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Original article

# Rotator CUFF disorders: A survey of current physiotherapy practice in Belgium and the Netherlands

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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, 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.

## 1. Introduction

Shoulder pain is a very common musculoskeletal pain presentation with 30–67% of the general population experiencing shoulder pain at any one time (Van der Heijden, 1999; Luime et al., 2004). It is the third most common musculoskeletal disorder (Mitchell et al., 2005) with a high rate of persisting complaints: 54% of patients still report symptoms after a period of three years (Macfarlane et al., 1998). 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 (Chaudhury et al., 2010), 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 (Littlewood et al., 2013).

In 2011, Littlewood et al. (2011) 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 (2018) 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. (2012) 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

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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.

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

Evidence based practice is defined as the process of making clinical decisions based on the best available evidence in combination with patient values and clinical expertise (Sackett et al., 2007). Valid physiotherapy guidelines, when followed, are a possible basis for avoiding or postponing the need for surgery, minimizing the severity of surgery and improving surgical outcomes. Thus, they can lead to a reduction of the societal and economic costs (Dean, 2009). Hence, the aim of this current survey was to examine current physiotherapy practice in Belgium and The Netherlands, with a focus on possible differences between physiotherapists who are members of a shoulder network (SN) and physiotherapists who are not (N-SN), and to identify whether practice is in line with current recommendations from research evidence.

## 2. Methods

### 2.1. Study design

A cross-sectional study was performed, creating an online survey based on the study of Bury and Littlewood (2018) in 2016. The original survey was translated verbatim to Dutch and was based around a clinical scenario of a typical patient with signs and symptoms of a RC disorder (box 1). Eight questions were composed considering treatment options (box 2). Patient case is proved as a valid tool for eliciting information on clinical practice and increasing the chance of a reflective response (Peabody et al., 2000).

### 2.2. Sampling and recruitment

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

### 2.3. Data collection

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

### 2.4. Statistical analysis

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

## 3. Results

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

The data of the physiotherapists in terms of years qualified, practice setting and being part of a shoulder network are shown in Table 1. Overall, there was a balanced representation of physiotherapists who are member of a shoulder network and physiotherapists who are not.

### 3.1. Outcome of survey questions

#### 3.1.1. Would you request any further information or undertake any further clinical tests?

The results of this question are shown in Fig. 1. No further information was requested by 6.1% (n = 31/505; 12/254 SN, 19/251 N-SN) of the survey respondents, 38.2% (n = 193/505; 104/254 SN, 89/251 N-SN) of the physiotherapists would request further subjective information (information considering e.g. sleep, stress, nutrition, medication and medical history), 77.2% (n = 390/505; 200/254 SN, 190/251 N-SN) would undertake further physical examination tests (e.g. scapular position, orthopaedic tests, myofascial structures, thoracic spine and posture), 31.3% (n = 158/505; 74/254 SN, 84/251 N-SN) would request medical imaging ($\chi2 = 1.102$, $p = 0.294$) and 16% (n = 81/505; 51/254 SN, 30/251 N-SN) would undertake further rehabilitation classification. The $\chi2$-test showed a statistically significant difference between SN (n = 51/254) versus N-SN (n = 30/251) in utilizing rehabilitation classification systems e.g. Shoulder Symptom Modification Procedure (SSMP), McKenzie ($\chi2 = 6.191$, $p = 0.013$).

#### 3.1.2. Which management strategies would you typically recommend for this patient?

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

Physiotherapists not part of a shoulder network would integrate the use of massage (n = 48/254 SN, n = 89/251 N-SN), mobilisations

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

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°. Passive shoulder movements are largely maintained. Isometric muscle testing produced pain on abduction and lateral rotation, with a power of 4/5 noted for both.

**Box 2**
Questionnaire

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?

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

| | SN | N-SN | Total (%) | Total (n) |
|---|---|---|---|---|
| **Years qualified (n = 505)** | | | | |
| < 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 |
| **TOTAL:** | **254** | **251** | | **505** |
| **Role/practice setting (n = 505)** | | | | |
| 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 |

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

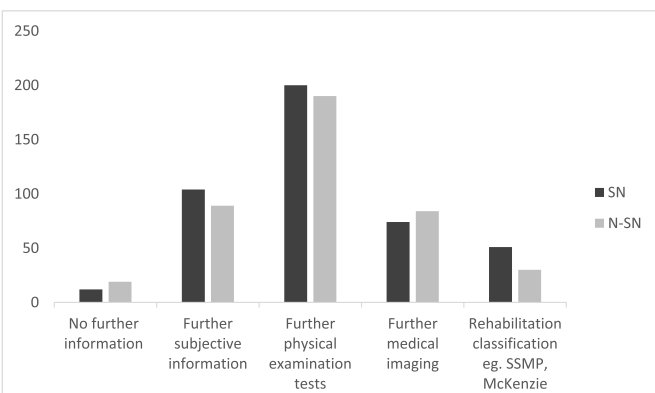


**Fig. 1.** Would you request any further information or undertake any further clinical tests?.
SN, shoulder network members; N-SN, non-member of a shoulder network.
SSMP, Shoulder Symptom Modification Procedure; MDT, Mechanical Diagnosis & Therapy.

(n = 66/254 SN, n = 125/251 N-SN), electrotherapy (n = 1/254 SN, n = 19/251 N-SN) and other treatment modalities (e.g. dry needling, shockwave therapy and Mulligan techniques) (n = 24/254 SN, n = 41/251 N-SN) more than their colleagues that do belong to a network (massage: $\chi 2$ = 17.514, p = 2.90*10–5; mobilisations: $\chi 2$ = 30.450, p = 3.43*10–8; electrotherapy: $\chi 2$ = 17.092, p = 3.60*10–5).

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

### *3.1.3. When prescribing exercises, what instructions do you generally give to the patient?*

This question was open-ended. Considering the parameter **pain** during exercise, different guidelines were given to the patient. Twenty-two percent (n = 57/254) of the shoulder network group would advise the patient to exercise without any form of pain, whereas 68.1% of the physiotherapists of the shoulder network (n = 173/254) would recommend exercising with some level of pain acceptable for the patient and only 6.3% (n = 16/254) would instruct the patient to perform exercises with a distinct pain. A small percentage, 3.5%, of the shoulder network group (n = 8/254) would advise to exercise with a distinct pain if the symptoms disappeared in the following 24 h. Regarding the group of physiotherapists not part of a shoulder network, 20.3% (n = 51/251) would advise exercise without any form of pain, 68.1% (n = 171/251) would instruct to exercise with some level of pain acceptable to the patient, 9.6% (n = 24/251) would advise to exercise with a distinct pain and 2% (n = 5/251) would recommend exercising with a distinct pain with symptoms disappearing in the next 24 h.

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

### *3.1.4. What advice would you typically offer this patient?*

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

Table 2 shows a detailed overview of how the respondents would treat this type of patient in their clinical practice. The majority of the respondents would use a combination of face-to-face appointments and a home-based programme (n = 405/505; 201/254 SN, 204/251 N-SN). The patient would be typically seen 5–10 times, spread over six weeks to three months.

### *3.1.5. Would you expect this person to recover with the prescribed physiotherapy period?*

The responses for this question are shown in Fig. 4. Of all the respondents, 65.7% (n = 332/505; 168/254 SN, 164/251 N-SN) designated that this person would recover within three months with the prescribed treatment. A smaller group of 28.9% (n = 146/505; 74/254

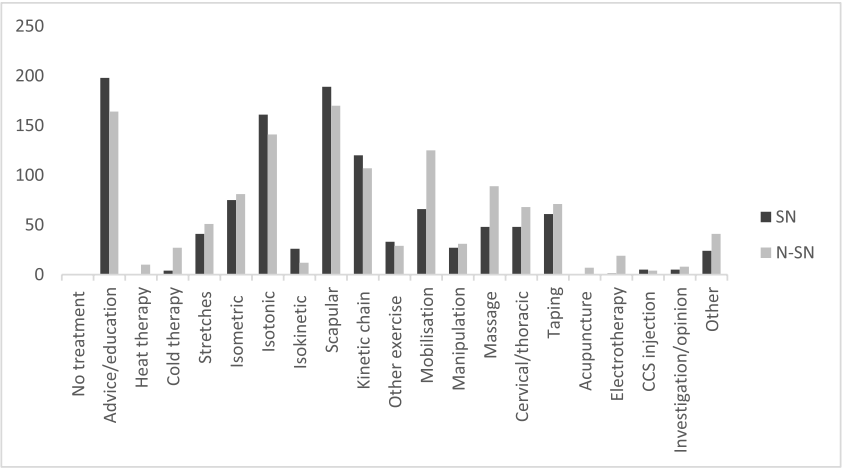


**Fig. 2.** a. Which management strategies would you typically recommend for this patient?.
SN, shoulder network members; N-SN, non-member of a shoulder network.
CCS, corticosteroid.

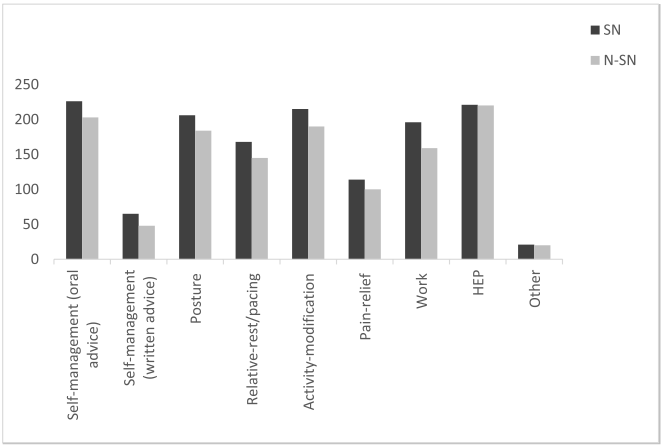


**Fig. 3.** What advice would you typically offer this patient?.
SN, shoulder network members; N-SN, non-member of a shoulder network.
HEP, home exercise programme.

SN, 72/251 N-SN) designated that recovery will occur within six months. The minority of respondents considered that this person would recover between six and twelve months (n = 18/505; 10/254 SN, 8/251 N-SN), greater than 12 months (n = 2/505; 0/254 SN, 2/251 N-SN) or no recovery (n = 7/505; 2/254 SN, 5/251 N-SN) with the prescribed treatment.

### *3.1.6. What would your main treatment goals be for this patient?*

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

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

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

**Table 2**
Treatment delivery.

| | SN (n) | N-SN (n) | Total (%) | Total (n) |
|---|---|---|---|---|
| **Treatment setting (n = 505)** | | | | |
| 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 |
| **Number of times typically seen (n = 505)** | | | | |
| 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 |
| **Typical duration of treatment (n = 505)** | | | | |
| 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 |

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

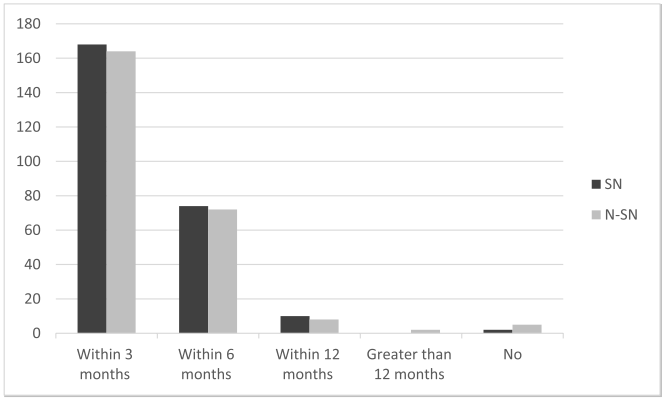


**Fig. 4.** Would you expect this person to recover with the prescribed physiotherapy?.
SN, shoulder network members; N-SN, non-member of a shoulder network.

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

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

## 4. Discussion

### 4.1. 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 (2018), 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 (2018) 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 (Bouju et al., 2014; Daghir et al., 2012; Girish et al., 2011; Cadogan et al., 2011; Yamamoto et al., 2011; Minagawa et al., 1012).

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 (Hegedus et al., 2012, 2015; Gismervik et al., 2017; Diercks et al., 2014).

Only 16% of the physiotherapists would integrate rehabilitation classifications such as SSMP or McKenzie as part of their clinical examination. This is in high contrast with the UK, where 54% of the physiotherapists would incorporate a rehabilitation classification approach in their clinical examination of this patient (Bury and Littlewood, 2018). These findings can be potentially explained by the fact that these classifications are less known in Belgium and The Netherlands. On the other hand, more respondents from the SN group mentioned the use of these classifications. Future research should address the clinical importance considering reliability and clinical value of these classifications.

Concerning the management strategies, exercise therapy and advice were the predominant topics in both the SN group and the N-SN group. These findings are similar with those of Bury and Littlewood(8). However, in Belgium and The Netherlands the use of mobilisations (37.8%) was almost double compared to the UK (21%). Moreover, in Belgium and The Netherlands, physiotherapists of the N-SN group were significantly more likely to use passive modalities and integrate mobilizations, electrotherapy and massage in their treatment, while these modalities are not strongly supported by current scientific evidence (Littlewood et al., 2013; Diercks et al., 2014). In contrast, in the UK no significant differences were found between physiotherapists with or without a specific interest in shoulder disorders, indicating probably more homogenous treatment strategies. Although there were no remarkable differences between the SN and the N-SN group considering exercises, there was a large variety in exercise modalities in terms of repetitions, sets and instructions. In relation to prescribing instructions of exercises, the majority of physiotherapists instructed the load of exercises in relation to the pain tolerance of the patient. When instructing exercises, sets of 3 with repetitions varying between 10 and 15 were most frequently suggested. In both surveys the prescription of exercises in relation to pain was similar: around 70% of all physiotherapists would prescribe painful but acceptable exercises, while 22% would avoid pain during treatment. Exercise with distinct pain is not commonly advised, with or without symptoms disappearing in the next 24 h. This approach is in line with the current physiotherapy practice, in which different approaches are used to set the pain threshold during exercise, including post-exercise response, pain monitoring model or pain level below certain values on a VAS scale (Holmgren et al., 2014; Ingwersen et al., 2017; Littlewood et al., 2016; Maenhout et al., 2013). However, instructions for exercise parameters were inconsistent, which indeed, reflects the current ambiguity in the literature.

A remarkable difference comparing the results of the survey in the UK and in Belgium/The Netherlands was found with regard to scapular stabilising exercises. Bury and Littlewood(8) reported that 50% of all respondents would include scapular stabilising exercises in their treatment strategy, whereas 71% (359/505) of all current Belgian/The Netherlands' respondents would use these types of exercise. Over the last several years, interest regarding scapular stabilising exercises grows in literature although up to now conflicting evidence is found regarding their effectiveness (Saito et al., 2018; Jeon and Chon, 2018; Turgut et al., 2017; Shire et al., 2017; Reijneveld et al., 2017).

Overall, the use of electrotherapy and corticosteroid injections was very rarely included in the treatment strategy of this case. This could possibly be explained by a remaining discrepancy in the current literature regarding their effectiveness (Freire and Bureau, 2016; Coombes et al., 2010; Gaujoux-Viala and Dougados, 2355; Mohamadi et al., 2017).

The modality and duration of the treatment were similar in the both Belgium/The Netherlands and in the UK, in which 80–82% of the setting consisted in a combination of face-to-face appointments and home programme, ranging between 6 weeks and 3 months of treatment duration. However, in the UK, more group classes were provided (14% in the UK, 2.2% in Belgium/The Netherlands) and less visits (61% just 3–4 times in the UK, 77% between 5 and 10 times in Belgium/The Netherlands). This may be related to a more self-managed approach in the UK, or different health-care systems. However, the higher amount of physiotherapy visits in Belgium and The Netherlands may also reflect different perspectives of physiotherapists about the recovery rate, which was 20% points higher within 3 months compared to the UK.

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

### 4.2. Strengths and limitations

This survey was set up in Dutch focusing on physiotherapists from The Netherlands and the Dutch speaking part of Belgium. All non-Dutch speaking physiotherapists were excluded in this survey. 287 surveys were not considered because they were uncompleted, possibly some interesting data were lost here. Despite the fact that multiple resources were used to invite potential physiotherapist to the survey, 90.89% of

all respondents are currently active in a private practice. This could possibly lead to a biased view, because all other settings/roles are outnumbered.

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

## 5. Conclusion

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

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

## Declarations of interest

None.

## Ethical approval

None declared”/“Not applicable.

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## Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.msksp.2019.06.001.

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