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KNOWLEDGE IN ACTION

Faculteit Geneeskunde en Levenswetenschappen

master in de revalidatiewetenschappen en de kinesitherapie

Masterthesis

Effect of education with home-exercise versus manual therapy with home-exercise on analytical and psychological outcomes in patients with frozen shoulder: a six-week follow-up trial

Daphne Gielen

Scriptie ingediend tot het behalen van de graad van master in de revalidatiewetenschappen en de kinesitherapie, afstudeerrichting revalidatiewetenschappen en kinesitherapie bij musculoskeletale aandoeningen

PROMOTOR :
Prof. dr. Annick TIMMERMANS

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Research framework

This randomized pilot study was performed in the University of Hasselt in collaboration with the Jessa Hospital. The study is situated within the musculoskeletal rehabilitation and more specifically in the shoulder department. This study includes patients with frozen shoulder (FS). Frozen shoulder is a specific condition of the shoulder, which is characterized by very limited active and passive range of motion in combination with pain. Due to these symptoms, patients with FS have a low quality of life because they often are limited to to stay at home from work and are not able to perform sports or other leisure activities. Rehabilitation is a key factor in the treatment of FS. Therefore, this study aims to find out which intervention is best in the early stage (first six weeks after diagnosis) of rehabilitation. The results obtained by this trial can be important for optimizing the rehabilitation approach of FS.

The recruitment of patients was conducted by dr. L. de Baets in collaboration with an orthopaedic doctor in the Jessa Hospital. The data collecting at baseline and at six weeks was always performed by dr. L. de Baets with assistance of the master student. The master student performed the data processing independently after discussing with dr. L. de Baets. Under supervision and guidance by dr. L. De Baets, the master student individually and independently completed the interpretation of the results and the academic writing process.

Index

1 Abstract

Background: Frozen shoulder (FS) is a common condition seen in the shoulder. Although it is often diagnosed and treated, there is no current consensus on what treatment is preferred in the early stage of rehabilitation.

Objectives: This study investigates which clinical rehabilitation approach is preferred during the first six weeks of therapy in patients with FS.

Participants: Patients with FS that met with the inclusion criteria and were willing to participate in the trial were included after signing an informed consent formulary. The participants were than randomly divided into two groups, a control group that received manual therapy with a home-exercise program and an experimental group that received individually tailored education in combination with the same home-exercise program.

Measurements: Two testings were performed to assess four outcome variables. The baseline testing was carried out at zero weeks and follow-up testing at six weeks. Glenohumeral abduction range of motion, external rotation range of motion, pain catastrophizing and kinesiofobia were the four outcomes.

Results: A total of twelve participants were included in the trial. No significant differences between the baseline characteristics of the participants in the two groups were found. Statistical analysis of the four outcomes was performed using a two-sample t-test and a Wilcoxon rank sums test. One out of four outcomes, namely the Pain Catastrophizing Scale, showed a significant difference in progress from baseline to follow-up in favour of the control group. The progress in passive range of motion (external rotation and abduction) showed no difference between the both groups. The same was found for the Tampa Scale for kinesiofobia.

Conclusion: The predetermined hypothesis was not met in this trial. Further research with a larger sample size could still give more promising results.

2 Introduction

Adhesive capsulitis or frozen shoulder (FS) is a self-limiting, musculoskeletal pathology of the glenohumeral joint. In the general population the prevalence is two to five percent (Fernandes et al., 2015; Favejee et al., 2011). FS is characterised by pain, active and passive loss of range of motion (ROM) in more than one plane and may be secondary associated with diabetes of hypothyroidism, but also occurs primarily (Fernandes et al., 2015). Aetiology and pathogenesis are not known in primary FS (Favejee et al., 2011).

Three natural stages are described in frozen shoulder: (Fernandes et al., 2015) a freezing phase characterized by the painful limitation of active and passive range of motion (ROM), (Favejee et al., 2011) a frozen phase characterized by a very limited ROM that is only painful end range and (Reeves et al., 1975) a thawing phase where the ROM progressively returns to normal (Reeves et al., 1975). Symptoms may take up to two years (Kelley et al., 2009).
Due to the long period of immobilisation and pain, patients have a decrease in quality of life and are not able to work for some time.

There is no current consensus on which medical and rehabilitation intervention for FS is preferred (Favejee et al., 2011, Kelley et al., 2009). Present guidelines propose corticosteroid injections in the glenohumeral joint in combination with physiotherapy. Physiotherapy can consist of patient education, individual manual therapy, exercise therapy, group therapy and/or home exercise programs (Kelley et al., 2009).
However, it is still unclear which of these interventions are preferred and have the best impact on the recovery of functional movement and other clinically relevant outcomes such as pain intensity and quality of life in patients with FS.

It is known that emotional, cognitive and behavioural factors such as fear avoidance beliefs, pain catastrophizing, maladaptive coping and low levels of self-efficacy mechanisms have an influence on the development and recovery of musculoskeletal complaints (Coronado et al., 2007). In addition, these psychological factors like fear avoidance beliefs and pain catastrophizing are not beneficial for recovery and patient-reported outcomes (Coronado et

al., 2007). Most research on the influence of behavioural factors is performed in a chronic low back pain population (Kamper et al., 2014), but literature also indicates that there is an impact in other populations with musculoskeletal pain (Guerrero et al., 2018).
For these psychological components, research points out that patient education about the negative influence of these factors on their recovery is a key factor in the early stage of rehabilitation to prevent or adequately tackle harmful beliefs (Mittinty et al., 2018; Louw et al., 2011; Booth et al., 2017).

This study will randomly appoint participants with FS in a control (1) and an experimental (2) group. The experimental group (2) will get an education program in combination with a home-exercise program (EDU-EX). Since this is the new therapy, which we compare to current guidelines, we will refer to this group as the experimental group. Specifically individual tailored information about fear avoidance beliefs, kinesiofobia and other psychological components that could have a negative influence on the recovery of FS, will be provided.
The comparison control group (1) will receive manual therapy according to the current guidelines for FS, consisting of information about the disease, and manual therapy in combination with a home-exercise program (MT-EX group).

This trial will report on two big research questions:

(1) Is there a significant difference between control – and experimental group in the progress of passive ROM after six weeks of intervention?
(2) Is there a significant difference between control – and experimental group on change in psychological factors after six weeks of intervention?

We hypothesize that due to the natural course of frozen shoulder, no significant difference in improvement of range of motion will be found after six weeks between the two groups. However we do hypothesize to find a difference in improvement on psychological factors between the groups at six weeks follow-up in favour of the EDU-EX group.

3 Methods

3.1 Study design

This comparative pilot study was part of a large on-going trial that investigates different parameters on short and long-term follow-up in patients with frozen shoulder. Measurements took place in an orthopaedic practice and were conducted by head investigator dr. L. De Baets.

3.2 Participants

Patients with frozen shoulder were recruited via an orthopaedic surgeon from the Jessa Hospital, Hasselt. Recruitment started in September 2017.

To be able to participate in this trial, patients had to match with different in- and exclusion criteria. (Table 1)

All patients had to sign an informed consent when willing to participate in the trial. Patients that participated were randomly divided into one of two therapy groups by taking consecutive numbered, non-transparent envelopes.

Table 1: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
• Limited glenohumeral (GH) abduction and external rotation ROM • /p/ ROM is less than 50% compared to the unaffected shoulder • Complaints for at least two months and getting worse • Normal age-related RX shoulder and rotator cuff ultrasound • Dutch is mother tongue	• Bilateral FS • Post-traumatic or post-operative FS • Presence of intrinsic shoulder pathology (SLAP-lesion, Bankart lesion, rotator cuff tear)

3.3 Outcome measures

3.3.1 Shoulder kinematics

Passive range of motion (ROM) of the glenohumeral abduction and external rotation was the primary outcome measure to answer the first research question; “Is there a significant

difference between control – and experimental group in the progress of passive ROM after six weeks of intervention?"

ROM was measured at baseline (zero weeks) and after six weeks follow-up, using a goniometer. One investigator fixed the scapula and moved the arm in abduction. Movement was considered end range when a hard stop was felt. The arm was than held in this position when a second investigator measured the degrees of ROM with the goniometer. The same investigator always performed the movement of the arm. External rotation was measured identically as abduction. The patient kept his elbow in 90° flexion with his olecranon against his trunk, than his lower arm was moved to the outside in the transversal plane.

Measurements with a goniometer were found to be reliable in the shoulder (Kolber et al., 2012).

3.3.2 Psychological factors

Two different questionnaires were given to the participants at baseline and again at six weeks follow-up. Psychological factors that were assessed were pain catastrophizing using the Pain Catastrophizing Scale (Appendix 2) and kinesiofobia using the Tampa-Scale for kinesiofibia. (Appendix 3)

The pain catastrophizing scale (PCS) is a 13-item questionnaire that can be subdivided in three parts: rumination, magnification and helplessness. Each question had to be scored from 0 to 4, with '0' meaning 'not at all' and '4' meaning 'all the time'. The total score was the sum of scores on each question. The total score could range from 0 to 52. A low total score meant a low level of pain catastrophizing thoughts and feelings, a high score meant a high level of pain catstrophizing. Literature showed a good internal consistency of the total PCS (Chronbach alpha = .87)(Sullivan et al., 1995).

The tampa scale for kinesiofobia (TSK) is a 17-item questionnaire that assessed the fear of injury due to movement. Every item got a score from 1 to 4, with '1' meaning 'no fear' and '4' meaning 'high fear'. Total score was the sum of the 17 items. The minimal total score was 17, the maximum total score was 68. A score of 37 or less meant no fear of movement, a score above 37 meant fear of movement. The reliability of the TSK was found to be good (Chronbach alpha = .68 - .80)(Goubert et al). Both the construct validity and the criterion validity of the TSK were also found to be good (r= -.40 – r=-.49) (Goubert et al., 2000).

3.4 Interventions and procedure

All participants received a corticosteroid injection from the orthopaedic doctor after the baseline measurement. Participants in the MT-EX group had to go to a physiotherapist in a private practice. They received standardized manual therapy two to three times a week plus a home exercise program. (Appendix 1) The therapy was based on current practice guidelines (Page et al., 2014; Heemskerk et al., 2017). Patients got basic information about their pathology, what is FS, what is the aetiology, what time can be expected and what are the most common symptoms. Manual therapy was the key element of the intervention in this group. Glenohumeral angular mobilisations, translatory mobilisations, spinal mobilisations in combination with glenohumeral stretch, high velocity techniques beyond the pain limit, Mulligan-techniques and Maitland-techniques could be used.

Therapy was adjusted to patients' pain level. When participants reported high pain levels, the manual techniques had a low intensity meaning that no high intensity or high velocity techniques were performed. When participants reported low levels of pain, the manual techniques were higher in intensity.

Main goal of this control intervention was pain relief and gain in range of motion. Furthermore, the participants got information about the exercises that they had to do individually at home. All exercises were explained so they knew how to perform them in a correct way. The participants were instructed to perform these exercises on a daily base.

Different physiotherapists in different regions in Limburg were trained to follow the guidelines set in this trial in a standardized way. Patients were encouraged to go to one of the trained physiotherapists. In case the patients preferred another physiotherapist, this person was trained before the first visit took place.

Participants in the EDU-EX group had to go to the Jessa Hospital for their therapy. This therapy consisted of the same standard information on what FS is as the MT-EX group. The rest of this intervention consisted of an individually tailored education program. This education program was based on the results of the questionnaires participants filled in on their baseline measurement (zero weeks). When patients showed a negative result on the TSK, kinesiofobia was addressed as being a potential harmful factor in their recovery.

In addition to the education, the same home-exercise program as the participants in the control group was given to each participant with the same instructions.
Three physiotherapists were trained in advance to give the education treatment appropriate and in a standardized manner.

3.5 Data analysis

Data were analysed using the JMP statistical program. The statistical significance was set on 0.05 or less. Descriptive data were obtained for the baseline variables from all 12 participants. Kinematic and psychological data from all participants were collected at baseline and after their six weeks follow-up measurement. The six weeks scores minus the baseline score were calculated for each variable (abduction ROM, external rotation ROM, PCS, TAMPA) to show the progresses that were made. The difference between the progresses of the two groups was then analysed using a two-sample t-test and a Wilcoxon rank sum test. Both statistical tests were interpreted because of the small sample sizes (n=6). When performing the statistical analysis, the decision tree structure from the University of Hasselt was used to select the appropriate statistical tests.

4 Results

4.1 Participants

In total 12 participants were included in this pilot study after three patients dropped out. The reasons for drop out were no time to participate, no longer motivated to participate and not willing to get a corticoid injection anymore. (Figure 1) Baseline characteristics such as age, gender and type of FS were collected of all participants at the start of the trial. Both groups were found to be similar for these baseline variables. (Table 2)

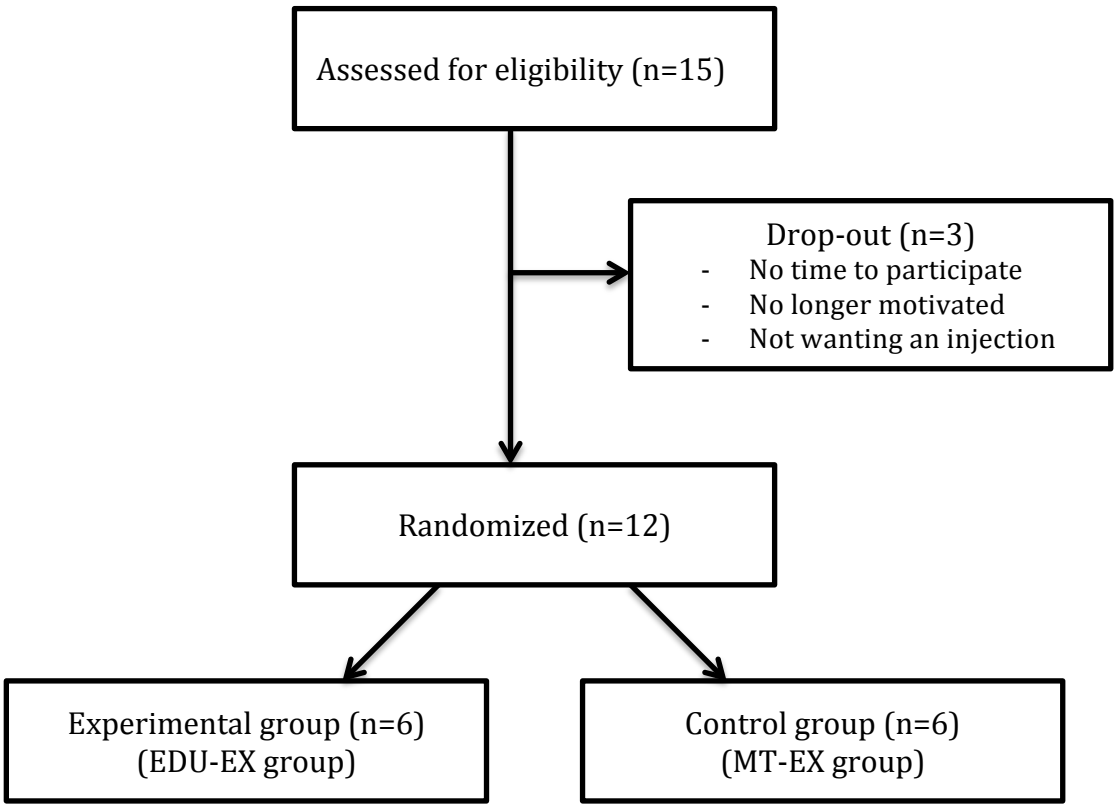

Figure 1. Flow diagram of participants

Table 2: Baseline variables

	EDU-EX	MT-EX
Number	6	6
Demographic variables		
Age (years) (SD)	57.4 (10.12)	52.67 (10.07)
Gender		
Female (%)	66.67	50
Male (%)	33.33	50
Race (Caucasian) (%)	100	100
Disease specific variables		
Type FS		
Idiopathic (%)	66.67	100
Hypothyroidism (%)	33.33	0
Affected side		
Right (%)	16.67	16.67
Left (%)	83.33	83.33

4.2 Kinematics

4.2.1 Passive abduction range of motion

The passive abduction range of motion improved in 11 out of 12 participants after six weeks of intervention. The two-sample t-test and the Wilcoxon rank sums test were used and showed no significant difference between the MT-EX and EDU-EX group (p=0.2979-p=0.5732). The group average of progress showed an improvement in range of motion in both groups, but the progress that was made within the two groups was similar after six weeks. Therefore, no significant difference could be found. (Table 3)

Table 3: Statistical analysis of the passive ABDUCTION ROM

Group	Baseline (Degrees ROM)	Follow-up (Degrees ROM)	Progress[1]	P-Value t-test	P-value Wilcoxon rank sum	Group mean
EDU-EX[2]	38	50	12			
EDU-EX	72	74	2			
EDU-EX	58	70	12			
EDU-EX	38	40	2			
EDU-EX	42	48	6			
EDU-EX	70	76	6			6.67
MT-EX[3]	42	42	0			SD = 4.24
MT-EX	51	62	11			
MT-EX	58	68	10			
MT-EX	73	104	31			
MT-EX	28	42	14			
MT-EX	10	15	5			11.83
						SD = 3.54
				0.2979	0.5732	

[1]Progress= (six weeks follow-up – baseline)

[2]Experimental group: education with home-exercise program

[3]Control group: manual therapy with home-exercise program

4.2.2 Passive external rotation range of motion

The external rotation ROM improved in 11 out of 12 participants. Group means showed an average progress of 18,17 degrees in the EDU-EX group and an average progress of 9,67 degrees in the MT-EX group after six weeks of intervention. However, both the two-sample t-test and the Wilcoxon rank sums test were not able to find a significant difference between the progresses in the two groups after six weeks (p=0.2526-0.3785). (Table 4)

Table 4: Statistical analysis of the passive EXTERNAL ROTATION ROM

Group	Baseline (Degrees ROM)	Follow-up (Degrees ROM)	Progress[1]	P-Value t-test	P-value Wilcoxon rank sum	Group mean
EDU-EX[2]	0	5	5			
EDU-EX	29	47	18			
EDU-EX	28	67	39			
EDU-EX	5	30	25			
EDU-EX	0	1	1			
EDU-EX	3	24	21			18.17
MT-EX[3]	8	15	7			SD = 11.31
MT-EX	30	52	22			
MT-EX	38	34	-4			
MT-EX	28	30	2			
MT-EX	1	12	11			
MT-EX	-20	0	20			9.67
						SD = 9.19
				0.2526	0.3785	

[1]Progress= (six weeks follow-up – baseline)

[2]Experimental group: education with home-exercise program

[3]Control group: manual therapy with home-exercise program

4.3 Psychological factors

4.3.1 Pain catastrophizing

A decrease in total score on the PCS was seen in three out of six participants in the EDU-EX group and in five out of six participants in the MT-EX group. Statistical analysis by the use of a two-sample t-test and a Wilcoxon rank sums test showed a significant difference between the progresses that were made within the two groups. (p= 0.0154-0.0159) When the group means of progress on the PCS were analysed, it showed a positive improvement in the MT-EX group in contrary to the EDU-EX group. (Table 5)

However, an outlier is found in the MT-EX group. When standard deviation (SD) of the progress in the MT-EX group is calculated, the SD is 2.12, when the outlier was included in the calculation the SD is 7.78.

Table 5: Statistical analysis of the Pain catastrophizing scale

Group	Baseline (Total score)	Follow-up (Total score)	Progress[1]	P-Value t-test	P-value Wilcoxon rank sum	Group mean
EDU-EX[2]	20	19	-1			
EDU-EX	17	23	6			
EDU-EX	29	26	-3			
EDU-EX	26	24	-2			
EDU-EX	0	2	2			
EDU-EX	15	18	3			0.83
MT-EX[3]	31	13	-18			SD = 7.78
MT-EX	3	7	-4			
MT-EX	13	12	-1			
MT-EX	19	13	-6			
MT-EX	33	26	-7			
MT-EX	13	6	-7			-5.83
						SD = 2.83
				0.0154*	0.0159*	

[1]Progress= (six weeks follow-up – baseline)

[2]Experimental group: education with home-exercise program

[3]Control group: manual therapy with home-exercise program

*Statistical significance of 0,05 is reached

4.3.2 Kinesiofobia

In total nine out of 12 participants had a lower score on the TSK after six weeks of intervention. However, statistical analysis showed no significant difference between the progresses within the groups. (p=0.9058-p=0.9360) The average group progress showed an increase in total score of 0.83 points in the EDU-EX group in comparison to the MT-EX group where the group average showed a decrease in total score of 5.83 (Table 6).

Table 6: Statistical analysis of the tampa scale for kinesiofobia

Group	Baseline (Total score)	Follow-up (Total score)	Progress[1]	P-Value t-test	P-value Wilcoxon rank sum	Group mean
EDU-EX[2]	38	35	-3			
EDU-EX	43	41	-2			
EDU-EX	33	29	-4			
EDU-EX	43	42	-1			
EDU-EX	46	35	-11			
EDU-EX	31	33	2			-3.17
MT-EX[3]	55	55	0			SD = 3.54
MT-EX	44	36	-8			
MT-EX	40	36	-4			
MT-EX	37	41	4			
MT-EX	53	50	-3			
MT-EX	41	31	-10			-3.5
						SD = 7.07
				0.9058	0.9360	

[1]Progress= (six weeks follow-up – baseline)

[2]Experimental group: education with home-exercise program

[3]Control group: manual therapy with home-exercise program

5 Discussion

This pilot trial was conducted to investigate which therapy was preferred in the early stage (first six weeks after diagnosis) rehabilitation of patients with FS. Patients with FS have loss of both active and passive range of motion and pain (Fernandes et al., 2015). In this trial, the passive range of motion of external rotation and abduction was therefore chosen as an outcome to find out which therapy is favoured.

The second big part in this trial focussed on two psychological outcomes, namely pain catastrophizing and kinesiofobia. Both parts were investigated after an intervention period of six weeks. First hypothesis was made that due to the three stages in FS (Fernandes et al., 2015), no difference in passive range of motion could be found because participants were still in their freezing phase during the first six weeks of rehabilitation. Yet, it was included in the trial because it could show that our current standard care (MT-EX) is not better than no manual therapy in early stage rehabilitation.

Second hypothesis was set that a difference between the progresses in both groups could be found on psychological outcomes. Due to the individually tailored education program that the participants in the EDU-EX group received, a difference in favour of the EDU-EX group was hypothesised.

After doing a statistical analysis of the data that were collected, both hypotheses could not be substantiated. The results showed only one significant outcome after six weeks, namely the progress after six weeks on total score of the pain catastrophizing scale had improved more in the MT-EX group in comparison to the change in total score of the EDU-EX group. This result may be explained by the high baseline score of one participant in the MT-EX group, whose progress was clearly greater than any others. Possibly, when more patients with FS could be included, results could have been clearer for interpretation. Due to the small sample size in this trial, clear conclusions cannot be made. Also, the education program that was given in the EDU-EX group could be a bias for the follow-up measurement of the questionnaires. By talking about harmful beliefs, awareness about these beliefs might occur and therefore the results might me masked.

Strengths of this trial were the interpretation of two tests when interpreting the statistical analysis. The baseline characteristics of participants in both groups were similar, as well as the number of participants in both groups (n=6).
Weaknesses that have to be pointed out were the small sample size, as mentioned above. Also both the experimental group as the control group had to do the same home-exercise program. Possibly, these exercises had an influence on the progress that was made in both groups, and therefore no significant difference was found. Also, both groups received the same injection at the beginning of the trial. Possibly, this medical intervention had such an impact on pain reduction that the results were masked.

In future research adding a control group with no therapy at all could be interesting, as well as adding a group with only active home-exercise therapy. Probably the difference in progress can be clearer when the interventions differ more from each other.

In conclusion, the hypotheses could not be substantiated probably due to the small sample size and the lack of an extra control group.
However, both groups showed a similar improvement in ROM after six weeks of intervention. This suggests that manual therapy is not a necessary intervention in the first six weeks in a FS population. This is an interesting finding for further research. Also, it might be important on an economical point of view. Patients with FS go to a physiotherapists two- to three times a week for manual therapy. When it is also concluded in a larger trial that this manual therapy is not better than no manual therapy in the first six weeks after diagnosis, patients can save their visits and exercise at home. In future research this trial might be further explored with some specific adjustments as mentioned above, and than the hypotheses could still be substantiated.

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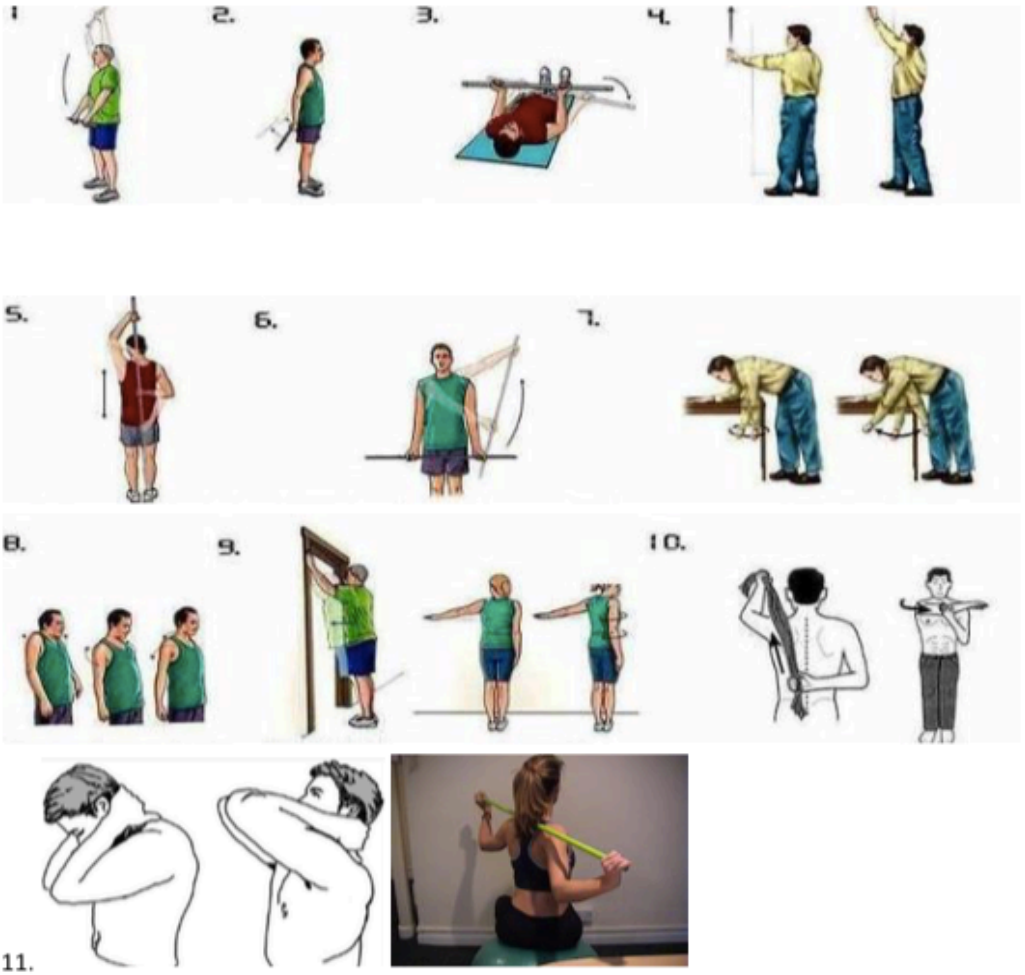
7 Appendixes

Appendix 1. Home-exercise program

Figure 1



1. Bilateral anteflexion
2. Extension
3. Exorotation
4. Unilateral anteflexion
5. Functional endorotation
6. Abduction and adduction
7. Pending
8. Scapular setting + correct alignment of the cervical and thoracic spine
9. M. biceps and m. pectoralis stretch
10. Functional endorotation and horizontal abduction
11. Thoracic rotation- and extension mobilisation

Appendix 2. Pain Catastrophizing Scale

Iedereen ervaart wel eens pijn in zijn leven zoals hoofdpijn, tandpijn, gewrichts-en spierpijn. Mensen komen ook vaak in situaties terecht die pijn veroorzaken zoals een behandeling bij de tandarts of een chirurgische ingreep.

Wij zijn geïnteresseerd in de soort gedachten en gevoelens die u ervaart als u pijn hebt. In de hierna volgende lijst staan dertien beweringen die verschillende gedachten en gevoelens beschrijven die mogelijk met pijn te maken hebben. Probeer aan te geven in welke mate deze gedachten en gevoelens ook voor u van toepassing zijn. Maak daarbij gebruik van de volgende puntenschaal.

0 – helemaal niet

1 – in lichte mate

2 – in zekere mate

3 – in grote mate

4 – altijd

Schrijf het getal dat op u van toepassing is in het hokje voor de zin.

Als ik pijn heb.....

1. vraag ik mij voortdurend af of de pijn wel zal ophouden.
2. voel ik dat ik zo niet verder kan.
3. is dat verschrikkelijk en denk ik dat het nooit beter zal worden.
4. is dat afschuwelijk en voel ik dat de pijn mij overweldigt.
5. voel ik dat ik het niet meer uithoud.
6. word ik bang dat de pijn erger zal worden.
7. blijf ik denken aan andere pijnlijke gebeurtenissen.
8. verlang ik hevig dat de pijn weggaat.
9. kan ik de pijn niet uit mijn gedachten zetten.
10. blijf ik eraan denken hoeveel pijn het wel doet.
11. blijf ik denken hoe graag ik zou willen dat de pijn ophoudt.
12. is er niets dat ik kan doen om de intensiteit van de pijn te verminderen.
13. vraag ik mij af of er iets ernstigs kan gebeuren.

Appendix 3. Tampa Scale

Tampa schaal voor Kinesiofobie

Miller, R.P., Kori, S.H. & Todd, D.D. (1991)
Geautoriseerde Nederlandse Vertaling
Vlaejen J.W.S., Kole-Snijders A.M.J., Crombez G., Boeren R.G.B. & Rotteveel A.M. (1995)

Geef van onderstaande beweringen door middel van een cijfer 1 en 4 aan in welke mate u het eens of oneens bent met deze bewering. De betekenis van de cijfers is als volgt;

1 = in hoge mate mee oneens
2 = enigszins mee oneens
3 = enigszins mee eens
4 = in hoge mate mee eens

		1	2	3	4
1.	Ik ben bang om bij het doen van lichaamsoefeningen letsel op te lopen.	☐	☐	☐	☐
2.	Als ik me over de pijn heen zou zetten, dan zou hij erger worden.	☐	☐	☐	☐
3.	Mijn lichaam zegt me dat er iets gevaarlijk mis mee is.	☐	☐	☐	☐
4.	Mijn pijn zou waarschijnlijk minder worden als ik lichaamsoefeningen zou doen.	☐	☐	☐	☐
5.	Mijn gezondheidstoestand wordt door anderen niet serieus genoeg genomen.	☐	☐	☐	☐
6.	Door mijn pijnprobleem loopt mijn lichaam de rest van mijn leven gevaar.	☐	☐	☐	☐
7.	Mijn pijn betekent dat er sprake is van letsel.	☐	☐	☐	☐
8.	Als mijn pijn erger wordt door iets, betekend dat nog niet dat dat gevaarlijk is.	☐	☐	☐	☐
9.	Ik ben bang om per ongeluk letsel op te lopen.	☐	☐	☐	☐
10.	De veiligste manier om te voorkomen dat mijn pijn erger wordt is gewoon oppassen dat ik geen onnodige bewegingen maak.	☐	☐	☐	☐
11.	Ik had wellicht minder pijn als er niet iets gevaarlijks aan de hand zou zijn met mijn lichaam.	☐	☐	☐	☐
12.	Hoewel ik pijn heb, zou ik er beter aan toe zijn als ik lichamelijk actief zou zijn.	☐	☐	☐	☐
13.	Mijn pijn zegt me wanneer ik moet stoppen met lichaamsoefeningen doen om geen letsel op te lopen.	☐	☐	☐	☐
14.	Voor iemand in mijn toestand is het echt af te raden om lichamelijk actief te zijn.	☐	☐	☐	☐
15.	Ik kan niet alles doen wat gewone mensen doen, omdat ik te gemakkelijk letsel oploop.	☐	☐	☐	☐
16.	Zelfs als ik ergens veel pijn door krijg, geloof ik niet dat dat gevaarlijk is.	☐	☐	☐	☐
17.	Ik zou geen lichaamsoefeningen hoeven te doen wanneer ik pijn heb.	☐	☐	☐	☐

UHASSELT

VOORTGANGSFORMULIER WETENSCHAPPELIJKE STAGE DEEL 2

DATUM	INHOUD	HANDTEKENINGEN
18/12/2017	- Onderzoeksvragen - Hypothesen - Opbouw introductie	Promotor: Liesbet De Baets Studente:
19/02/2018	- Afspraak data-analyse	Promotor: Liesbet De Baets Studente:
02/02/2018	- Metingen uitvoeren	Promotor: Liesbet De Baets Studente:
05/02/2018	- REVAL: uitleg data verwerking excel → thuis zelfstandig verwerken	Promotor: Liesbet De Baets Studente:
01/03/2018 02/03/2018	- Patiëntentesting	Promotor: Liesbet De Baets Studente:
12/03/2018	- Doorsturen introductie, methode	Promotor: Liesbet De Baets Studente:
20/03/2018	- Doorsturen verwerkte data PP1-PP12	Promotor: Liesbet De Baets Studente:
1/05/2018	- Definitieve introductie - Methode feedback verwerken - Opbouw statistiek	Promotor: Liesbet De Baets Studente:
5/05/2018	- Afspraak statistiek → Zelfstandig uitwerken & uitvoeren	Promotor: Liesbet De Baets Studente:
11/05/2018	- Gegevens statistiek verwerken (tabellen) - Results schrijven	Promotor: Liesbet De Baets Studente:
21/05/2018	- Feedback verwerken tekst - Abstract / research context / acknowledgements - Discussie eerste versie	Promotor: Liesbet De Baets Studente:
28/05/2018	- Finale feedback	Promotor: Liesbet De Baets Studente:

Auteursrechtelijke overeenkomst

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Richting: **master in de revalidatiewetenschappen en de kinesitherapie-revalidatiewetenschappen en kinesitherapie bij musculoskeletale aandoeningen**
Jaar: **2018**

in alle mogelijke mediaformaten, - bestaande en in de toekomst te ontwikkelen - , aan de Universiteit Hasselt.

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Voor akkoord,

Gielen, Daphne