of hands-
210 on therapy.

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DISCUSSION

Summary of findings

The results of this survey identify current physiotherapy practice in The Netherlands and Belgium, and the possible differences in treatment between physiotherapists who are member of a shoulder network and those who are not. The results of the present survey suggest that physiotherapists use a broad selection of interventions but, principally, self-management / advice and some kind of exercise therapy. Since this survey is based on the previous study from Bury and Littlewood(8), comparisons can be made between current UK physiotherapy practice and current physiotherapy in Belgium and The Netherlands in the treatment of RC disorders.

In this survey, with reference to the clinical examination, an interesting difference is the request for medical imaging; Bury and Littlewood(8) reported that only 9% of the respondents requested medical imaging, whereas 31% of the Belgian and Dutch physiotherapists would suggest medical imaging. No difference was observed between SN physiotherapists and N-SN physiotherapists requesting medical imaging. Future studies should focus on the cost-effectiveness and their clinical value in the assessment of RC disorders(13-18).

In addition to their clinical examination, physiotherapists could add suggestions in the comment section considering further physical examination. A lot of physiotherapists suggested the use of orthopaedic tests next to the integration of an examination on the thoracic spine, posture and myofascial structures. This highlights the importance considering reliability and clinical value of these diagnostic tests which is still a large matter of debate(19-22).

236 Only 16% of the physiotherapists would integrate rehabilitation classifications such as SSMP
237 or McKenzie as part of their clinical examination. This is in high contrast with the UK, where
238 54% of the physiotherapists would incorporate a rehabilitation classification approach in
239 their clinical examination of this patient(8). These findings can be potentially explained by
240 the fact that these classifications are less known in Belgium and The Netherlands. On the
241 other hand, more respondents from the SN group mentioned the use of these classifications.
242 Future research should address the clinical importance considering reliability and clinical
243 value of these classifications.

244

245 Concerning the management strategies, exercise therapy and advice were the predominant
246 topics in both the SN group and the N-SN group. These findings are similar with those of
247 Bury and Littlewood(8). However, in Belgium and The Netherlands the use of mobilisations
248 (37.8%) was almost double compared to the UK (21%). Moreover, in Belgium and The
249 Netherlands, physiotherapists of the N-SN group were significantly more likely to use passive
250 modalities and integrate mobilizations, electrotherapy and massage in their treatment, while
251 these modalities are not strongly supported by current scientific evidence(6, 22). In contrast,
252 in the UK no significant differences were found between physiotherapists with or without a
253 specific interest in shoulder disorders, indicating probably more homogenous treatment
254 strategies. Although there were no remarkable differences between the SN and the N-SN
255 group considering exercises, there was a large variety in exercise modalities in terms of
256 repetitions, sets and instructions. In relation to prescribing instructions of exercises, the
257 majority of physiotherapists instructed the load of exercises in relation to the pain tolerance
258 of the patient. When instructing exercises, sets of 3 with repetitions varying between 10 and
259 15 were most frequently suggested. In both surveys the prescription of exercises in relation

260 to pain was similar: around 70% of all physiotherapists would prescribe painful but
261 acceptable exercises, while 22% would avoid pain during treatment. Exercise with distinct
262 pain is not commonly advised, with or without symptoms disappearing in the next 24 hours.
263 This approach is in line with the current physiotherapy practice, in which different
264 approaches are used to set the pain threshold during exercise, including post-exercise
265 response, pain monitoring model or pain level below certain values on a VAS scale(23-26).
266 However, instructions for exercise parameters were inconsistent, which indeed, reflects the
267 current ambiguity in the literature.

268 A remarkable difference comparing the results of the survey in the UK and in Belgium / The
269 Netherlands was found with regard to scapular stabilising exercises. Bury and Littlewood(8)
270 reported that 50% of all respondents would include scapular stabilising exercises in their
271 treatment strategy, whereas 71% (359/505) of all current Belgian / The Netherlands'
272 respondents would use these types of exercise. Over the last several years, interest
273 regarding scapular stabilising exercises grows in literature although up to now conflicting
274 evidence is found regarding their effectiveness(27-31).

275 Overall, the use of electrotherapy and corticosteroid injections was very rarely included in
276 the treatment strategy of this case. This could possibly be explained by a remaining
277 discrepancy in the current literature regarding their effectiveness(32-35).

278 The modality and duration of the treatment were similar in the both Belgium / The
279 Netherlands and in the UK, in which 80-82% of the setting consisted in a combination of
280 face-to-face appointments and home programme, ranging between 6 weeks and 3 months
281 of treatment duration. However, in the UK, more group classes were provided (14% in the
282 UK, 2.2% in Belgium / The Netherlands) and less visits (61% just 3 – 4 times in the UK, 77%
283 between 5 and 10 times in Belgium / The Netherlands). This may be related to a more self-

284 managed approach in the UK, or different health-care systems. However, the higher amount
285 of physiotherapy visits in Belgium and The Netherlands may also reflect different
286 perspectives of physiotherapists about the recovery rate, which was 20% points higher
287 within 3 months compared to the UK.

288 Future research should focus on the modalities of exercise therapy (e.g. types, repetitions).
289 A deeper investigation considering home exercise programs would be interesting as well
290 (how many exercises are given, how is the adherence measured,...). Also, there is a clear lack
291 of high quality RCTs and reviews testing the potential added value of manual therapy
292 including if, when and how it should be applied. A clear and well-considered selection should
293 be made which kind of treatment modalities should be used in addition to exercise therapy
294 to provide guidelines and an optimal revalidation program for the patient suffering an RC
295 disorder.

296

297 **Strengths and limitations**

298 This survey was set up in Dutch focusing on physiotherapists from The Netherlands and the
299 Dutch speaking part of Belgium. All non-Dutch speaking physiotherapists were excluded in
300 this survey. 287 surveys were not considered because they were uncompleted, possibly
301 some interesting data were lost here. Despite the fact that multiple resources were used to
302 invite potential physiotherapist to the survey, 90.89% of all respondents are currently active
303 in a private practice. This could possibly lead to a biased view, because all other
304 settings/roles are outnumbered.

305 On the other hand, the use of multiple resources resulted in a large study group of 505
306 respondents, and a good mix of respondents (NL/BE, SN/N-SN).

307

308

CONCLUSION

309 From this survey it could be concluded that advice and exercise were the most used
310 treatment modalities in the treatment for RC disorders in Belgium and The Netherlands,
311 which is in line with current scientific evidence. The most suggested types of exercise were
312 isotonic exercises (including eccentric and concentric variants) and scapular stabilisation
313 exercises. More research is needed for an unambiguous exercise protocol considering type,
314 frequency, duration and intensity.

315 The suggested treatment modalities made by physiotherapists part of a shoulder network
316 are more in line with current evidence. Therefore, grouping of physiotherapists in a shoulder
317 network might be considered as a possible benefit for patients with RC disorders.

318

319

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426

ACCEPTED MANUSCRIPT

- 505 physiotherapists of Belgian and The Netherlands completed the survey
- Advice and exercise were the most common treatment prescriptions
- Isotonic exercises scapular stabilisation exercises were the most suggested
- Treatment of a SN physiotherapist is more in line with current evidence

ACCEPTED MANUSCRIPT