

Laterality affects PRWE and QuickDASH scores after distal radius fractures – A prospective multicentre study

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Tiivistelmä – Referat – Abstract <p>Värttinäluun alaosan murtumat ovat aikuisväestön yleisimpiä murtumia, joten niitä on myös tutkittu paljon. Vieläkään ei kuitenkaan tunneta kaikkia näiden murtumien hoitoon vaikuttavia muuttujia, joista yksi voisi olla potilaan kätsisyys. Tämän tutkimuksen tarkoituksena oli tutkia kätsiyyden vaikutusta potilaiden täyttämien oirekyselykaavakkeiden tuloksiin värttinäluun alaosan murtumien jälkeen.</p> <p>Tutkimuksessa lähetettiin kaksi oirekyselykaavaketta (Patient-Rated Wrist Evaluation, PRWE ja lyhyempi versio kyselykaavakkeesta Disabilities of the Arm, Shoulder and Hand, QuickDASH) 336 potilaalle, joilla oli todettuvärttinäluun alaosan murtuma. Kyselykaavakkeet lähetettiin potilaille 6-8 viikkoa ja 3-4 kuukautta vamman jälkeen. Lopulliseen tutkimukseen valikoitui 119 potilasta.</p> <p>Potilaat jaettiin kahteen ryhmään sen mukaan, oliko murtuma potilaan paremman vai huonomman käden puolella, minkä jälkeen kyselykaavakkeiden tuloksia verrattiin näiden ryhmien välillä. 6-8 viikon kuluttua vammasta paremman kätensä murtaneet potilaat saivat korkeampia tuloksia QuickDASH-kyselykaavakkeesta ($p=0,04$), mikä oli alkuperäisen hypoteesimme mukainen tulos. Myös PRWE-kyselykaavakkeen osalta havaittiin samansuuntainen tulos ($p=0,12$). Kun verrattiin pelkästään nivelensisäisiä murtumia keskenään, huomattiin tilastollisesti merkitsevä ero ryhmien välillä 6-8 kuluttua vammasta sekä PRWE- ($p=0,044$) että QuickDASH-kyselykaavakkeiden ($p=0,046$) tulosten välillä. Myös 3-4 kuukauden kuluttua vammasta saatiin samankaltaisia tuloksia, vaikka tutkimuksemme voima ja potilasmäärä oli laskettu riittäväksi 6-8 mittauspisteeseen, mutta ei 3-4 kuukauden mittauspisteeseen.</p> <p>Tulostemme perusteella potilaan kätsisyys tulisi aina ottaa huomioon, kun tutkitaan värttinäluun alaosan murtumia PRWE- tai QuickDASH-kyselykaavakkeiden avulla, koska sillä on vaikutusta näiden kyselykaavakkeiden tuloksiin. Lisätutkimuksia tulisi tehdä vielä tämän vaikutuksen merkittävyyden määrittämiseksi. (212 sanaa)</p>			
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Tiivistelmä – Referat – Abstract <p>This study was executed to measure the effect of laterality on patient reported outcome measure (PROM) scores after distal radius fractures (DRFs).</p> <p>To investigate this, we sent Patient-Rated Wrist Evaluation (PRWE) and short version of Disabilities of the Arm, Shoulder and Hand (QuickDASH) questionnaires 6-8 weeks and 3-4 months after the fracture to 336 DRF patients, of which 119 were included to the study.</p> <p>The patients were divided into dominant and non-dominant side groups based on the side of the fracture, and the scores of the questionnaires were compared. At 6-8 weeks, the dominant group scored higher than non-dominant group in QuickDASH, which was in line with our hypothesis ($p=0,04$). A similar trend was noted in PRWE ($p=0,12$). When comparing only intra-articular fractures, a statistically significant difference between dominant and non-dominant groups at 6-8 weeks was noted in both PRWE ($p=0,044$) and QuickDASH ($p=0,046$). Similar trend was seen at 3-4 months even though our study was not designed to have sufficient power at this time point.</p> <p>Our results suggest that laterality should always be taken into account when studying DRFs by using PRWE or QuickDASH as an outcome measure due to its effect on the scores of these questionnaires. (199 words)</p>			
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1 Introduction

Distal radius fractures (DRF) are the most common fracture type among adults (1,2). Even though Colles' fracture was already described in literature 200 years ago, the guidelines for the treatment of these fractures still vary (3). Especially for intra-articular distal radius fractures, there is no study-based consensus about the optimal treatment. Discovering the optimal treatment for DRFs has been difficult because both the patients and the fractures are so diverse; ranging from old and frail patients to young and active athletes as well as from simple extra-articular fractures to displaced and multifragmented intra-articular fractures.

During last five years over 1900 articles on DRFs have been published and the number of publications is still rising year by year. The number of randomized controlled trials (RCTs) during last 5 years is over 90 and even over 30 meta-analyses has been published. The unawareness and lack of consensus are therefore not due to lack of research. However, this raises a question whether there is an important unknown patient and/or treatment related factor(s) associated with the DRFs which have fundamental effects on the outcome measures we currently use – like patient reported outcome measures (PROMs).

When RCT intervention studies are conducted it is essential that the groups which are compared are similar (excluding the intervention). All variables which affect the outcome measure used should be recorded and noted. Several variables like these are known regarding DRFs like: patient age, fracture type, radial shortening, loss of inclination etc. However, no one has ever studied the effect of laterality on the commonly used outcome measures and PROMs like Patient-Rated Wrist Evaluation (PRWE) and Disabilities of the Arm, Shoulder, and Hand (DASH) or its shortened version QuickDASH (QDASH).

PROMs like PRWE) and DASH are the most used outcome measures in clinical studies investigating the DRF care (4-8). DASH has been further shortened to a more patient-friendly questionnaire called QDASH which is as reliable as the

full-version DASH despite having fewer questions (9,11). PRWE is considered to be more wrist specific than DASH. Interestingly, neither of these PROMs takes into consideration patient's hand dominance (=laterality) and in fact the instructions of QDASH highlight this fact: "It doesn't matter which hand or arm you use to perform the activity; please answer based on your ability regardless of how you perform the task".

My aim on this study was to clarify the role and the effect of the laterality on these common outcome measures. Our hypothesis was that fracture on the dominant wrist would result a higher patient reported outcome score. Hence, we studied the effect of laterality, compared it to the side of the fracture, and used the commonly DRF PROMs as the primary outcome measures.

2 Patients and Methods

2.1 The PROMs

The questionnaires used in this study (PRWE and QDASH) are presented in appendices 1 and 2. DASH and QDASH questionnaires have been previously translated to Finnish (10) and we have just recently also translated and validated the PRWE questionnaire to Finnish (8) with added questions about patient's dominant hand and fractured side which was designed for purposes of this study. We decided to use QDASH instead of DASH because of its patient friendliness.

The PRWE is a 15-item questionnaire that measures wrist pain and disability while performing daily tasks. The first five items assess wrist pain and the following ten items wrist function. A higher score means greater disability, maximum score being 100. The DASH is a 30-item questionnaire that was developed to measure patient's subjective opinion about upper extremity pain and function on a scale of 1 to 5 while performing daily activities. The QDASH, on the other hand, is a shortened version of the DASH with only 11 items, which

makes it faster and easier for the patients to fill in. A higher score indicates greater disability and maximum score is 100. The QDASH was used instead of the DASH because studies have shown that this shorter version measures the same parameters with nearly identical precision and repeatability but with better patient satisfaction and answer frequency (9,11).

2.2 Patients

The study was executed as a prospective multicentre study in which the patients received the questionnaires (PRWE and QDASH) via mail approximately 6 to 8 weeks and 3 to 4 months after the beginning of the treatment. In case of conservative treatment, the beginning of the treatment was the date of casting, and in case of operative treatment, the date of surgery.

The information collected from each patient in the study included: patient's age, gender, hand dominance, side of the fracture, classification of the fracture (AO), inclination, dorsal/palmar tilt, diastasis, step off, radial length/ulnar variance and the scoring of the self-report questionnaires 6 to 8 weeks and 3 to 4 months after the fracture. The classification of the fractures was performed by two of the researchers (HS and TH) who were blinded to each other's evaluations. If the fracture classification of a patient's fracture was not unanimous, the radiographs were reviewed and conjoined agreement of the classification was used. The patients were collected from three hospitals (Päijät-Häme Central Hospital (PHKS, Lahti), Haartman hospital (Helsinki), and Maria Hospital (Helsinki)).

2.3 Power calculations

The minimal clinically important difference (MCID) when using QDASH or PRWE is 14 points (12). The sample size calculations were based on the MCID and the 6 weeks' average scores of a previous trial by Arora and co-workers (13). To get a power (β) of 95 percent and a type I error of 5 percent a minimum of 59 patients were needed for each group. We allowed for 10 percent drop-out and thus questionnaires were sent to all new wrist fracture patients in these hospitals until we got a minimum of 65 patients in each 6-week group.

The questionnaires were sent to 336 patients of which 135 patients answered to the questionnaires. 16 of these patients were excluded. Thus a total of 119 patients were included in the study. Table 1 presents the inclusion and exclusion criteria of the study and Figure 1 presents the patient retrieval process and reasons for exclusions. This study was not designed to have sufficient power at 3 to 4 months' time point.

To be included in this study, patients had to fulfil the inclusion criteria:

- age over 18 years
- distal radius fracture
- age of the fracture under 7 days when diagnosed
- simple fracture
- the patient's acceptance of participation
- patient answered to both questionnaires 6-8 weeks and 3-4 months after the trauma or the surgery

The excluding criteria for the study were:

- age under 18 years
- complicated fracture
- permanently living in a nursing home
- previous difficult upper extremity injury that remains to disable the function of the affected upper extremity
- injury of the lower extremity (affects the scoring of the DASH)
- difficult underlying disease that affects the patient's ability to respond reliably to the questionnaires (dementia, alcoholism, other substance abuse, mental disability etc.)
- patient did not answer to the questionnaires or left so many blank spaces that the questionnaires could not be scored

Table 1. The exclusion and inclusion criteria for the study

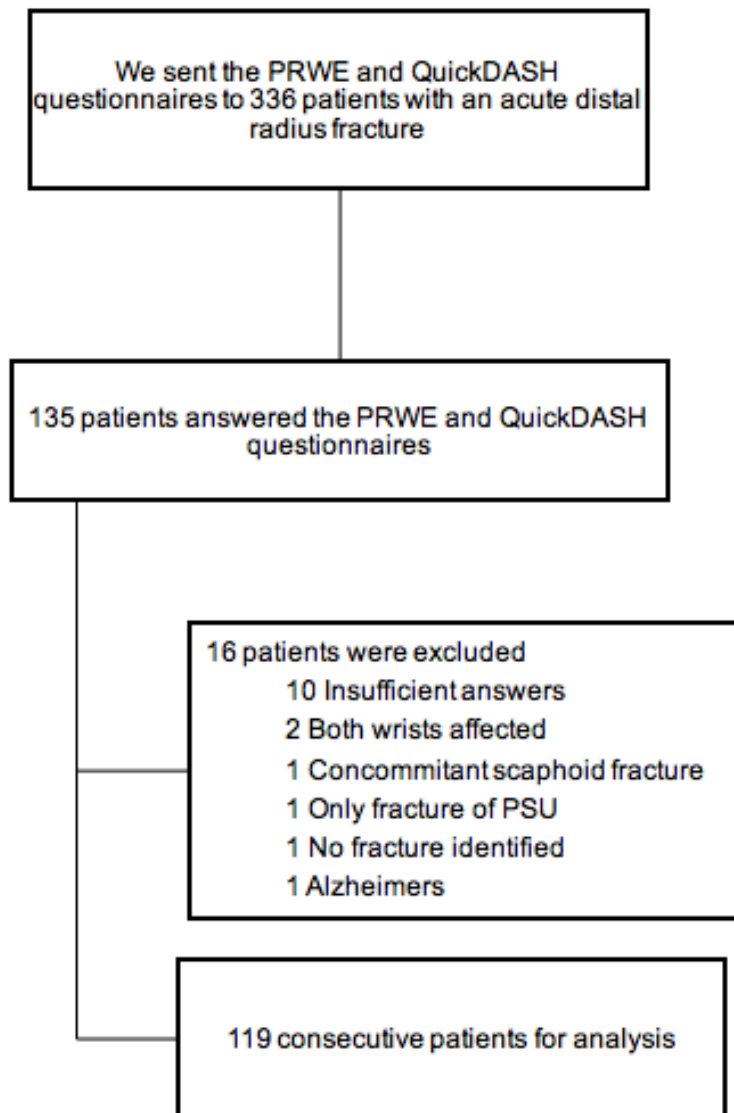


Figure 1. Patient retrieval process

2.4 Ethical approval details

The study was conducted in three hospitals located in two different hospital districts. The permits for the study were obtained from the Ethics Committee of University of Helsinki and Ethics Committee of University of Tampere. Data handling was performed according to Finnish data protection legislation

2.5 Statistical analysis

Standard methods of descriptive statistics were used, such as tabulations, means, standard deviations, medians, and ranges. To test our null hypotheses, we used either Student's t-test or Mann-Whitney U-test when appropriate depending on the data distribution.

3 Results

Patient characteristics are presented in table 2. Mean age of the patients in the study was 61 years. 84% of the patients were female. Fifty-six of the fractures (47%) were extra-articular (type A of AO classification) and 63 (53%) were intra-articular. Twenty-eight (24%) of the patients were treated operatively. There were no statistically significant differences between the dominant and non-dominant fracture groups regarding answering time, fracture types, treatment choice, age, gender or number of patients.

	Dominant hand fractures	Non-dominant hand fractures	Sig.
Patients (n=)	60	59	
Age (Median (Range))	63 (14)	59 (15)	p = 0,09
Female (n= (%))	52 (87)	48 (81)	p = 0,62
Reply to questionnaires (days)			
1st round Median (Range)	52 (37-79)	52 (37-78)	p = 0,98
2nd round Median (Range)	111 (86-165)	119 (92-161)	p = 0,09
Fracture type (AO classification)			
A (n= (%))	28 (47)	28 (47)	p = 0,94
B (n= (%))	6 (10)	5 (8)	p = 0,89
C (n= (%))	26 (43)	26 (44)	p = 0,94
Operative treatment (n= (%))	17 (28)	11 (19)	p = 0,36

Table 2. Patient characteristics

At 6 to 8 weeks the dominant group scored higher than non-dominant group in QDASH which was in line with our null hypothesis ($p=0,04$, Table 3). Similar trend was noted in PRWE ($p=0,12$). In a subgroup analysis of different fracture types (AO classification) no differences were noted in individual subgroups of A, B or C between dominant and non-dominant fracture groups. However, when we increased our power and combined the intra-articular fracture types B and C we noticed that laterality affected significantly the outcome scores of both PRWE and QDASH. At 6 to 8 weeks, in intra-articular (type B and C of AO classification) fractures, patients with dominant hand fractures got significantly higher scores compared to patients with non-dominant hand fractures in both PRWE ($p=0,044$) and QuickDASH ($p=0,046$). Furthermore, there was a statistically significant difference also 3 to 4 months after the injury in QuickDASH ($p=0,042$, Table 4) but not in PRWE ($p=0,21$). In extra-articular (type A of AO classification) fractures, no such effect of laterality on the PROM-scores could be noted.

Fracture type	Side	n=	PRWE 6-8 weeks, Mean (SD)	Sig. (Student t-test, 2-tailed)	QDASH 6-8 weeks, Mean (SD)	Sig. (Student t-test, 2-tailed)
A	Dominant	28	39 (25)	$p = 0,93$	40 (24)	$p = 0,33$
	Non-dominant	28	38 (21)		34 (22)	
B	Dominant	6	49 (27)	$p = 0,37$	51 (27)	$p = 0,22$
	Non-dominant	5	34 (26)		31 (24)	
C	Dominant	26	55 (21)	$p = 0,07$	54 (20)	$p = 0,11$
	Non-dominant	26	43 (25)		44 (24)	
B and C	Dominant	34	54 (22)	$p = 0,044^*$	53 (21)	$p = 0,046^*$
	Non-dominant	33	42 (25)		42 (24)	
All types	Dominant	60	47 (24)	$p = 0,12$	47 (23)	$p = 0,04^*$
	Non-dominant	59	40 (23)		38 (23)	

Table 3. The scores of PRWE and QuickDASH at 6-8 weeks' time point

Fracture type	Side	n=	PRWE 3-4 months, Median (Range)	Sig. (Mann-Whitney U-test)	QDASH 3-4 months, Median (Range)	Sig. (Mann-Whitney U-test)
A	Dominant	28	11 (0-68)	p = 0,63	13 (0-68)	p = 0,65
	Non-dominant	28	15 (0-74)		15 (0-84)	
B	Dominant	6	12 (0-74)	p = 0,93	27 (0-73)	p = 0,32
	Non-dominant	5	8 (5-14)		14 (2-23)	
C	Dominant	26	25 (5-75)	p = 0,25	28 (7-75)	p = 0,08
	Non-dominant	26	19 (4-86)		18 (2-91)	
B and C	Dominant	34	23 (0-75)	p = 0,21	27 (0-75)	p = 0,042*
	Non-dominant	33	15 (4-86)		16 (2-91)	
All types	Dominant	60	17 (0-75)	p = 0,58	18 (0-75)	p = 0,11
	Non-dominant	59	15 (0-86)		16 (0-91)	

Table 4. The scores of PRWE and QuickDASH at 3-4 months' time point

4 Discussion

Our results suggest that laterality has a statistically significant effect on both of the commonly used outcome measures PRWE and QDASH after intra-articular (types B and C of AO classification) DRFs. This is an important finding which indicates that laterality should always be one patient specific factor which should be regarded when conducting comparative DRF studies (e.g. RCTs).

Our study was designed to have sufficient power for whole group comparison only at 6-8 weeks' time point. The fact there was a statistically significant finding at 6 to 8 weeks in both PROMs in subgroup analysis of intra-articular fractures and also in QDASH at 3 to 4 months underlines the significance of this finding. Most likely, with a larger sample size and stronger power also the PRWE at 3 to 4 months would be statistically significant and the overall results even clearer.

Because patients with dominant-side fractures score higher points from PRWE and QuickDASH as our null hypothesis predicted, laterality should be taken into account when using these PROMs as outcome measures in DRF studies. Our results are in line with the previous study showing similar results when comparing patient reported disability after distal radius fracture (14).

4.1 Strengths and limitations

The response rate in this study was quite low, being 40,2 %. This is a potential source of selection bias, if the patients who did not answer to the questionnaires were somehow different from the patients who did answer to the questionnaires, and this could influence the results of our study. We could not study this due to lack of information regarding the patients who did not answer. However, groups of responders and non-responders were similar regarding age and sex.

Our patient groups were quite small, and yet it was clear that there was a difference between dominant and non-dominant groups at 6-8 weeks' time point. QuickDASH scores were significantly different even at 3-4 months' time point even though our study was not designed to have sufficient power at this time point. With a bigger sample size the potential difference and the effect of laterality could be more easily detected.

4.2 Conclusion

As a conclusion, our results suggest that laterality should always be taken into account when studying DRFs by using PRWE or QDASH as an outcome measure and the groups being compared should be similar regarding hand dominance. Further research on this subject should be carried out to investigate, how great the influence of laterality truly is and our next aim is to study how much of the outcome score variability is explained by the laterality/dominance statistical multivariate regression models.

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Appendix 1

PRWE-questionnaire

POTILAAN OMA ARVIO RANTEESTA

Nimi _____ Päivämäärä _____

Alla olevat kysymykset auttavat meitä kartoittamaan, kuinka paljon ranteesi on vaivannut sinua kuluneen viikon aikana. Kuvaile **keskimääräisiä** ranneoireitasi **kuluneen viikon aikana** asteikolla 0-10. Vastaa huolellisesti **JOKAISEEN** kysymykseen. Mikäli et suorittanut mainittuja askareita, ole hyvä ja **ARVIOI**, paljonko kipua tai vaikeuksia ne olisivat tuottaneet. Jos et ole **koskaan** suorittanut kysyttyä askareta, voit jättää kohdan tyhjäksi.

1. KIPU

Ympyröi numero, joka parhaiten kuvaa ranteessasi kuluneen viikon aikana tuntunutta kipua asteikolla 0-10 alla kuvatuissa tilanteissa. Nolla (0) tarkoittaa, ettet tuntenut lainkaan kipua; kymmenen (10) tarkoittaa kovinta koskaan tuntemaasi kipua tai, että kipu esti sinua tekemästä kysyttyä asiaa.

ARVIOI TUNTEMASI KIPU:

	Ei kipua										Voimakkain tuntemasi kipu
	0	1	2	3	4	5	6	7	8	9	10
Levossa	0	1	2	3	4	5	6	7	8	9	10
Kun suoritat toistuvia ranneliikkeitä	0	1	2	3	4	5	6	7	8	9	10
Kun nostit raskaita esineitä	0	1	2	3	4	5	6	7	8	9	10
Kun kipu oli pahimmillaan	0	1	2	3	4	5	6	7	8	9	10

	Ei koskaan										Jatkuvasti
	0	1	2	3	4	5	6	7	8	9	10
Kuinka usein tunnet kipua?	0	1	2	3	4	5	6	7	8	9	10

2. TOIMINTAKYKY

A. ERITYISET ASKAREET

Ympyröi numero, joka parhaiten kuvaa, kuinka paljon vaikeuksia sinulla oli suoritua alla olevista askareista kuluneen viikon aikana asteikolla 0-10. Nolla (0) tarkoittaa, ettei askare tuottanut lainkaan vaikeuksia; kymmenen (10) tarkoittaa, ettet pystynyt suorittamaan kysyttyä askareta lainkaan.

	Ei lainkaan vaikeuksia										Mahdoton suorittaa
	0	1	2	3	4	5	6	7	8	9	10
Ovenkahvan kääntäminen oireilevalla kädellä	0	1	2	3	4	5	6	7	8	9	10
Lihan leikkaaminen veitsellä oireilevalla kädellä	0	1	2	3	4	5	6	7	8	9	10
Paidan napittaminen	0	1	2	3	4	5	6	7	8	9	10
Tukeutuminen oireilevaan käteen tuoilta noustessa	0	1	2	3	4	5	6	7	8	9	10
Yli 4kg painavan esineen kantaminen oireilevalla kädellä	0	1	2	3	4	5	6	7	8	9	10
WC paperin käyttäminen oireilevalla kädellä	0	1	2	3	4	5	6	7	8	9	10

B. TAVALLISET ASKAREET

Pukeutuminen ja peseytyminen	0	1	2	3	4	5	6	7	8	9	10
Kotityöt (siivous, kodin kunnossapito)	0	1	2	3	4	5	6	7	8	9	10
Työ (ansiotyö tai päivittäiset askareesi)	0	1	2	3	4	5	6	7	8	9	10
Harrastukset	0	1	2	3	4	5	6	7	8	9	10

YMPYRÖI OIKEA VAIHTOEHTO

Kumman ranteen loukkasitte?	Oikea	Vasen
Kumpi käsin olette?	Oikea	Vasen

Appendix 2

QuickDASH-questionnaire



OHJEET

Tämä kysely kartoittaa oireitanne ja kykyänne suoriutua tietyistä tehtävistä.

Vastatkaa kaikkiin kysymyksiin ympyröimällä vaihtoehto, joka kuvastaa parhaiten viime viikon toimintakykyänne.

Jos ette tehneet joitain tehtävistä viime viikolla, arvioikaa miten olisitte suoriutuneet niistä. Vastatkaa sen mukaan miten suoriuduite tehtävästä huolimatta siitä miten se toteutui.

Ei ole väliä kumpaa kättä, kyynärvartta tai olkavartta käytätte suoriutuaksenne tehtävistä. Vastatkaa sen mukaan miten suoriuduite tehtävästä huolimatta siitä miten se toteutui.



QuickDASH

Arvioikaa miten suoriudutte viime viikolla seuraavista tehtävistä ympäröimällä sopiva vaihtoehto.

	EI VAIKEUKSIA	VÄHÄN VAIKEUKSIA	KOHTALAISIA VAIKEUKSIA	SUURIA VAIKEUKSIA	EN PYSTYNYT
1. Purkin tai tiukan kannen avaaminen.	1	2	3	4	5
2. Raskaiden kotitöiden tekeminen (esim. ikkunoiden pesu, lattioiden pesu).	1	2	3	4	5
3. Ostoskassin tai salkun kantaminen.	1	2	3	4	5
4. Selän peseminen.	1	2	3	4	5
5. Veitsen käyttö ruoan pilkkomiseen.	1	2	3	4	5
6. Vapaa-ajan harrasteet, jotka aiheuttavat iskun tai kuormituksen olkapäähän, olkavarteeseen, kyynärvarteen tai käteen (esim. golf, vasarointi, tennis jne.).	1	2	3	4	5

	EI OLLENKAAN	VÄHÄN	KOHTALAISESTI	PALJON	ERITTÄIN PALJON
7. Kuinka paljon olkapään, olkavarren, kyynärvarren tai käden ongelmat ovat rajoittaneet normaalia sosiaalista kanssakäymistä perheen, ystävien tai muiden tuttavien kanssa viime viikon aikana?	1	2	3	4	5

	EI OLLENKAAN	VÄHÄN	KOHTALAISESTI	PALJON	EN PYSTYNYT
8. Rajoittivatko olkapään, olkavarren, kyynärvarren tai käden ongelmat töitänne tai muita päivittäisiä toimianne viime viikon aikana?	1	2	3	4	5

	EI OLLENKAAN	VÄHÄN	KOHTALAISESTI	PALJON	ERITTÄIN PALJON
9. Olkapään, olkavarren, kyynärvarren tai käden kipua.	1	2	3	4	5
10. Pistelyä olkapäässä, olkavarressa, kyynärvarressa tai kädessä.	1	2	3	4	5

	EI VAIKEUKSIA	VÄHÄN VAIKEUKSIA	KOHTALAISIA VAIKEUKSIA	SUURIA VAIKEUKSIA	NIIN PALJON ETTEN SAANUT NUKUTUKSI
11. Onko teillä ollut nukkumisvaikeuksia olkapään, olkavarren, kyynärvarren tai käden kivun vuoksi viime viikon aikana?	1	2	3	4	5

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TYÖOSIO (VALINNAINEN)

Seuraavat kysymykset kartoittavat olkapäiden, olkapään tai käden ongelmien vaikutusta kykyynne työskennellä (kotihoito mukaan lukien mikäli se on päätyönne).

Mitä teette työksenne: _____

___ En ole töissä. (Voitte siirtyä seuraavaan osioon.)

Ympyröikää vaihtoehto, joka parhaiten kuvaa fyysistä suoriutumiskykyänne viime viikolla. Oliko teillä vaikeuksia:

	EI VAIKEUKSIA	VÄHÄN VAIKEUKSIA	KOHTALAISIA VAIKEUKSIA	SURIA VAIKEUKSIA	EN PYSTYNYT
1. Käyttää tavanomaisia työmenetelmiä?	1	2	3	4	5
2. Työskennellä olkapään, olkapäiden, kyynärvarren tai käden kivun vuoksi?	1	2	3	4	5
3. Työskennellä niin hyvin kuin olisitte halunneet?	1	2	3	4	5
4. Käyttää yhtä paljon aikaa työntekoon kuin tavallisesti?	1	2	3	4	5

HAASTAVAT TOIMINNOT URHEILU/MUSIIKKIOSIO (VALINNAINEN)

Seuraavat kysymykset kartoittavat olkapäiden, olkapään tai käden ongelmien vaikutusta soittamiseen, urheiluun tai moollempiin.

Jos harrastatte montaa lajia tai soittatte useampaa soitinta, vastatkaa teille tärkeimmän harrastuksen mukaisesti.

Tärkein lajinne tai soitinenne: _____

___ En urheile enkä soita mitään soitinta. (Voitte olla vastaamatta seuraaviin kysymyksiin.)

Ympyröikää vaihtoehto, joka parhaiten kuvaa fyysistä suoriutumiskykyänne viime viikolla. Oliko teillä vaikeuksia:

	EI VAIKEUKSIA	VÄHÄN VAIKEUKSIA	KOHTALAISIA VAIKEUKSIA	SURIA VAIKEUKSIA	EN PYSTYNYT
1. Käyttää tavanomaista tekniikkaa urheillessa tai soittaessa?	1	2	3	4	5
2. Soittaa tai urheilla olkapään, olkapäiden, kyynärvarren tai käden kivun vuoksi	1	2	3	4	5
3. Soittaa tai urheilla niin hyvin kuin olisitte halunneet?	1	2	3	4	5
4. Käyttää yhtä paljon aikaa soittamiseen ja urheilemiseen kuin tavallisesti?	1	2	3	4	5