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Supplementary Material

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Table S1. Overview of all covariates tested and included in final models

Tested covariates	Final VAS-neck linear mixed model^a	Final responder analysis MCID-threshold	Final responder analysis 30%-threshold
Treatment groups	Yes	Yes	Yes
Time	Yes	Yes	Yes
Time squared (Timesq)	Yes	Yes	No
Time cubic (Timecub)	No	No	No
Time : Treatment interaction	Yes	Yes	No
Timesq : Treatment interaction	No	No	No
Timecub : Treatment interaction	No	No	No
Baseline VAS-neck ^{b,c}	Yes	No	No
Gender	No	No	No
Age ^a	No	No	No
Smoking status	No	No	No
Non-steroidal anti-inflammatory drugs (NSAID) usage	No	No	No
American Society of Anesthesiologist (ASA) classification	No	No	No
Body-mass Index ^b	No	No	No

Duration of symptoms in weeks ^b	No	No	No
Dermatome of clinical diagnosis	No	No	No
Radiological osteophytes	No	No	No
Radiological soft disc herniation	No	No	No
Radiological osteophytes and soft disc herniation	No	Yes	Yes
Neck pain as presenting symptom	No	Yes	No
Comorbidities	No	No	No

Visual Analog Scale (VAS), Quadratic trend of Time (Timesq), Cubic trend of time (Timecub), Minimally Clinical Important Difference (MCID).

^a No additional covariates, besides time, treatment and baseline scores, led to improved model fit for the primary VAS-neck mixed model.

^b These variables were centered around the median.

^c Baseline VAS-neck was not included in the models for VAS-neck responders, because of collinearity (as this binary outcome variable (responder: yes/no) was calculated by subtracting the baseline VAS-neck score by the postoperative score at given time point).

Table S2. Characteristics of neurological examination at baseline and follow-up

	Posterior surgery (n=119) ^a			Anterior surgery (n=124) ^a			Difference anterior versus posterior at 6 weeks (95% CI)
	Baseline	Discharge	6-weeks	Baseline	Discharge	6-weeks	
Sensibility disorder upper limb – no. (%)	80 (68)	54 (45)	37 (32)	87 (71)	37 (30)	26 (22)	0.01 (-0.2 to 0.02)
Dermatome – no.							
C5	2/80	2/54	1/37	0/87	0/37	0/26	
C6	34/80	25/54	17/37	39/87	18/37	11/26	
C7	39/80	23/54	17/37	42/87	18/37	11/26	
Atypical	5/80	4/54	2/37	5/87	1/37	4/26	
Loss of strength – no. (%)							0.01 (-0.04 to 0.06)
Yes	28 (24)	11 (9)	4 (4)	34 (27)	9 (8)	3 (3)	
No	91 (76)	106 (91)	104 (96)	90 (73)	110 (92)	109 (97)	
MRC-grades – no (%)							-
Deltoid^b							
4	6/28	2/10	2/4	9/33	5/9	1/3	
5	22/28	8/10	2/4	24/33	4/9	2/3	
Biceps^b							
4	12/28	3/11	3/4	10/34	3/9	1/3	
5	16/28	8/11	1/4	24/34	6/9	2/3	
Triceps^b							
4	9/28	5/11	2/4	18/34	5/9	0/3	
5	19/28	6/11	2/4	16/34	4/9	3/3	
Wrist flexion^b							
4	6/28	3/11	2/4	9/33	3/9	1/3	
5	22/28	8/11	2/4	24/33	6/9	2/3	
Wrist extension^b							
4	7/28	2/11	2/4	9/33	4/9	1/3	

5	21/28	9/11	2/4	24/33	5/9	2/3
Interosseous^b						
4	14/28	5/11	3/4	17/33	3/9	0/3
5	14/28	6/11	1/4	16/33	6/9	3/3

Medical Research Council scale (MRC), Number of patients (no.).

^aBaseline data were obtained from Broekema AEH, Simões de Souza NF, Soer R, Koopmans J, van Santbrink H, Arts MP, Burhani B, Bartels RHMA, van der Gaag NA, Verhagen MHP, Tamási K, van Dijk JMC, Reneman MF, Groen RJM, Kuijlen JMA; FACET investigators. Noninferiority of posterior cervical foraminotomy vs anterior cervical discectomy with fusion for procedural success and reduction in arm pain among patients with cervical radiculopathy at 1 year: the FACET randomized clinical trial. JAMA Neurol. 2022 Nov 21:e224208. Data were missing for sensibility disorder of 1 patient in the posterior- and 3 in the anterior surgery group at baseline and 4 in the posterior- and 8 in the anterior group at 6 weeks postoperative; for dermatome of 1 patient in the anterior surgery group at baseline; loss of strength of 2 patients in the posterior- and 5 in the anterior group at discharge and 11 and 12 at 6 weeks postoperative respectively; the MRC grade for the musculus deltoideus, wrist flexion and extension, and interosseous in 1 patient in the anterior surgery group at baseline.

^bThere were no patients with a MRC grade of lower than 4

Table S3. Model output typology for the primary VAS-neck linear mixed effects model

Marginal R ² / Conditional R ²	0.000 / 0.544	0.128 / 0.701	0.128 / 0.807	0.137 / 0.819	0.199 / 0.818	0.212 / 0.818	0.215 / 0.819
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Visual Analog Scale (VAS), Confidence interval (CI), Intraclass Correlation Coefficient (ICC), Quadratic trend of Time (Timesq).

Included fixed effects in final model: Time, Timesq, c.baseline-vasneck (a centered variable for baseline VAS-neck scores), treatment (posterior versus anterior surgery), and a time:treatment interaction term. The final model had a conditional R² of 0.819.

^a Time is included as random effect in the third model compared to the second model.

Table S4. Model output typology for primary VAS-neck responder analysis based on MCID

Observations	1214	1214	1214	1214	1214	1214	1214	1214
Marginal R ² / Conditional R ²	0.000 / 0.732	0.105 / 0.874	0.087 / 0.916	0.111 / 0.920	0.115 / 0.921	0.123 / 0.919	0.131 / 0.922	0.152 / 0.924

Visual Analog Scale (VAS), Confidence interval (CI), Intraclass Correlation Coefficient (ICC), Quadratic trend of Time (Timesq), Minimally Clinically Important Difference (MCID).

Patients were classified as responders when they reported an improvement in VAS-neck score that reached or exceeded the predefined threshold for the MCID (26 mm for VAS-neck). Included fixed effects in final model: Time, Timesq, treatment (posterior versus anterior surgery), time:treatment interaction term, osteo-disc (having both osteophytes and soft disc herniation on radiology), and neck pain-symptom (neck pain as presenting symptom at baseline). The final model had an R² of 0.924.

Table S5. Model output typology for primary VAS-neck responder analysis based on 30% improvement

Predictors	Model 1		Model 2		Model 3 ^a		Model 4		Model 5		
	Odds Ratios	95% CI	Odds Ratios	95% CI	Odds Ratios	95% CI	Odds Ratios	95% CI	Odds Ratios	95% CI	Partial R ²
(Intercept)	1.78	1.27 – 2.49	0.20	0.10 – 0.37	0.13	0.06 – 0.27	0.14	0.05 – 0.42	0.14	0.05 – 0.42	-
Time			2.70	2.28 – 3.18	4.48	3.12 – 6.42	4.58	3.17 – 6.62	4.58	3.17 – 6.62	-
Treatment							0.20	0.06 – 0.68	0.20	0.06 – 0.68	0.0337
Osteo-disc							4.48	1.32 – 15.25	4.48	1.32 – 15.25	0.0330
Random Effects											
σ^2	3.29		3.29		3.29		3.29		3.29		
τ_{00}		4.78 id		12.23 id		13.43 id		11.32 id		11.32 id	
τ_{11}						1.51 id.Time		1.68 id.Time		1.68 id.Time	
ρ_{01}						0.03 id		0.11 id		0.11 id	
ICC	0.59		0.79		0.89		0.90		0.90		
N		217 id		217 id		217 id		217 id		217 id	
Observations	1213		1213		1213		1213		1213		
Marginal R ² / Conditional R ²	0.000 / 0.593		0.157 / 0.821		0.175 / 0.913		0.200 / 0.919		0.200 / 0.919		

Visual Analog Scale (VAS), Confidence interval (CI), Intraclass Correlation Coefficient (ICC).

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SIMÕES DE SOUZA ET AL.

SHORT-TERM NECK PAIN AFTER POSTERIOR FORAMINOTOMY COMPARED WITH ANTERIOR DISCECTOMY WITH FUSION FOR CERVICAL FORAMINAL RADICULOPATHY. A SECONDARY ANALYSIS OF THE FACET RANDOMIZED CONTROLLED TRIAL

<http://dx.doi.org/10.2106/JBJS.22.01211>

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Patients were classified as responders when they reported a reduction of at least 30% (from baseline level) in VAS-neck score. Included fixed effects in final model: Time, treatment (posterior versus anterior surgery and osteo-disc (having both osteophytes and soft disc herniation on radiology), The final model had a conditional R^2 of 0.919.

^a Time is included as random effect in the third model compared to the second model.

Table S6. Model output typology for secondary VAS-arm linear mixed effect model

Observations	1214	1214	1214	1214	1214	1214	
Marginal R ² / Conditional R ²	0.000 / 0.717	0.017 / 0.841	0.018 / 0.842	0.058 / 0.842	0.082 / 0.842	0.103 / 0.842	

Visual Analog Scale (VAS), Confidence interval (CI), Intraclass Correlation Coefficient (ICC), Quadratic trend of Time (Timesq).

Included fixed effects in final model: Time, Timesq, treatment (posterior versus anterior surgery), baseline VAS-arm scores and gender.

Table S7. Sensitivity analysis for the primary VAS-neck model – complete cases

Marginal R ² / Conditional R ²	0.000 / 0.538	0.133 / 0.697	0.133 / 0.803	0.140 / 0.814	0.199 / 0.814	0.212 / 0.814	0.214 / 0.814
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Visual Analog Scale (VAS), Confidence interval (CI), Intraclass Correlation Coefficient (ICC), Quadratic trend of Time (Timesq).

Included fixed effects: Time, Timesq, c.baseline-vasneck (a centered variable for baseline VAS-neck scores), treatment (posterior versus anterior surgery), and a time:treatment interaction term. The final model had a conditional R² of 0.814.

^a Time is included as random effect in the third model compared to the second model.

Table S8. Sensitivity analysis for the primary VAS-neck model – change score

Predictors	Model 1		Model 2		Model 3 ^a		Model 4		Model 5		Final model	
	Estimates	95% CI	Estimates	95% CI	Estimates	95% CI	Estimates	95% CI	Estimates	95% CI	Estimates	95% CI
(Intercept)	20.25	16.93 – 23.57	6.93	3.40 – 10.46	7.12	3.30 – 10.93	4.08	0.18 – 7.98	5.94	0.89 – 10.99	7.80	2.46 – 13.14
Time			5.24	4.78 – 5.69	5.21	4.50 – 5.91	9.74	8.33 – 11.15	9.74	8.33 – 11.15	9.03	7.47 – 10.59
Timesq							-0.90	-1.15 – -0.66	-0.90	-1.15 – -0.66	-0.91	-1.15 – -0.66
Treatment									-3.81	-10.46 – 2.83	-7.66	-15.22 – -0.10
Time:Treatment											1.48	0.09 – 2.87
Random Effects												
σ^2	283.96		187.88		120.63		113.23		113.22		113.21	
τ_{00}	566.77 id		590.46 id		738.40 id		740.09 id		729.51 id		726.36 id	
τ_{11}					19.47 id.Time		19.84 id.Time		19.84 id.Time		19.30 id.Time	
ρ_{01}					-0.43 id		-0.44 id		-0.43 id		-0.42 id	
ICC	0.67		0.76		0.85		0.85		0.85		0.85	
N	217 id		217 id		217 id		217 id		217 id		217 id	
Observations	1214		1214		1214		1214		1214		1214	
Marginal R ² / Conditional R ²	0.000 / 0.666		0.094 / 0.781		0.093 / 0.859		0.099 / 0.868		0.103 / 0.868		0.105 / 0.868	

Visual Analog Scale (VAS), Confidence interval (CI), Intraclass Correlation Coefficient (ICC), Quadratic trend of Time (Timesq).

This sensitivity analysis used the VAS-neck change score (calculated by subtracting the follow-up VAS-neck score from the baseline VAS-neck). Included fixed effects: Time, Timesq, treatment (posterior versus anterior surgery), and a time:treatment interaction term. The final model had a conditional R^2 of 0.868.

^a Time is included as random effect in the third model compared to the second model.

Table S9. Sensitivity analysis for the primary VAS-neck model – log transformed score

Marginal R ² / Conditional R ²	0.000 / 0.616	0.096 / 0.735	0.097 / 0.846	0.099 / 0.848	0.136 / 0.846	0.158 / 0.847	0.152 / 0.846
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Visual Analog Scale (VAS), Confidence interval (CI), Intraclass Correlation Coefficient (ICC), Quadratic trend of Time (Timesq).

This sensitivity analysis used the logarithmic transformed VAS-neck scores. Included fixed effects: Time, Timesq, treatment (posterior versus anterior surgery), and a time:treatment interaction term. The final model had an conditional R² of 0.846.

^a Time is included as random effect in the third model compared to the second model.

Table S10. Sensitivity analysis for the primary VAS-neck linear mixed effects model – alternative random effect structure including quadratic trend and first-order autoregressive (AR(1)) residuals

Marginal R ² / Conditional R ²	0.000 / NA	0.000 / 0.861	0.128 / 0.808	0.137 / 0.819	0.157 / 0.820	0.170 / 0.820	0.174 / 0.820
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Visual Analog Scale (VAS), Confidence interval (CI), Intraclass Correlation Coefficient (ICC), Quadratic trend of Time (Timesq).

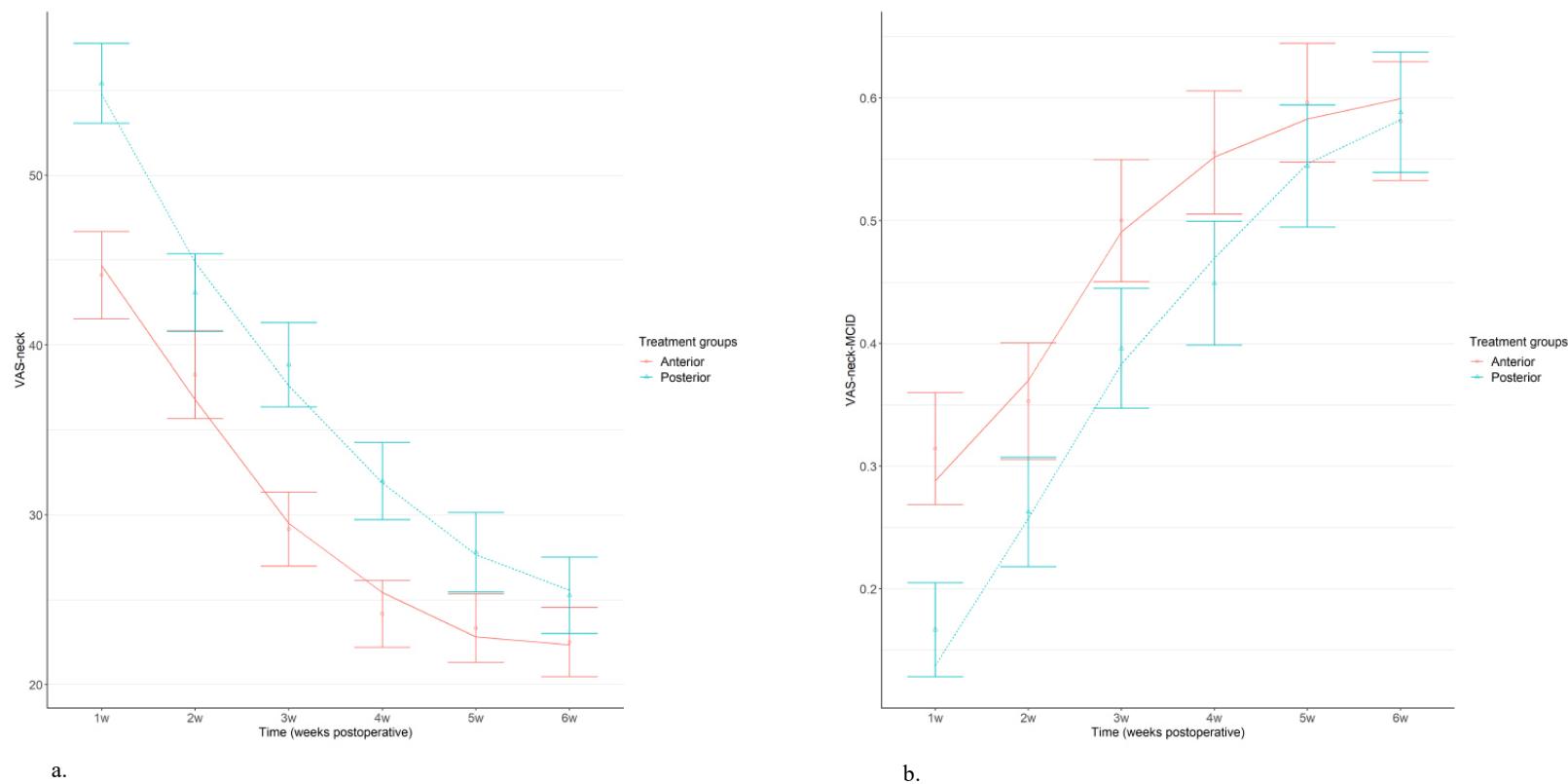
This sensitivity analysis used a different random effects structure, including first-order autoregressive AR(1) residuals and quadratic trend for time in the random effect structure. Included fixed effects were similar as the primary VAS-neck model: Time, Timesq, treatment (posterior versus anterior surgery), and a time:treatment interaction term. This model indicates that adjusting the covariance matrix from unstructured to AR(1) with the quadratic trend for time in the random effect structure does not substantially change the point estimates and CIs. The final model had a conditional R² of 0.820.

Table S11. Sensitivity analysis for primary VAS-neck model – multiple imputations

Term	Estimate	Std error	Statistic	Df	Lower 95% CI	Higher 95% CI
(Intercept)	46.9	2.3	20.5	482	42.4	51.3
Time	-7.8	1.0	-7.6	216	-9.8	-5.8
Treatment groups	6.8	3.1	2.2	799	0.9	12.8
Timesq	0.8	0.2	4.5	177	0.4	1.1
Baseline VAS-neck	0.4	0.06	5.9	66	0.2	0.5
Time:Treatment	-1.1	0.8	-1.5	521	-2.6	0.4

Visual Analog Scale (VAS), Confidence interval (CI), Quadratic trend of Time (Timesq).

Figure S1. Observed and predicted VAS-neck scores for the primary analysis



The observed ($\text{mean} \pm \text{SD}$) versus predicted VAS neck (a) and responder (b) scores are depicted for posterior and anterior surgery. The points and whiskers denote the observed scores \pm SD and the line the predicted scores. The graph shows that the linear and logistic models adequately fitted to the observed data for VAS-neck and for the VAS-neck MCID responder analysis.

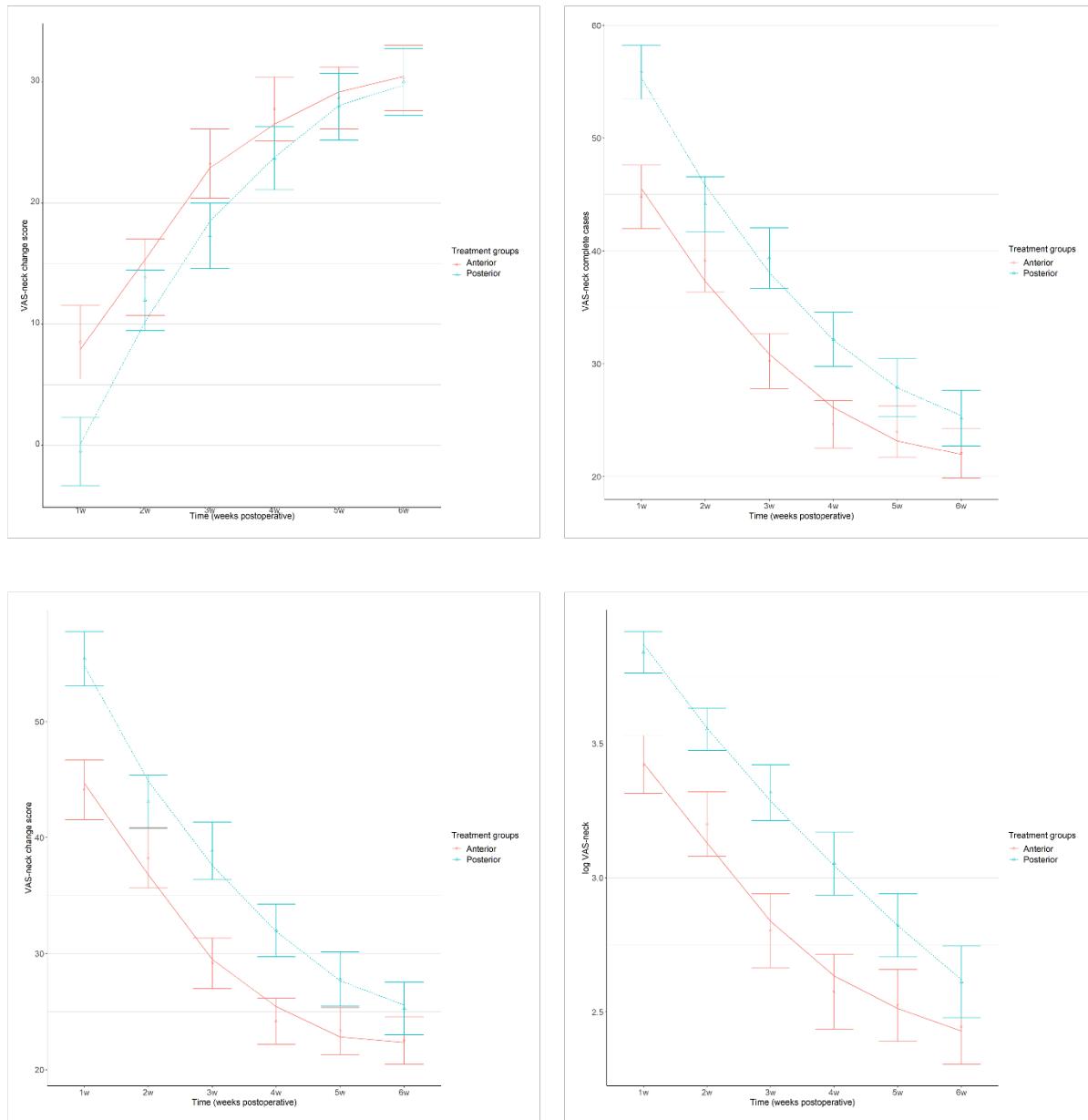


Figure S2. Observed and predicted VAS-neck scores for sensitivity analyses

The observed ($\text{mean} \pm \text{SD}$) versus predicted VAS neck scores are depicted for sensitivity analyses of the primary VAS-neck linear model. The change score from baseline analysis (*upper left*), complete cases (*upper right*), alternative random effect structure (*lower left*), and log transformed scores (*lower right*). The points and whiskers denote the observed scores \pm SD and the line the predicted scores. The graph shows that the models adequately fitted to the observed data for VAS-neck and that the sensitivity analysis did not alter the findings of the main analysis.

Studienummer |____-____|

Datum van invullen _____ (DDMMJJJJ)

VAS arm pijn

Hoe zou u de pijn in uw arm in de afgelopen 7 dagen gemiddeld beoordelen op een schaal van 0-100 mm? ("0" staat voor geen enkele pijn, "100" staat voor de heftigste pijn die u zich kunt voorstellen)



VAS arm pijn =

VAS nek pijn

Hoe zou u de pijn in uw nek in de afgelopen 7 dagen gemiddeld beoordelen op een schaal van 0-100 mm? ("0" staat voor geen enkele pijn, "100" staat voor de heftigste pijn die u zich kunt voorstellen)



VAS nek pijn =

Zet bij iedere groep in de lijst hieronder een kruisje in het hokje dat het best past bij uw gezondheid

MOBILITEIT

- Ik heb geen problemen met lopen
- Ik heb een beetje problemen met lopen
- Ik heb matige problemen met lopen
- Ik heb ernstige problemen met lopen
- Ik ben niet in staat om te lopen

ZELFZORG

- Ik heb geen problemen met mijzelf wassen of aankleden
- Ik heb een beetje problemen met mijzelf wassen of aankleden
- Ik heb matige problemen met mijzelf wassen of aankleden
- Ik heb ernstige problemen met mijzelf wassen of aankleden
- Ik ben niet in staat mijzelf te wassen of aan te kleden

DAGELIJKSE ACTIVITEITEN (bijv. werk, studie, huishouden, gezins- en vrijetijdsactiviteiten)

- Ik heb geen problemen met mijn dagelijkse activiteiten
- Ik heb een beetje problemen met mijn dagelijkse activiteiten
- Ik heb matige problemen met mijn dagelijkse activiteiten
- Ik heb ernstige problemen met mijn dagelijkse activiteiten
- Ik ben niet in staat mijn dagelijkse activiteiten uit te voeren

PIJN / ONGEMAK

- Ik heb geen pijn of ongemak
- Ik heb een beetje pijn of ongemak
- Ik heb matige pijn of ongemak
- Ik heb ernstige pijn of ongemak
- Ik heb extreme pijn of ongemak

ANGST / SOMBERHEID

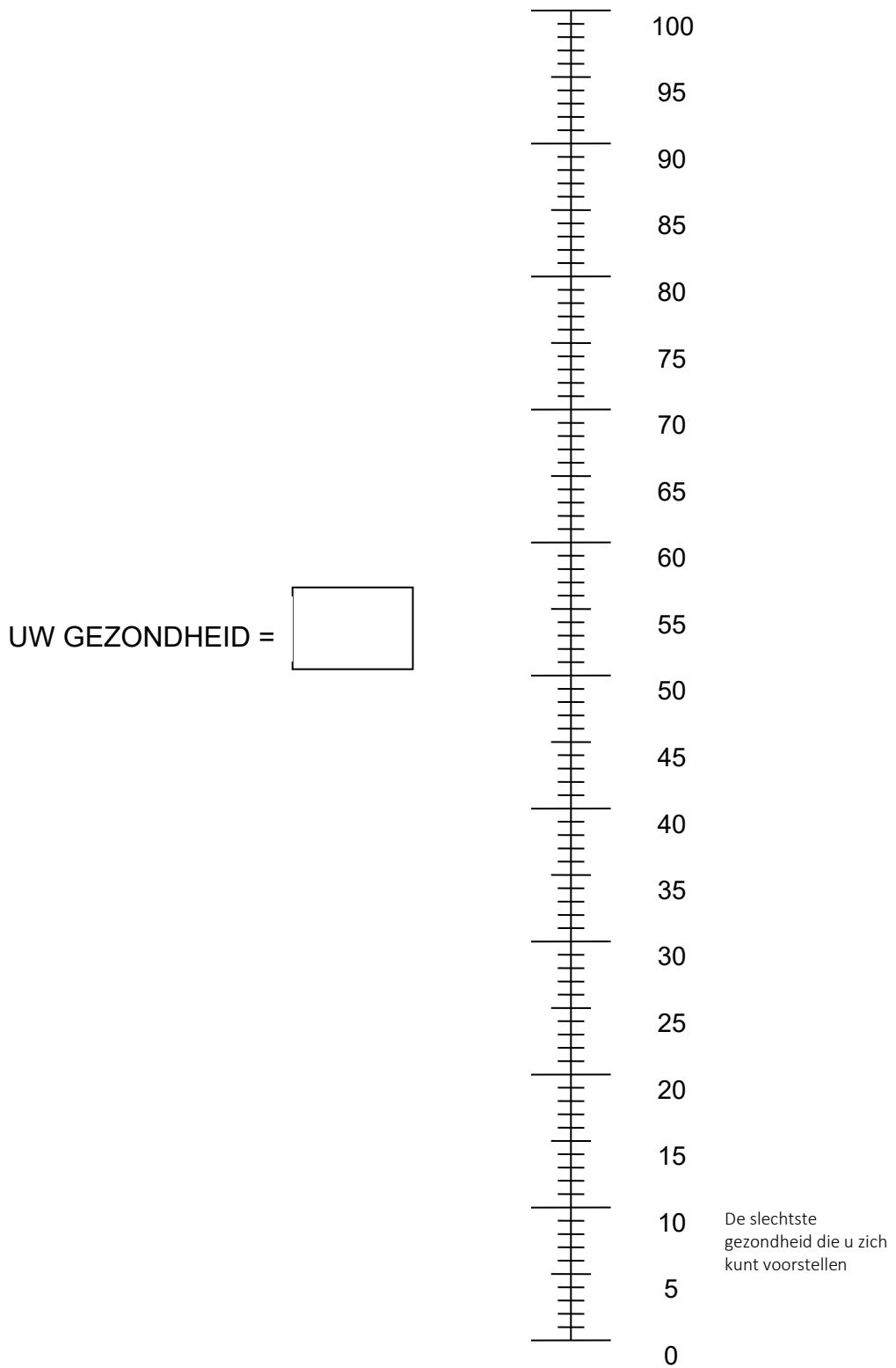
Ik ben niet angstig of somber

Ik ben een beetje angstig of somber

Ik ben matig angstig of somber

Ik ben erg angstig of somber

Ik ben extreem angstig of somber



Neck Disability Index (Vernon 1991)

1. Pijn

0. Ik heb nu geen pijn
1. Ik heb nu weinig pijn
2. Ik heb nu matige pijn
3. Ik heb nu vrij hevige pijn
4. Ik heb nu zeer hevige pijn
5. Ik heb nu de slechtst denkbare pijn

2. Persoonlijke verzorging (wassen, aan- en uitkleden)

0. Ik kan goed voor mezelf zorgen zonder dat de pijn toeneemt
1. Ik kan goed voor mezelf zorgen hoewel dat de pijn doet toenemen
2. Voor mezelf zorgen is pijnlijk en gaat langzaam en voorzichtig
3. Voor mezelf zorgen lukt goed maar vaak met enige hulp
4. Elke dag voor mezelf zorgen lukt meestal alleen met hulp
5. Ik kan mezelf niet aankleden; mezelf wassen gaat moeilijk en ik blijf in bed

3. Tillen

0. Ik kan een zwaar gewicht tillen zonder dat de pijn toeneemt
1. Ik kan een zwaar gewicht tillen, maar dat doet de pijn toenemen
2. De pijn weerhoudt mij van het optillen van een zwaar gewicht van de grond, maar zou dat wel kunnen wanneer dat gewicht hoger (bijv. op een tafel) gelegen is
3. De pijn weerhoudt mij ervan om zware dingen op te tillen, maar het lukt me wel om lichte tot middelzware gewichten te tillen als ze makkelijk geplaatst zijn
4. Ik kan alleen zeer lichte gewichten tillen
5. Ik kan helemaal niets tillen of dragen

4. Lezen

0. Ik kan zo veel lezen als ik wil zonder pijn in mijn nek
1. Ik kan zo veel lezen als ik wil met weinig pijn in mijn nek
2. Ik kan zo veel lezen als ik wil met matige pijn in mijn nek
3. Ik kan niet zo veel lezen als ik zou willen vanwege de matige pijn in mijn nek

4. Ik kan bijna niet meer lezen vanwege de hevige pijn in mijn nek
5. Ik kan helemaal niet meer lezen

5. Hoofdpijn

0. Ik heb helemaal geen hoofdpijn
1. Ik heb af en toe lichte hoofdpijn
2. Ik heb af en toe matige hoofdpijn
3. Ik heb vaak matige hoofdpijn
4. Ik heb vaak hevige hoofdpijn
5. Ik heb bijna altijd hoofdpijn

6. Concentratie

0. Ik kan mij goed concentreren zonder moeite wanneer ik dat wil
1. Ik kan mij goed concentreren met enige moeite wanneer ik dat wil
2. Het kost mij duidelijk moeite om te concentreren wanneer ik dat wil
3. Het kost mij veel moeite om te concentreren wanneer ik dat wil
4. Het kost mij zeer veel moeite om te concentreren wanneer ik dat wil
5. Ik kan mij helemaal niet concentreren

7. Werk

0. Ik kan zo veel werk doen als ik wil
1. Ik kan alleen mijn gewone werk doen, maar niet meer
2. Ik kan het grootste deel van mijn gewone werk doen, maar niet meer
3. Ik kan mijn gewone werk niet doen
4. Ik kan bijna geen enkel werk meer doen
5. Ik kan helemaal niet meer werken

8. Autorijden

0. Ik kan autorijden zonder enige nekpijn
1. Ik kan autorijden zo lang als ik wil met weinig pijn in mijn nek
2. Ik kan autorijden zo lang als ik wil met matige pijn in mijn nek
3. Ik kan niet autorijden zo lang als ik wil vanwege de matige pijn in mijn nek

4. Ik kan bijna niet meer autorijden vanwege de hevige pijn in mijn nek
5. Ik kan helemaal niet meer autorijden

9. Slapen

0. Ik heb geen moeite met slapen
1. Mijn slaap is heel licht gestoord (minder dan 1 uur wakker)
2. Mijn slaap is licht gestoord (1 tot 2 uur wakker)
3. Mijn slaap is matig gestoord (2 tot 3 uur wakker)
4. Mijn slaap is fors gestoord (3 tot 5 uur wakker)
5. Mijn slaap is volledig gestoord (5 tot 7 uur wakker)

10. Vrije tijd

0. Ik kan aan alle activiteiten meedoen zonder enige pijn in mijn nek
1. Ik kan aan alle activiteiten meedoen met enige pijn in mijn nek
2. Vanwege de pijn in mijn nek kan ik aan de meeste, maar niet alle, gebruikelijke activiteiten meedoen
3. Vanwege de pijn in mijn nek kan ik aan maar weinig gebruikelijke activiteiten meedoen
4. Vanwege de pijn in mijn nek kan ik nagenoeg aan geen activiteiten meedoen
5. Ik kan aan geen enkele activiteit meer meedoen

Studienummer |__|__|-__|__|__|

WAI (Single item)

Veronderstel dat uw werkvermogen in de beste periode van uw leven een waarde van 10 punten bedroeg. Hoeveel punten zou u dan aan het huidige werkvermogen toekennen?

(‘0’ betekent dat u momenteel geheel niet in staat bent om te werken, ‘10’ betekent dat uw werkvermogen zich in de beste periode van uw leven bevindt)

geheel niet werkvermogen in
in staat om O₀ O₁ O₂ O₃ O₄ O₅ O₆ O₇ O₈ O₉ O₁₀ beste periode
te werken van uw leven

TEVREDENHEID NA OPERATIE

Hoe tevreden bent u over de uitkomst van de operatie? (één antwoord aanvinken)

- Zeer tevreden
- Tevreden
- Enigszins tevreden
- Niet tevreden, niet ontevreden
- Enigszins ontevreden
- Ontevreden
- Zeer ontevreden

Welke verandering van klachten heeft u bemerkt sinds het ontstaan van deze klachten? (één antwoord aanvinken)

- Volledig herstel van klachten
- Bijna volledig herstel van klachten
- Enig herstel van klachten
- Klachten gelijk gebleven
- Enige verslechtering van klachten
- Ernstige verslechtering van klachten
- Klachten erger dan ooit

TRANSLATED QUESTIONNAIRES

Visual Analog Scale³

Date

____-____-____ | ____-____-____-____ | (DDMMYY)

VAS arm pain

How would you rate the pain in your arm on average in the last 7 days on 0-100mm scale?
("0" stands for no pain at all, "100" stands for the worst possible pain)

0

100

VAS arm pain =

VAS neck pain

How would you rate the pain in your neck on average in the last 7 days on 0-100mm scale?
("0" stands for no pain at all, "100" stands for the worst possible pain)

0

100

VAS neck pain =

Neck Disability Index^{4,5}

1. Pain Intensity

- 0 I have no pain at the moment
- 1 The pain is very mild at the moment
- 2 The pain is moderate at the moment
- 3 The pain is fairly severe at the moment
- 4 The pain is very severe at the moment
- 5 The pain is the worst imaginable at the moment

2. Personal care (washing, dressing etc)

- 0 I can look after myself normally without causing extra pain
- 1 I can look after myself normally but it is very painful
- 2 It is painful to look after myself and I am slow and careful
- 3 I need some help but manage most of my personal care
- 4 I need help every day in most aspects of self-care
- 5 I do not get dressed, wash with difficulty and stay in bed

3. Lifting

- 0 I can lift heavy weights without extra pain
- 1 I can lift heavy weights but it gives extra pain
- 2 Pain prevents me from lifting weights off the floor but I can manage if they are conveniently positioned, e.g. on a table
- 3 Pain prevents me from lifting weights off the floor but I can manage light to medium weights if they are conveniently positioned
- 4 I can lift only very light weights
- 5 I cannot lift or carry anything at all

4. Reading

- 0 I can read as much as I want to with no pain in my neck
- 1 I can read as much as I want to with slight pain in my neck
- 2 I can read as much as I want to with moderate pain in my neck
- 3 I cannot read as much as I want because of moderate pain in my neck
- 4 I can hardly read at all because of severe pain in my neck
- 5 I cannot read at all

5. Headaches

- 0 I have no headaches at all
- 1 I have slight headaches which come infrequently
- 2 I have moderate headaches which come infrequently
- 3 I have moderate headaches which come frequently
- 4 I have severe headaches which come frequently
- 5 I have headaches almost all the time

6. Concentration

- 0 I can concentrate fully when I want to with no difficulty
- 1 I can concentrate fully when I want to with slight difficulty
- 2 I have a fair degree of difficulty in concentrating when I want to

- 3 I have a lot of difficulty concentrating when I want to
- 4 I have a great deal of difficulty concentrating when I want to
- 5 I cannot concentrate at all

7. Work

- 0 I can do as much work as I want to
- 1 I can only do my usual work, but no more
- 2 I can do most of my usual work, but no more
- 3 I cannot do my usual work
- 4 I can hardly do any work at all
- 5 I cannot do any work at all

8. Driving

- 0 I can drive my car without any neck pain
- 1 I can drive my car as long as I want with slight pain in my neck
- 2 I can drive my car as long as I want with moderate pain in my neck
- 3 I cannot drive my car as long as I want because of moderate pain in my neck
- 4 I can hardly drive at all because of severe pain in my neck
- 5 I cannot drive my car at all

9. Sleeping

- 0 I have no trouble sleeping
- 1 My sleep is slightly disturbed (less than 1 hour sleepless)
- 2 My sleep is mildly disturbed (1-2 hours sleepless)
- 3 My sleep is moderately disturbed (2-3 hours sleepless)
- 4 My sleep is greatly disturbed (3-5 hours sleepless)
- 5 My sleep is completely disturbed (5-7 hours)

10. Recreation

- 0 I am able to engage in all of my recreational activities with no neck pain at all
- 1 I am able to engage in all of my recreational activities with some pain in my neck
- 2 I am able to engage in most, but not all of my recreational activities because of pain in my neck
- 3 I am able to engage in a few of my recreational activities because of pain in my neck
- 4 I can hardly do any recreational activities because of pain in my neck
- 5 I cannot do any recreational activities at all

EuroQol 5 Dimensions 5 level Survey⁶⁻⁸

Under each heading, please tick the ONE box that best describes your health TODAY.

MOBILITY

- I have no problems in walking about
- I have slight problems in walking about
- I have moderate problems in walking about
- I have severe problems in walking about
- I am unable to walk about

SELF-CARE

- I have no problems washing or dressing myself
- I have slight problems washing or dressing myself
- I have moderate problems washing or dressing myself
- I have severe problems washing or dressing myself
- I am unable to wash or dress myself

USUAL ACTIVITIES (e.g. work, study, housework, family or leisure activities)

- I have no problems doing my usual activities
- I have slight problems doing my usual activities
- I have moderate problems doing my usual activities
- I have severe problems doing my usual activities
- I am unable to do my usual activities

PAIN / DISCOMFORT

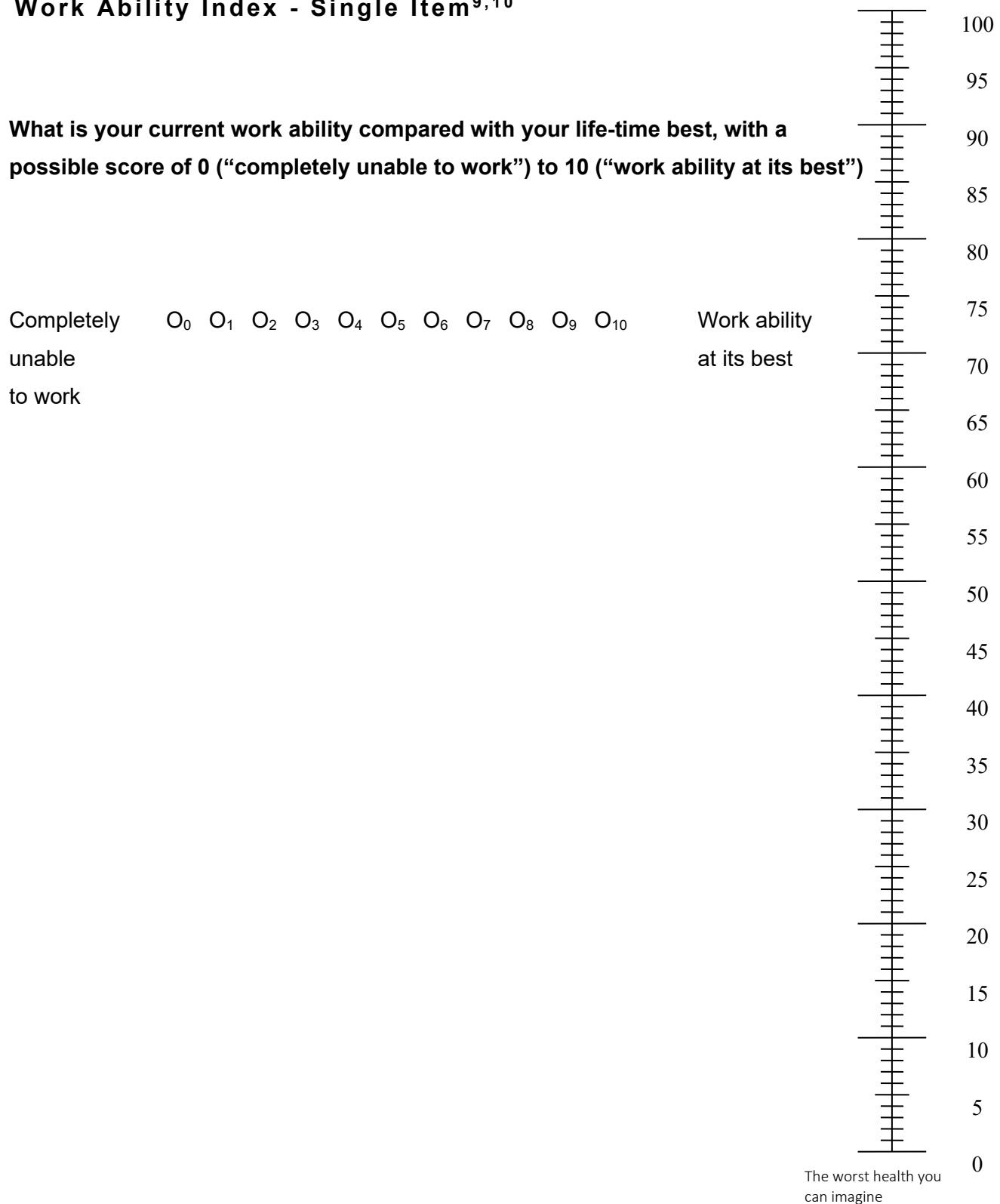
- I have no pain or discomfort
- I have slight pain or discomfort
- I have moderate pain or discomfort
- I have severe pain or discomfort
- I have extreme pain or discomfort

ANXIETY / DEPRESSION

- I am not anxious or depressed
- I am slightly anxious or depressed
- I am moderately anxious or depressed
- I am severely anxious or depressed
- I am extremely anxious or depressed

Work Ability Index - Single Item^{9,10}

What is your current work ability compared with your life-time best, with a possible score of 0 (“completely unable to work”) to 10 (“work ability at its best”)



Satisfaction score¹¹

How satisfied are you about the surgery? (mark 1 answer)

- Completely satisfied
- Satisfied
- Somewhat satisfied
- Not satisfied, not dissatisfied
- Somewhat dissatisfied
- Dissatisfied
- Extremely dissatisfied

How did your complaints change since the start of the treatment? (mark 1 answer)

- Completely improved
- Improved
- Somewhat improved
- Not improved, not worsened
- Somewhat worsened
- Worsened
- Extremely worsened

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