

The Exercise Screen (Spine and Trunk)

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QUESTIONNAIRES:

These include the Back and Neck Bournemouth Questionnaires (B-BQ, C-BQ). These are chosen because, 1) there are only 7 questions; 2) they utilize a quick 0-10 numerical rating scale (easy to complete for the patient and score for the staff); and 3) they cover three important domains or categories of outcomes. These include

1. Pain perception (average pain level over the past week)
2. Psychometric information (depression, anxiety, and locus of control)
3. Disability (ADLs, recreation/social, and work activities)

The scoring method of the tool is simple. The total score is calculated by the following formula:
$$\text{Patient total} / \text{Total possible (70)} \times 100 = \text{___}\%$$
More specifically, add the individual 7 responses together, divide by 70 (the maximum possible score ***IF*** all 7 questions are answered is 70. If all 7 items are not completed, the denominator is decreased by 10 points for each question left blank) times (X) 100. Once the score is calculated, it is recommended to place the score on the Outcomes Assessment Record (OAR), which is then placed in an easy to access place in the patient's chart. It is recommended that the OAR be placed on the top of the right hand side of the patient file. That way, the OA scores can be easily found and quickly reviewed during the day while treating patients in a busy practice setting. The following include the low back and neck BQ's and an OAR.

Please note, permission has been granted for the reprint and use of these outcome tools in a clinical setting.

The BACK Bournemouth Questionnaire

The following scales have been designed to find out about your back pain and how it is affecting you. Please answer ALL the scales by circling ONE number on EACH scale that best describes how you feel:

1. Over the past week, on average, how would you rate your back pain?

No pain
0 1 2 3 4 5 6 7 8 9 Worst pain possible
10

2. Over the past week, how much has your back pain interfered with your daily activities (housework, washing, dressing, walking, climbing stairs, getting in/out of bed/chair)?

No interference
0 1 2 3 4 5 6 7 8 9 Unable to carry out activity
10

3. Over the past week, how much has your back pain interfered with your ability to take part in recreational, social, and family activities?

No interference
0 1 2 3 4 5 6 7 8 9 Unable to carry out activity
10

4. Over the past week, how anxious (tense, uptight, irritable, difficulty in concentrating/relaxing) have you been feeling?

Not at all anxious
0 1 2 3 4 5 6 7 8 9 Extremely anxious
10

5. Over the past week, how depressed (down-in-the-dumps, sad, in low spirits, pessimistic, unhappy) have you been feeling?

Not at all depressed
0 1 2 3 4 5 6 7 8 9 Extremely depressed
10

6. Over the past week, how have you felt your work (both inside and outside the home) has affected (or would affect) your back pain?

Have made it no worse
0 1 2 3 4 5 6 7 8 9 Have made it much worse
10

7. Over the past week, how much have you been able to control (reduce/help) your back pain on your own?

Completely control it
0 1 2 3 4 5 6 7 8 9 No control whatsoever
10

Patient name _____ Patient signature _____ Date _____

Bolton JE, Breen AC. The Bournemouth Questionnaire: a short-form comprehensive outcome measure. I. Psychometric properties in back pain patients. J Manipulative Physiol Ther 1999;22:503-10

The NECK Bournemouth Questionnaire

The following scales have been designed to find out about your neck pain and how it is affecting you. Please answer ALL the scales by circling ONE number on EACH scale that best describes how you feel:

1. Over the past week, on average, how would you rate your neck pain?

No pain
0 1 2 3 4 5 6 7 8 9 Worst pain possible
10

2. Over the past week, how much has your neck pain interfered with your daily activities (housework, washing, dressing, lifting, reading, driving)?

No interference
0 1 2 3 4 5 6 7 8 Unable to carry out activity
9 10

3. Over the past week, how much has your neck pain interfered with your ability to take part in recreational, social, and family activities?

No interference
0 1 2 3 4 5 6 7 8 Unable to carry out activity
9 10

4. Over the past week, how anxious (tense, uptight, irritable, difficulty in concentrating/relaxing) have you been feeling?

Not at all anxious
0 1 2 3 4 5 6 7 8 Extremely anxious
9 10

5. Over the past week, how depressed (down-in-the-dumps, sad, in low spirits, pessimistic, unhappy) have you been feeling?

Not at all depressed
0 1 2 3 4 5 6 7 8 Extremely depressed
9 10

6. Over the past week, how have you felt your work (both inside and outside the home) has affected (or would affect) your neck pain?

Have made it no worse
0 1 2 3 4 5 6 7 8 Have made it much worse
9 10

7. Over the past week, how much have you been able to control (reduce/help) your neck pain on your own?

Completely control it
0 1 2 3 4 5 6 7 8 9 No control whatsoever
10

Patient name _____ Patient signature _____ Date _____

Bolton J, Humphreys BK. The Bournemouth Questionnaire: A short-form comprehensive outcome measure. II. Psychometric properties in neck pain patients. J Manipulative Physiol Ther 2002;25:141-148.

OUTCOMES ASSESSMENT RECORD

DATE	PAIN	FUNCTION				Satisfaction
	Pain Drawing	Options: 1. UE 2. CTS 3. LE 4. _____	Options: 1. Headache 2. Dizziness 3. SCL-90R 4. _____	VAS & C Disability: (circle) • NDI • C- BQ	VAS & LB Disability: (circle) • Oswestry • Roland M • LB - BQ	Patient Global Impression Of Change (or, % recovery)
BASELINE						
___/___/___	Physiological 1. Yes 2. No	1. _____% 2. Sx _____% Fn _____% 3. _____% 4. _____%	1. T _____; E _____ Functn _____ 2. T _____;P _____ F _____;E _____ 3. A _____;D _____ 4. _____	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	NA
PROGRESS						
___/___/___	Physiological 1. Yes 2. No	1. _____% 2. Sx _____% Fn _____% 3. _____% 4. _____%	1. T _____; E _____ Functn _____ 2. T _____;P _____ F _____;E _____ 3. A _____;D _____ 4. _____	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	_____%
___/___/___	Physiological 1. Yes 2. No	1. _____% 2. Sx _____% Fn _____% 3. _____% 4. _____%	1. T _____; E _____ Functn _____ 2. T _____;P _____ F _____;E _____ 3. A _____;D _____ 4. _____	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	_____%
___/___/___	Physiological 1. Yes 2. No	1. _____% 2. Sx _____% Fn _____% 3. _____% 4. _____%	1. T _____; E _____ Functn _____ 2. T _____;P _____ F _____;E _____ 3. A _____;D _____ 4. _____	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	_____%
___/___/___	Physiological 1. Yes 2. No	1. _____% 2. Sx _____% Fn _____% 3. _____% 4. _____%	1. T _____; E _____ Functn _____ 2. T _____;P _____ F _____;E _____ 3. A _____;D _____ 4. _____	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	_____%
___/___/___	Physiological 1. Yes 2. No	1. _____% 2. Sx _____% Fn _____% 3. _____% 4. _____%	1. T _____; E _____ Functn _____ 2. T _____;P _____ F _____;E _____ 3. A _____;D _____ 4. _____	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	_____%
DISCHARGE						
___/___/___	Physiological 1. Yes 2. No	1. _____% 2. Sx _____% Fn _____% 3. _____% 4. _____%	1. T _____; E _____ Functn _____ 2. T _____;P _____ F _____;E _____ 3. A _____;D _____ 4. _____	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	a. _____/10 b. _____/10 c. _____ - _____/10 _____%	_____%

Key: VAS visual analogue scale; CC Chief complaint; UE upper extremity; CTS carpal tunnel syndrome; SCL-90-R Symptom checklist 90-revised; NDI Neck disability index; LB low back; Sx Symptoms; Fn Function

NAME: _____ DATE: _____ DOA: _____ AGE/BD _____

OUTCOMES ASSESSMENT RECORD (Example)

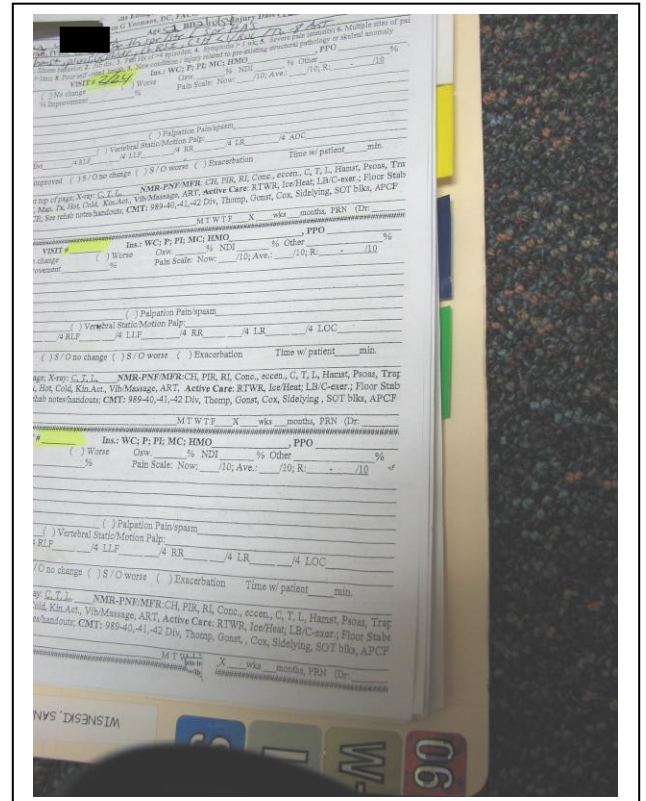
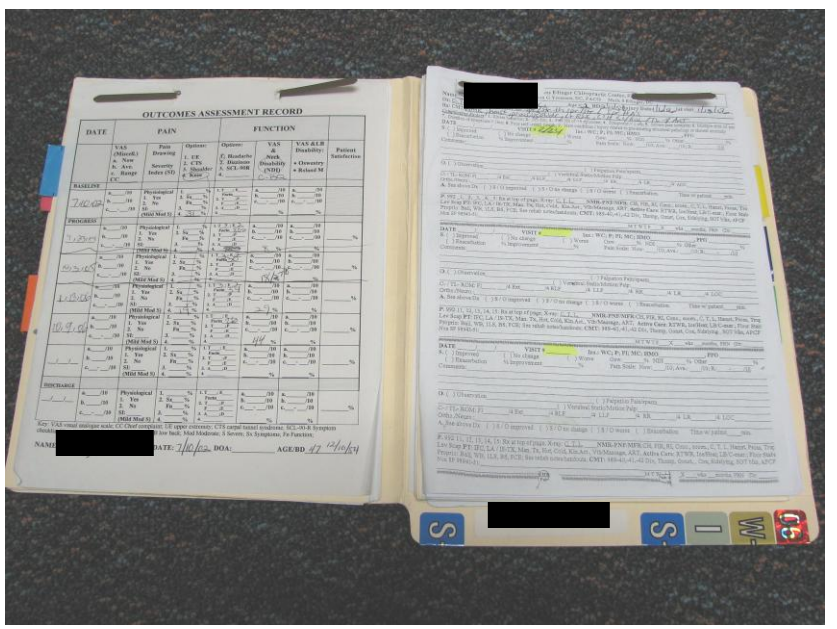
DATE	PAIN		FUNCTION				Patient Satisfaction
	VAS Cervical a. Now b. Ave. c. Range	Drawing	VAS a. Now b. Ave. c. Range	Health Status Circle: SF-36 HSQ, COOP	Neck Disability (NDI)	% Improvement (subj)	
BASELINE							
Initial Presentation 3/17/97	Cervical a. 4-5/10 b. 4-5/10 c. 0-5/10	Physiological 1. Yes	R-Knee a. 2/10 b. 2/10 c. 0-6/10	See separate report <u>Knee Q.= 35%</u> <u>Shlder Q=28%</u>	26 %	NA	
PROGRESS							
4/16/97	a. 0/10 b. 0-2/10 c. 0-5/10	Physiological 1. Yes	R-Knee a. 0/10 b. 0-2/10 c. 0-3/10	See separate report <u>Knee Q.= 30%</u> <u>Shlder Q=22%</u>	22 %	1. C-30% 2. R Shlder 20% 3. R Knee 60-70%	NA
6-2-97 Knee is reported as primary complaint	a. 0/10 b. 0-2/10 c. 0-2/10	Physiological 1. Yes	R-Knee a. 0/10 b. 4-6/10 c. 0-8/10	See separate report <u>Knee Q.= 56%</u> <u>Shlder Q=18%</u>	(6-19-97) 18%	1. C-50% 2. R Shlder 30% 3. R Knee 20%	100 %
7-16-97 Pt received cortisone shot in knee	a. 0/10 b. 0-1/10 c. 0-2/10	Physiological 1. Yes	R-Knee a. 0/10 b. 2-4/10 c. 0-5/10	See separate report <u>Knee Q.= 32%</u> <u>Shlder Q=15%</u>	14%	1. C-60% 2. R Shlder 50% 3. R Knee 40%	100 %
8-15-97	a. 0/10 b. 0-1/10 c. 0-2/10	Physiological 1. Yes	R-Knee a. 0/10 b. 2-3/10 c. 0-4/10	See separate report <u>Knee Q.= 22%</u> <u>Shlder Q=12%</u>	10%	1. C-70% 2. R Shlder 50% 3. R Knee 50%	100 %
10-22-97 Sent for cortisone shot shoulder	a. 0/10 b. 0-1/10 c. 0-2/10	Physiological 1. Yes	R-Knee a. 0/10 b. 2-3/10 c. 0-4/10	See separate report <u>Knee Q.= 20%</u> <u>Shlder Q=18%</u>	8%	1. C-75% 2. R Shlder 40% 3. R Knee 40%	100 %
DISCHARGE							
2-4-98 D/C with PI=14% WP	a. 0/10 b. 0-1/10 c. 0-2/10	Physiological 1. Yes	R-Knee a. 0/10 b. 3-4/10 c. 0-5/10	See separate report <u>Knee Q.= 18%</u> <u>Shlder Q=12%</u>	10%	1. C-75% 2. R Shlder 50-60% 3. R Knee 50%	100 %

Chart "Anatomy"

LEFT SIDE

RIGHT SIDE

Top sheet: Outcomes Assessment Record	Hand written SOAP note (all hand written notes including outcome tools, history. Past Hx & exam forms, - anything handwritten)
Second sheet (if applicable): Patient sign in form	Tab 1 (white) Rehab /exercise forms & notes
Tab 1 PT Log	Tab 2 (yellow): Transcribed/dictated notes
Tab 2 Vitamin, medication, brace log	Tab 3 (blue) X-ray report (both mine & outside)
Tab 3 Insurance information	Tab 4 (green) Outside records (if not too bulky)
Last page: Photocopy log	Tab 5 (red) Return to work forms



EXERCISE SCREEN - FORMS

<i>Supine</i> SCREENS	L	R	L	R	L	R	L	R
15. CERVICAL STRENGTH – (2 methods) 1) Nexerciser / dynamometer – (mmHg) 2) STATIC NECK ENDURANCE Time to the point of Drops head	Fl _____ RLF _____ Ext _____ LLF _____ Static Neck Endur.: _____ Sec.	R _____ RLF _____ Ext _____ LLF _____ Static Neck Endur.: _____ Sec.	Fl _____ RLF _____ Ext _____ LLF _____ Static Neck Endur.: _____ Sec.	R _____ RLF _____ Ext _____ LLF _____ Static Neck Endur.: _____ Sec.	Fl _____ RLF _____ Ext _____ LLF _____ Static Neck Endur.: _____ Sec.	R _____ RLF _____ Ext _____ LLF _____ Static Neck Endur.: _____ Sec.	Fl _____ RLF _____ Ext _____ LLF _____ Static Neck Endur.: _____ Sec.	R _____ RLF _____ Ext _____ LLF _____ Static Neck Endur.: _____ Sec.
16. Repetitive Sit-up • Sit-up, knees 90°, anchor feet, 1 rep/2-3 sec, touch thenar to sup. patella, max.50 reps	<i>Strength</i> reps _____ / 50		<i>Strength</i> reps _____ / 50		<i>Strength</i> reps _____ / 50		<i>Strength</i> reps _____ / 50	
17. Hip Flexion / Modified Thomas • Measure: Passive Hip extension (psoas tension)	_____ °	_____ °	_____ °	_____ °	_____ °	_____ °	_____ °	_____ °
18. Hip Flexion/Supine SLR Measure angle: at point of knee flex	_____ °	_____ °	_____ °	_____ °	_____ °	_____ °	_____ °	_____ °
19. Double Leg Lowering (maintain pelv tilt < 65 degrees)	_____ degrees		_____ degrees		_____ degrees		_____ degrees	

<i>Prone</i> SCREENS	L	R	L	R	L	R	L	R
20. Static Back Endurance • Static Back Endurance: Pt holds trunk horizontal up to max. of 240 sec.	Static Time _____ /240 sec.		Static Time _____ /240 sec.		Static Time _____ /240 sec.		Static Time _____ /240 sec.	
21. Knee Flexion Test / Modified Nachlas	_____ °	_____ °	_____ °	_____ °	_____ °	_____ °	_____ °	_____ °
22. Hip ROM • Internal Rotation • External Rotation	IR _____ ° ER _____ °	IR _____ ° ER _____ °	IR _____ ° ER _____ °	IR _____ ° ER _____ °	IR _____ ° ER _____ °	IR _____ ° ER _____ °	IR _____ ° ER _____ °	IR _____ ° ER _____ °

SCREENS	L	R	L	R	L	R	L	R
23. Grip Dynamometry Dominant: Left / Right (circle) • Use Jamar • Use Position 1 or 2 • Three trials (average)	1. _____ 2. _____ 3. _____ ave _____	1. _____ 2. _____ 3. _____ ave _____	1. _____ 2. _____ 3. _____ ave _____	1. _____ 2. _____ 3. _____ ave _____	1. _____ 2. _____ 3. _____ ave _____	1. _____ 2. _____ 3. _____ ave _____	1. _____ 2. _____ 3. _____ ave _____	1. _____ 2. _____ 3. _____ ave _____
24. Repetitive Arch Up • Repetitive arch up: Waist at table's edge fixed at ankle flexed 45° raises up to horizontal; 1 rep/2-3 seconds; max. 50reps	Reps _____ /50		Reps _____ /50		Reps _____ /50		Reps _____ /50	
25. Post-Screen VAS	_____ /10		_____ /10		_____ /10		_____ /10	

SIGNED _____ DATE _____ TIME OUT _____
 SIGNED _____ DATE _____ TIME OUT _____
 SIGNED _____ DATE _____ TIME OUT _____
 SIGNED _____ DATE _____ TIME OUT _____

NAME: Ken Esthetic (EX.) Occupation: WC DATE: 10-30-98 BD: 1-19-58 AGE: 40
 Dx: LBP w/o leg pain Test #: 1, 2, 3, 4 Symptom Duration: 3 weeks Prior Episodes: YES/NO

SCREEN NAME	NORMAL	PATIENT		% OF NORM	
1. Pre-Screen VAS	0/10	<u>2</u> /10		NA	
2. 3-minute Step Screen (pulse) *	<u>40</u> yo F M	<u>81</u> Pre- <u>92</u> Post-		78%	
3. ROM / Lumbar Spine					
Flexion	65°	<u>56</u> °		86%	
Extension	30°	<u>25</u> °		83%	
Rt. Lateral Flexion	25°	<u>27</u> °		108%	
Lt. Lateral Flexion	25°	<u>28</u> °		112 %	
4. Waddell #1: Pain	Negative	Positive / Negative		NA	
5. Waddell #2: Simulation	Negative	Positive / Negative		NA	
6. Horizontal Side Bridge	96M, 75W (max. 240sec.)	Lt <u>89</u> /Rt <u>91</u> sec.		93%	95 %
7. Gastrocnemius /Ankle DF	23°	Lt.: <u>21</u>	Rt.: <u>24</u>	91%	104%
8. Soleus / Ankle DF	25°	Lt.: <u>23</u>	Rt.: <u>26</u>	92%	104%
9a & b. One leg standing	EO <u>30</u> sec. EC <u>30</u>	L <u>30</u> /17 R <u>28</u> /13		L 100% / 57%	R 93% / 43%
10. Waddell #5: Exaggeration	Negative	Positive / Negative		NA	
11. Repetitive Squat *	<u>45</u> / (max 50)	<u>42</u> / (<u>45</u>)		93%	
12. Waddell #3 Sit SLR v. #18 **	Negative	Positive / Negative		NA	
13. Waddell #4: Regional Neuro	Negative	Positive / Negative		NA	
14. ROM / Cervical					
Flexion	50°	<u>56</u> °		112%	
Extension	63°	<u>58</u> °		92%	
Rt. Lateral Flexion	45°	<u>44</u> °		98%	
Lt. Lateral Flexion	45°	<u>42</u> °		93%	
Rt Rotation	85°	<u>78</u> °		92%	
Lt Rotation	85°	<u>82</u> °		96%	
15. Cervical spine strength 2 methods: 1) Sphyg (mm/Hg) *** 2) Static Neck Endurance	1) see norm tables 2) ♂ 85 ♀ 60 sec	Fl <u>8</u> RLF <u>6</u> Ext <u>16</u> LLF <u>6</u> <u>35</u> Sec.	< 85% ; >85% Static Neck Endur: 41%		
16. Repetitive Sit-Up *	<u>34</u> (max.50)	<u>24</u> / (<u>34</u>)		71%	
17. Hip flexion/Modified Thomas					
Iliopsoas	84°	Lt.: <u>76</u>	Rt.: <u>64</u>	90 %	76 %
18. Straight Leg Raise *	80°	Lt.: <u>76</u>	Rt.: <u>70</u>	100 %	100 %
19. Double leg lowering	<65 degrees w/ pelvic tilt	<u>76</u> degrees		86%	
20. Static Back Endurance *	<u>129</u> (max. 240 sec.)	<u>96</u> seconds		74%	
21. Knee Flexion	147 +/- 1.6	Lt.: <u>126</u>	Rt.: <u>135</u>	86 %	92 %
22. Hip Rotation ROM					
Internal Rotation ROM	41-45 (43)	Lt.: <u>40</u>	Rt.: <u>43</u>	93 %	100 %
External Rotation ROM	41-43 (42)	Lt.: <u>41</u>	Rt.: <u>43</u>	98 %	102 %
23. Grip Strength *	Lt.: <u>47</u> Kg Rt.: <u>49</u> Kg	Lt.: <u>52</u> Kg	Rt.: <u>58</u> Kg	111 %	118 %
24. Repetitive Arch-Up *	<u>36</u> (max. 50)	<u>45</u> / (<u>36</u>)		125 %	
25. Post-test VAS	0/10	<u>1</u> /10		NA	

* Normative data is determined by age, sex and occupation (Blue vs. white collar: BC / WC)

** A positive Screen #18a (Supine SLR) & negative sitting / distracted SLR (#12)= +Waddell sign for Distraction

*** See Text, page334, Table 16-18 using the mmHg 3rd column from the left for the normative data

SIGNED _____ DATE _____ TIME OUT _____

EXERCISE SCREEN RESULTS

NAME: _____ Occupation: WC / BC* DATE: _____ BD: _____ AGE: _____
 Dx: _____ Test #: 1, 2, 3, 4 Symptom Duration: _____ Prior Episodes: YES / NO

SCREEN NAME	NORMAL	PATIENT RESULT	% OF NORMAL
1. Pre-test VAS	0/10	_____/10	
2. 3-minute Step Screen (pulse) *	See chart for ____yo F M	Pre- Post-	%
3. ROM / Lumbar Spine			
Flexion	65°	____°	%
Extension	30°	____°	%
Rt. Lateral Flexion	25°	____°	%
Lt. Lateral Flexion	25°	____°	%
4. Waddell #1: Pain	Negative	Positive / Negative	NA
5. Waddell #2: Simulation	Negative	Positive / Negative	NA
6. Horizontal Side Bridge	96M, 75F (max. 240 sec.)	Lt ____/Rt ____ sec.	% %
7. Gastrocnemius /Ankle Dorsiflexion	23°	Lt.: Rt.:	% %
8. Soleus / Ankle Dorsiflexion	25°	Lt.: Rt.:	% %
9a & b. One leg standing (EO = Eye's open; EC = Eye's Closed)	EO ____ EC ____ (Seconds)	L ____/____ R ____/____ EO / EC EO / EC	L ____/____ R ____/____ EO / EC EO / EC
10. Waddell #5: Exaggeration	Negative	Positive / Negative	NA
11. Repetitive Squat *	<u>28</u> / (max 50)	<u>14</u> / ()	<u>50</u> %
12. Waddell #3 Sit SLR v. #18 **	Negative	Positive / Negative	NA
13. Waddell #4: Regional Neuro	Negative	Positive / Negative	NA
14. ROM / Cervical			
Flexion	50°	____°	%
Extension	63°	____°	%
Rt. Lateral Flexion	45°	____°	%
Lt. Lateral Flexion	45°	____°	%
Rt Rotation	85°	____°	%
Lt Rotation	85°	____°	%
15. Cervical spine strength 2 methods: 1) Sphyg (mm/Hg) * 2) Static Neck Endurance	1) see norm tables 2) ♂ 85 ♀ 60 sec	Fl ____ RLF ____ Ext ____ LLF ____ 2) _____ Sec.	1) < 85% ; >85% 2) _____ %
16. Repetitive Sit-Up *	<u>17</u> (max. 50)	____ / ()	% %
17. Hip flexion/ Modified Thomas			
Iliopsoas	84°	Lt.: Rt.:	% %
18a. Waddell #3: Distraction/SLR	Negative	Positive / Negative	NA
18b. Straight Leg Raise *	80°	Lt.: Rt.:	% %
19. Double leg lowering	<65 degrees w/ pelvic tilt	____ degrees	% %
20. Static Back Endurance *	<u>73</u> (max. 240 sec.)	____ seconds	% %
21. Knee Flexion	147 +/- 1.6	Lt.: Rt.:	% %
22. Hip Rotation ROM			
Internal Rotation ROM	41-45 (43)	Lt.: Rt.:	% %
External Rotation ROM	41-43 (42)	Lt.: Rt.:	% %
23. Grip Strength *	Lt.: Kg Rt.: Kg	Lt.: Kg Rt.: Kg	% %
24. Repetitive Arch-Up *	<u>21</u> (max. 50)	____ / ()	% %
25. Post-test VAS	0/10	____/10	

* Normative data is determined by age, sex and occupation (Blue vs. white collar: BC / WC)

** A positive screen #18a (Supine SLR) and a negative sitting / distracted SLR (test #12)= +Waddell sign

SIGNED _____ DATE _____ TIME OUT _____

STRENGTH AND ENDURANCE NORMATIVE DATA

1. Repetitive Squatting Screen

AGE	MALES (n=242)						FEMALES (n=233)					
	Blue Collar		White Collar		All		Blue Collar		White Collar		All	
	x	SD	x	SD	x	SD	x	SD	x	SD	x	SD
35-39	39	13	46	8	42	12	24	11	27	12	26	12
40-44	34	14	45	9	38	13	22	13	18	8	20	12
45-49	30	12	40	11	33	13	19	12	26	13	22	13
50-54	28	14	41	11	33	14	13	10	18	14	14	11
35-54	33	14	43	10	37	13	20	12	23	12	21	12

2. Repetitive Sit-up Screen

AGE	MALES (n=242)						FEMALES (n=233)					
	Blue Collar		White Collar		All		Blue Collar		White Collar		All	
	x	SD	x	SD	x	SD	x	SD	x	SD	x	SD
35-39	29	13	35	13	32	13	24	12	30	16	27	14
40-44	22	11	34	12	27	13	18	12	19	13	19	12
45-49	19	11	33	15	24	14	17	14	22	15	19	14
50-54	17	13	36	16	23	16	9	10	20	13	11	11
35-54	23	13	35	13	27	14	17	13	24	15	19	14

3. Repetitive Arch-up Screen

AGE	MALES (n=242)						FEMALES (n=233)					
	Blue Collar		White Collar		All		Blue Collar		White Collar		All	
	x	SD	x	SD	x	SD	x	SD	x	SD	x	SD
35-39	26	11	34	14	29	13	28	13	27	11	27	12
40-44	23	12	36	14	28	14	25	14	20	11	23	13
45-49	24	13	34	16	28	15	25	15	31	16	27	15
50-54	21	11	35	17	26	15	18	14	26	14	19	14
35-54	24	12	35	15	28	14	24	14	26	13	24	14

4. Static Back Endurance Screen (sec)

AGE	MALES (n=242)						FEMALES (n=233)					
	Blue Collar		White Collar		All		Blue Collar		White Collar		All	
	x	SD	x	SD	x	SD	x	SD	x	SD	x	SD
35-39	87	38	113	47	97	43	91	61	95	48	93	55
40-44	83	51	129	57	101	57	89	57	67	51	80	55
45-49	81	45	131	64	99	58	90	55	122	73	102	64
50-54	73	47	121	56	89	55	62	55	99	78	69	60
35-54	82	45	123	55	97	53	82	58	94	62	87	59

X = AVERAGE; SD = Standard deviation; Note: The last row represents the average of all the ages (35-54)

REFERENCES

1. Alaranta H, Hurri H, Heliövaara M, et al. Non-dynamometric trunk performance tests: Reliability and normative data. *Scand J Rehab Med* 1994; 26:211-215.
2. The Clinical Application of Outcomes Assessment. Ed.: Yeomans, SG. (Stamford, CT:) Appleton & Lange. 2000; chapters 12 & 16. ISBN #: 0-8385-1528-2.
3. Yeomans S, Liebensohn C. Quantitative functional Capacity Evaluation: The Missing Link to Outcomes Assessment. *Top Clin Chiro* 1996; 3(1): 32-43.

The Horizontal Side-bridge

McGill SM, Childs A, Leibenson C. endurance times for stabilization exercises: clinical targets for testing and training from a normal database. Arch Phys Med Rehabil 1999; 80:941-4.

Abstract:

Objective: to establish isometric endurance holding times, as well as ratios between torso extensors, flexors, and lateral flexors (stabilizers), for clinical assessment and rehabilitation targets.

Design: simple measurement of endurance times in four tests performed in random order by a healthy cohort. To measure reliability, a subsample also perform the tests again 8 weeks later.

Setting: university laboratory.

Participants: 75 young healthy subjects (31 men, 44 women).

Results: women had longer endurance times than men for torso extension, but not for torso flexion or for the "side bridge" exercise, which challenges the lateral flexors (stabilizers). Men could sustain the "side bridge" for 65 percent of the extensor time and 99 percent of the flexion time, whereas women could sustain the "side bridge" for only 39 percent of the extensor time and 79 percent of the flexion time. The tests proved to be reliable, with reliability coefficients of > 0.97 for the repeated tests on five consecutive days and again 8 weeks later.

Conclusion: healthy young men and women possess different endurance profiles for the spine stabilizing musculature. Given the growing support for quantification of endurance, these data of endurance times and thigh ratios between extensor, flexors, and lateral flexors groups in healthy normal subjects are useful for patient evaluation and providing clinical training targets.

The Horizontal Side Bridge

Task	Men			Women			All		
	Mean	SD	Ratio	Mean	SD	Ratio	Mean	SD	Ratio
Extensor	146	51	1.0	189	60	1.0	177	60	1.0
Flexor	144	76	0.99	149	99	0.79	147	90	0.86
Side Bridge, Rt	94	34	0.64	72	31	0.38	81	34	0.47
Side Bridge, Lt	97	35	0.66	77	35	0.40	85	36	0.5
Average:		95		75					

Patient position: side lateral, top leg in front of lower leg resting on lower hip/thigh and elbow. The upper arm is placed against chest with the hand touching the anterior lower shoulder. The pelvis is raised off the table and held in a line with a long axis of the body supporting the weight between the feet and elbow. The down side QL is being tested.

ONE LEG BALANCE TEST NORMS

AGE	EYES OPEN	EYES CLOSED
20-59	30 (SEC.)	25
60-69	23	10
70-79	14	4

REF: Byl, Nancy. Spatial orientation to gravity and implications for balance training. Orthopaedic physical therapy clinics of North America. 1:2, October 1992; 207-236. (NOTE: See pg 41 QFCE Manual (v3) for 3 other references)

GRIP AND PINCH STRENGTH NORMATIVE DATA

TABLE 1

Grip Strength (Kg)	MALES		FEMALES	
OCCUPATION	Major hand	Minor hand	Major hand	Minor hand
Skilled	47.0	45.4	26.8	24.4
Sedentary	47.2	44.1	23.1	21.1
Manual	48.5	44.6	24.2	22.0
Average	47.6	45.0	24.6	22.4

Table 1. The normative data for dominant (“major hand”) and non-dominant (“minor hand”) grip strength (in kilograms) broken down by occupation (left hand column) and gender.

TABLE 2

Grip Strength (Kg)	MALES		FEMALES	
AGE GROUP	Major hand	Minor hand	Major hand	Minor hand
<20	45.2	42.6	23.8	22.8
20-29	48.5	46.2	24.6	22.7
30-39	49.2	44.5	30.8	28.0
40-49	49.0	47.3	23.4	21.5
50-59	45.9	43.5	22.3	18.2

Table 2. The normative data for dominant (“major hand”) and non-dominant (“minor hand”) grip strength (in kilograms) broken down by age (left hand column) and gender.

TABLE 3

PINCH Strength (Kg)	MALES		FEMALES	
OCCUPATION	Major hand	Minor hand	Major hand	Minor hand
Skilled	6.6	6.4	4.4	4.3
Sedentary	6.3	6.1	4.1	3.9
Manual	8.5	7.7	6.0	5.5
Average	7.5	7.1	4.9	4.7

Table 3. The normative data for dominant (“major hand”) and non-dominant (“minor hand”) pinch strength (in kilograms) broken down by occupation (left hand column) and gender.

Reprinted with permission from Swanson AB, Matev IB, de Groot Swanson G. The strength of the hand. AMA Guides, 1993, 4th edition, pg. 64, Table 31; p. 65, Table 32; pg. 65, Table 33.

3-MINUTE STEP SCREEN

- Check the patient’s pre-test pulse (30 x 2 standing): R/O Tachycardia (>100b/m)
- Patient steps up and down off of a 12” bench at the rate of 24 steps per minute for 3-minutes (Metronome 96 b/m) “up, up, down, down”
- Immediately (within 5 seconds), sit patient down and recheck the patient’s pulse for a full minute and compare to the normative data

3 Minute Step Screen Normative Data for Men

Rating	% ranking	Men Age 18-25	Men Age 26-35	Men Age 36-45	Men Age 46-55	Men Age 56-65	Men Age >65
Excellent	100	70 bpm	73	72	78	72	72
	95	72	76	74	81	74	74
	90	78	79	81	84	82	86
Good	85	82	83	86	89	89	89
	80	85	85	90	93	93	92
	75	88	88	94	96	97	95
Above Avg	70	91	91	98	99	98	97
	65	94	94	100	101	100	100
	60	97	97	102	103	101	102
Average	55	101	101	105	109	105	104
	50	102	103	108	113	109	109
	45	104	106	111	115	111	113
Below Avg	40	107	109	113	118	113	114
	35	110	113	116	120	116	116
	30	114	116	118	121	118	119
Poor	25	118	119	120	124	122	122
	20	121	122	124	126	125	126
	15	126	126	128	130	128	128
Very Poor	10	131	130	132	135	131	133
	5	137	140	142	145	136	140
	0	164	164	168	158	150	152

Aerobic capacity values and rankings for 3-minute step test for men.

(Adapted from Y's Way to physical Fitness with permission of the YMCA of the USA, 101 N. Wacker Drive, Chicago, IL 60606.)

3 Minute Step Screen Normative Data for Women

Rating	% ranking	Women Age 18-25	Women Age 26-35	Women Age 36-45	Women Age 46-55	Women Age 56-65	Women Age >65
Excellent	100	72 bpm	72	74	76	74	73
	95	79	80	80	88	83	83
	90	83	86	87	93	92	86
Good	85	88	91	93	96	97	93
	80	93	93	97	100	99	97
	75	97	97	101	102	103	100
Above Avg	70	100	103	104	106	106	104
	65	103	106	106	111	109	108
	60	106	110	109	113	111	114
Average	55	110	112	111	117	113	117
	50	112	116	114	118	116	120
	45	116	118	117	120	117	121
Below Avg	40	118	121	120	121	119	123
	35	122	124	122	124	123	126
	30	124	127	127	126	127	127
Poor	25	128	129	130	127	129	129
	20	133	131	135	131	132	132
	15	137	135	138	133	136	134
Very Poor	10	142	141	143	138	142	135
	5	149	148	146	147	148	149
	0	155	154	152	152	151	151

Aerobic capacity values and rankings for 3-minute step test for women.

Physical Exercise Options:

Screens	Physical Exercise options for tests < 85% of normal (computer file name in bold)
1. VAS – Pre-screen Pain level	NA: note if pain > 6 / 10, consider safety in QFCE/Rehab, catastrophization/chronic pain
2. 3-minute Step Screen	1) Exercise Log – a form for home-documenting the exercises utilized 2) Exercise Options Sheet: includes a method for calculating the 85% Max. Heart Reserve (exercise examples include): Running, Walking, Stepper, Jump rope, Treadmill, Cross-country ski machine, Cycling, Rowing
3. ROM / Lumbar Spine	Use: L-ROM exercise Master Sheet.doc Exercises: Consider the following for <u>ALL</u> L-ROM impairments after the acute stage. 1) Pelvic Stabilization – Gym Ball – pelvic tilts, bridge, sit-backs/abds, wall-squats, superman, see-saw (levels I, II, III) Use with the companion Pelvic stab Gym Ball documentation form 2) Pelvic Stabilization – Floor pelvic tilt, 4-point, lunges, dead-bug, swimmers, bridges, curl-ups; Use with the companion Pelvic stab floor documentation form 3) Proprioception exercises – see test 9 exercise form
Flexion	1) Flexion biased exercises - Include 11 exercises – Williams; <i>Stretch:</i> hamstrings (2 methods), adductors, lumbar erector spinae, piriformis, and trunk rotators; <i>Strengthen:</i> abdominal muscles, squats
Extension	1) Extension biased exercises – McKenzie – Include 6 methods of self-extension, side-gliding, and the hand-heel rock exercise
Lateral Flexion	1) Lat flexion & rotation Floor exerc – include Lat. fl / scoliosis, Lat fl w/ hand wts, chair twists, knee to floor supine rotations 2) Lat flexors & rotators GBall exercise – include trunk rotations, lat fl side-lying
4. Waddell #1: Pain	When 3 of 5 positive signs – consider Psychometrics: promote active care / minimize passive care, emphasize work return; consider co-management if off work > 4 weeks; identify early! See files in folder for further discussion.
5. Waddell #2: Simulation	SEE #4
6. Horizontal Side-bridge	1) Side Bridge Exercises 2) See Test 3, Pelvic Stabilization – Floor
7. Gastrocnemius /Ankle DF	1) Calf Stretch Options - Stretch gastroc/soleus muscles: calf-wall stretch, heels off step - ankle DF/PF stretch, rocker and wobble board with appropriate balance challenges
8. Soleus / Ankle DF	SEE #7
9a & b. One leg standing	1) Balance challenge exercise options - Proprioception exercises: ball, one-leg stand, rocker and wobble boards, balance sandals; playing catch during trunk curl
10. Waddell #5: Exaggeration	SEE #4
11. Repetitive Squat	Lunges; wall squats; quad. Sets; muscle stretch of hamstrings, iliopsoas, gastroc/soleus; proprioception exercises ball, one-leg stand, rocker and wobble boards, balance sandals
12. Waddell #3: Distraction	SEE #4 (see test 18a for supine SLR Waddell Sign portion of the test)
13. Waddell #4: Regional Neuro	SEE #4
14. ROM / Cervical	1) Test 14 & 15 Cervical spine ROM & strength – circle exercises that are indicated for each individual patient
Flexion	Stretch extensors, strengthen flexors, promote chin retraction posture correction
Extension	Stretch flexors, strengthen extensors, promote chin retraction posture correction
Lateral Flexion	Stretch contralateral lateral flexors (LF), strengthen homolateral LF, promote chin retraction posture correction
Rotation	Circumduction, stretch and strengthen appropriate muscles (based on exam findings)
15. Cervical spine strength	1) Test 14 & 15 Cervical spine ROM & strength - Use slightly deflated beach ball with isometric resistance in frontal & sagittal planes; PIR, self-stretches, self-strengthening exercises
16. Repetitive Sit-Up	1) Abdominal Strengthening Exercises Strengthen: abdominals (obliques > rectus) curl-ups, GM; QL; Stretch: Iliopsoas, L-erector spinae; side-bridge (see Figure 16-34)
17. Modified Thomas Iliopsoas	1) Psoas stretch exercises - Stretch iliopsoas
18a. Waddell #3: Distraction	SEE #4
18b. Straight Leg Raise	Stretch hamstrings, adductors, TFL, iliopsoas, MRTs
19. Double leg lowering	1) Abdominal Strengthening Exercises Lower abdominal strengthening; sit-up track
20. Static Back Endurance	1) Extensor Strengthening exercises Strengthen: Lumbar extensors-see pelvic stabilization: superman, see-saw, Lumbar extensions; reps of arch-ups, or from floor, reverse sit-up, side-bridge
21. Knee Flexion	1) Quadriceps femoris stretch Quadriceps stretch and strengthening (emphasize last 5° of extension-VMO); stretch Hamstrings
22. Hip Rotation ROM	1) Hip ROM Exercises
Internal Rotation ROM	Stretch tight external rotators (piriformis, GMed), hip capsule stretch)
External Rotation ROM	Stretch tight internal rotators, hip capsule stretch
23. Grip Strength	1) Grip & wrist strength exercises 2) Grip & wrist stretch – CTS exercises 3) Theratube Grip & wrist strength exercises
24. Repetitive Arch-Up	1) Extensor Strengthening Strengthen: Lumbar extensors-see pelvic stabilization; reverse sit-ups; side-bridge
25. Post-screen VAS Pain Level	Compare to initial score, give home instructions of appropriate item such as ice, rest

CONCLUSION

The Exercise Screen can be performed as a collection of physical performance tests to evaluate deconditioning prior to the initiation of a therapeutic exercise program. The benefits of this include:

- 1) Identification of weak links in the kinetic chain.
- 2) Specific exercises is gained by identifying each weak link (each abnormal test)
- 3) To prove “medical necessity” to the 3rd party payer (facilitates a prompt pre-authorization and/or coverage)
- 4) Proves the need for exercise to the patient – helps motivate the patient to comply with the exercise protocols as they know how deconditioned they are after the screen and, they know they will be re-screened in 4 weeks.
- 5) Provides an increased confidence level for the health care provider as very specific treatment protocol is identified by each abnormal test (eg., <85% of normal), thus arming the HCP with additional, different treatment options.

The Exercise Screen is typically utilized when:

- 1) A point of recovery is short of a patient satisfying level.
- 2) Home-based exercises have failed to produce satisfying results.
- 3) Passive care (health care provider) approaches have failed to produce satisfying results
- 4) Deconditioning is evident.
- 5) Is usually performed at a 2nd-4th week after initiating passive care
- 6) In a chronic pain patient

A second application of the Exercise Screen is utilizing an individual test or group of tests short of the entire Exercise Screen during any regular office visit to support the “medical necessity” of a manual release technique, a unit of therapeutic activity (97530), or a prescription for one home exercise. By individualizing the test for the patient, specific treatment options can be derived on a visit by visit basis and re-evaluated periodically in future visits.

CPT Coding for Physical Performance Test

Information obtained from: <http://www.highmarkmedicare.services.com/articles/parta/md-99-04-a1.html>

Claims for physical therapy and rehabilitation services should be submitted using the following guidelines:

1. For all claims submitted with an unlisted procedure code (97799) a complete narrative description (detailing the type of service or procedure being performed) must be included on the claim.
2. Therapy services should be reported under the appropriate modality (97010-97036, G0283) and therapeutic procedure codes (97110-97124, 97150).

Timed Codes

Several CPT codes used for therapy modalities, procedures, and tests and measurements specify that the direct (one-on-one) time spent in patient contact is 15 minutes. Report procedure codes for services delivered on any calendar day using CPT codes and the appropriate number of units of service. For any single CPT code, bill a single 15 minute unit for treatment greater than or equal to 8 minutes and less than 23 minutes. If the duration of a single modality or procedure is greater than or equal to 23 minutes to less than 38 minutes, then 2 units should be billed. Time intervals for larger numbers of units are as follows:

- 3 units > 38 minutes to < 53 minutes
- 4 units > 53 minutes to < 68 minutes
- 5 units > 68 minutes to < 83 minutes
- 6 units > 83 minutes to < 98 minutes
- 7 units > 98 minutes to < 113 minutes
- 8 units > 113 minutes to < 128 minutes

The beginning and ending time of the treatment should be recorded in the patient's medical record along with the note describing the treatment. (The total length of the treatment to the minute could be recorded instead.) If more than one CPT code is billed during a calendar day, then the total number of units that can be billed is constrained by the total treatment time. For example, if 24 minutes of 97112 and 23 minutes of 97110 were furnished, then the total treatment time was 47 minutes, so only 3 units can be billed for the treatment. The correct coding is 2 units of 97112 and one unit of 97110, assigning more units to the service that took the most time.

NOTE: The above schedule of times is intended to provide assistance in rounding time into 15 minute increments. It does not imply that any minute until the eighth should be excluded from the total count as the timing of active treatment counted includes all time.

The cost of supplies (e.g., theraband, hand putty, electrodes) used in furnishing covered therapy care is included in the payment for the HCPCS codes billed by the physical therapist, and are, therefore, not separately billable. Separate coverage and billing provisions apply to items that meet the definition of brace in the CMS Internet On-Line Manual Publication 100-2, Chapter 15, Section 130.

2nd Reference: <http://www.resna.org/taproject/goals/other/healthcare/CPTcodes.htm>

Some commonly utilized CPT codes (year 2003 code book) with the QFCE and rehabilitation include (see codes in bold):

CPT Procedural Codes

- 2003 CPT codes for commonly utilized rehab techniques
(NOTE: the items in **bold** are the most used codes)

ChiroCode DeskBook: The 11th Annual Coding and Reimbursement Guide for Chiropractors, 11th Edition. Leavitt Crandall Institute, Inc. Mesa, AZ, 2003 (2003 updated information included)

Table 1. Physical Medicine and Rehabilitation Services Supervised Modalities

Code	Description	RVU*
97010	Hot or cold packs	.29
97012	Traction, mechanical	.46
97014	Electrical stimulation (unattended)	.40
97016	Vasopneumatic devices	.45
97018	Paraffin bath	.33
97020	Microwave	.28
97022	Whirlpool	.38
97024	Diathermy	.29
97026	Infrared	.27
97028	Ultraviolet	.28

Constant Attendance

Code	Description	RVU*
97032	Electrical stimulation (manual), each 15 minutes	.40
97033	Iontophoresis, each 15 minutes	.42
97034	Contrast baths, each 15 minutes	.32
97035	Ultrasound, each 15 minutes	.33
97036	Hubbard tank, each 15 minutes	.51
97039	Unlisted attended modality (specify type and time)	.47

Table 1. The use of modalities in a musculoskeletal practice is common. Various attended and non-attended or supervised modalities are described. The Relative Value Units are located in the right hand column.

Table 2. Treatment Services

97110	Therapeutic exercises to develop strength and endurance, range of motion and flexibility	.60
97112	Neuromuscular reeducation of movement, balance, coordination, kinesthetic sense, posture, and proprioception, ea. 15 min.	.59
97113	Aquatic therapy with therapeutic exercises, ea. 15 min.	.66
97116	Gait Training (includes stair climbing), ea. 15 min.	.52
97140	Mobilization, manipulation, manual traction, lymphatic drainage, ea. 15 minutes	
97124	Massage, including effleurage, petrissage and/or tapotement (stroking, compression, percussion)	.47
97139	Unlisted therapeutic procedure (specify), ea. 15 min.	.39
97150	Therapeutic procedure(s), group (2 or more individuals)	.49
97504	Orthotics fitting and training upper and/or lower extremities;	.61

	each 15 minutes	
97520	Prosthetic fitting and training upper and/or lower extremities; each 15 minutes	.62
97530	Therapeutic activities, direct (one on one) patient contact by the provider (use of dynamic activities to improve functional performance), each 15 minutes	.63
97535	Self care/home management training (e.g., activities of daily living and compensatory training, meal preparation, safety procedures, and instructions in use of adaptive equipment) direct one on one contact by provider,, each 15 minutes.	.64
97537	Community /work reintegration training (e.g., shopping, transportation, money management, avocational activities and/or work environment/modification analysis), work task analysis , direct one on one contact by provider, each 15 minutes.	.64
97542	Wheelchair management/propulsion training, each 15 minutes	.44
97545	Work hardening/conditioning; initial 2 hours	NE
97546	each additional hour	NE

Table 2. A listing of treatment services is found in this table with the associated CPT code number. NE stands for Not Established.

Table 3 Tests and Measurements

(For muscle testing, manual or electrical, joint range of motion, electromyography or nerve velocity determination, see 95831-95904)

97703	Checkout for orthotic/prosthetic use, established patient, each 15 minutes	.46
97750	Physical performance test or measurement (e.g., musculoskeletal, functional; capacity), with written report, each 15 minutes	.72
97770	Development of cognitive skills to improve attention, memory, problem solving., includes compensatory training and/or sensory integrative activities , direct (one-on-one) patient contact by the provider, each 15 minutes	.75
97780**	Acupuncture, on or more needles; without electrical stimulation	NE
97781**	With electrical stimulation	NE
97799	Unlisted physical medicine service or procedure	NE

* Taken from: 11th Annual edition 2003 ChiroCode DeskBook, Leavitt Crandall Institute, Inc. Mesa, AR, 2003

** New codes (since 1998)

Table 3. When tests or measures are performed, specific CPT codes can be assigned to the service. When other services such as acupuncture is performed, CPT codes specific to those services are also available.