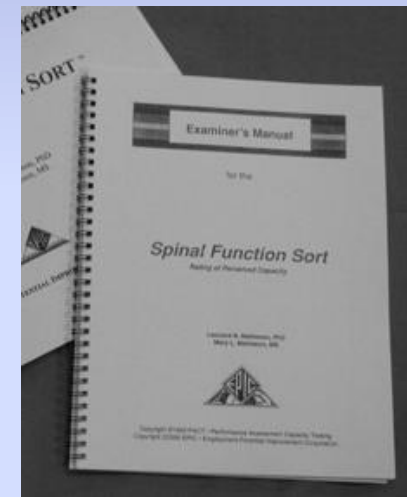


Assessment of Readiness to RTW

Rasch Analysis of the SPINAL FUNCTION SORT



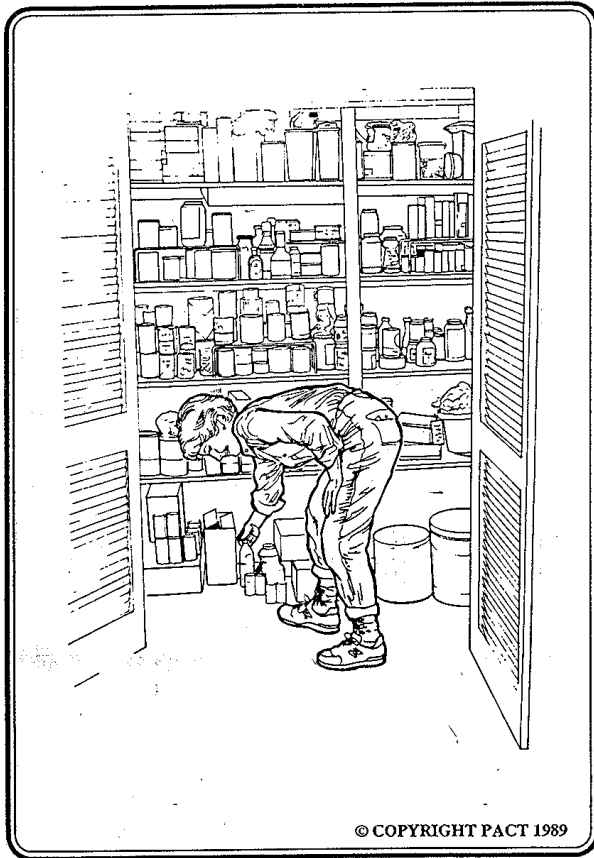
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Work completed at the
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Background

- Spinal Function Sort
 - Purpose
 - Administration
 - Uses
 - Scoring



1. Place a glass bottle on the floor.



2. Retrieve a small tool from the floor.

.....
Work quickly. Do not spend too much time on any one item. Your first impression is usually the best.

		Able	Restricted	Unable	?			Able	Restricted	Unable	?				
	Place/Bottle/Floor	1	2	3	4	5	?								
3	Push/Pull/Vacuum	1	2	3	4	5	?	4	Push/Pull Shopping Cart	1	2	3	4	5	?
	Place or Retrieve 5# Waste to Eye-Level	1	2	3	4	5	?	6	Place or Retrieve 5# Waste to Overhead	1	2	3	4	5	?
7	Lower 10# Eye-Level to Floor	1	2	3	4	5	?	8	Lower 10# Crate Bench to Floor	1	2	3	4	5	?
	Load 20# Trunk of Auto	1	2	3	4	5	?	10	Lift 10# Crate Floor to Bench	1	2	3	4	5	?
11	Unload 20# Trunk of Auto	1	2	3	4	5	?	12	Lower 20# Crate Eye-Level to Floor	1	2	3	4	5	?
15	Unload 2 x 10# Trunk of Auto	1	2	3	4	5	?	14	Lift 20# Crate Floor to Eye-Level	1	2	3	4	5	?
	Paint Brush Eye-Level	1	2	3	4	5	?	16	Lift 20# Box Floor to Bench	1	2	3	4	5	?
19	Wash Dishes Sink	1	2	3	4	5	?	20	Trim Shrubs	1	2	3	4	5	?
21	Paint Bulb Overhead	1	2	3	4	5	?	21	Install Face-Plate	1	2	3	4	5	?
23	Cut Lumber	1	2	3	4	5	?	24	Put Nail	1	2	3	4	5	?
	Paint Seal	1	2	3	4	5	?	26	Move Barrel with Dolly	1	2	3	4	5	?
27	Load/Unload Dishwasher	1	2	3	4	5	?	28	Dig with Shovel	1	2	3	4	5	?
	Push Heavy Door	1	2	3	4	5	?	30	Get into Driver's Seat	1	2	3	4	5	?
31	Pull Heavy Door	1	2	3	4	5	?	32	Get out of Driver's Seat	1	2	3	4	5	?
	Carry 10# Groceries	1	2	3	4	5	?	34	Carry 30# Bucket	1	2	3	4	5	?
35	Carry 20# Groceries	1	2	3	4	5	?	36	Carry 10# Groceries x 2	1	2	3	4	5	?
	Climb Step-Ladder	1	2	3	4	5	?	38	Carry 20# Bucket Up Step-Ladder	1	2	3	4	5	?
	Sweep Push Broom	1	2	3	4	5	?	40	Sweep Kitchen Broom	1	2	3	4	5	?
43	Lower 50# Crate Floor to Eye-Level	1	2	3	4	5	?	42	Lower 50# Crate Bench to Floor	1	2	3	4	5	?
47	Lift 100# Crate Floor to Eye-Level	1	2	3	4	5	?	44	Lift 50# Tool Box Floor to Bench	1	2	3	4	5	?
	Paint Brush Eye-Level	1	2	3	4	5	?	46	Lower 100# Crate Bench to Floor	1	2	3	4	5	?
		1	2	3	4	5	?	48	Lift 100# Crate Floor to Bench	1	2	3	4	5	?
		1	2	3	4	5	?	50	Place or Retrieve 5# Waste to Overhead	1	2	3	4	5	?

P.A.C.T. SPINAL FUNCTION SORT
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Dis	DK	Int
0-2	0-3	1
0-2	4+	2
3-4	na	3
5+	na	4

(4x)	(3x)	(2x)	(1x)	Section 1 Total

Name: _____
Date: _____ ER: _____

(4x)	(3x)	(2x)	(1x)	Section 2 Total	RPC	%tile

FCE at:	PDC Sedentary	PDC Light	PDC Medium	PDC Heavy	PDC Very Heavy
RPC Score:	100 - 110	125 - 135	165 - 175	180 - 190	196 +

Rasch Analysis

- Unidimensionality of the scale
- Calibration of items on the scale
- Determination of item difficulty
 - Floor or ceiling effects
- Differential item functioning (DIF)

Methods

Sample

- 260 individuals
- 152 men
- 108 women
- European or Punjabi descent
- Sawmill Workers
- Hospital Workers

Analysis

- Rating Scale
- Response String
- Principal Axis F.A.

Initial Results

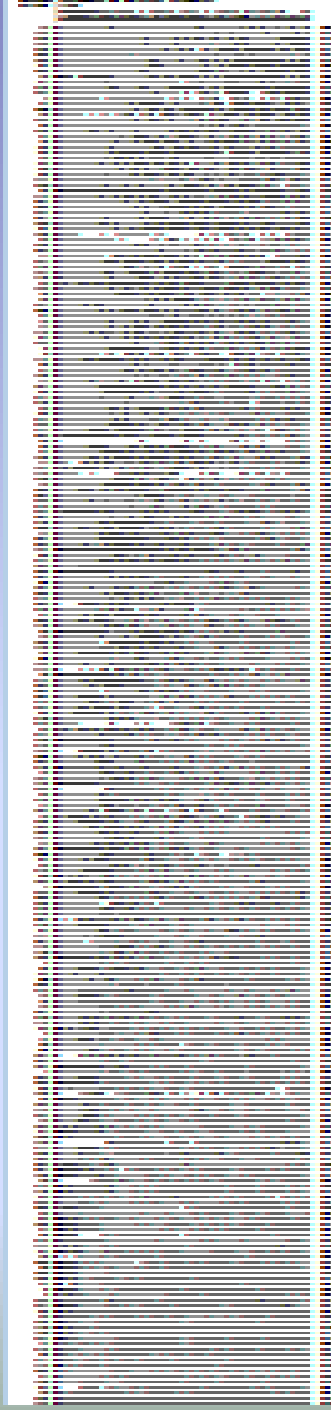
Table 1 *Spinal Function Sort Misfitting Items*

ITEM	PT- MEASURE (<i>r</i>)	OUTFIT MNSQ	ZSTD	INFIT MNSQ	ZSTD
02. Retrieve/tool/floor	.59	1.62	4.8	1.60	4.7
49. Paint brush/eye level	.60	1.71	3.8	1.36	3.6
19. Wash Dishes Sink	.62	1.66	3.9	1.23	2.4
21. Light Bulb Overhead	.63	1.64	4.2	1.45	4.4
37. Climb Step Ladder	.63	1.57	3.7	1.48	4.6
22. Install Face Plate	.64	1.45	2.8	1.04	.4
01. Place /bottle/Floor	.60	1.44	2.5	1.24	2.4

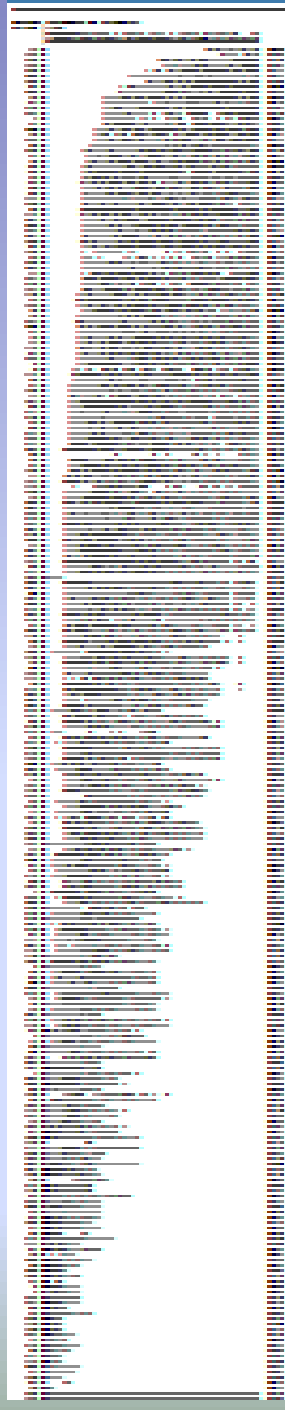
Factor Analysis

- Principal Axis
 - High loadings on two factors
 - Main Factor
 - 2nd Factor related to lifting
 - Items 41 to 48 (material handling – 50 to 100 lbs)

Response String Analysis



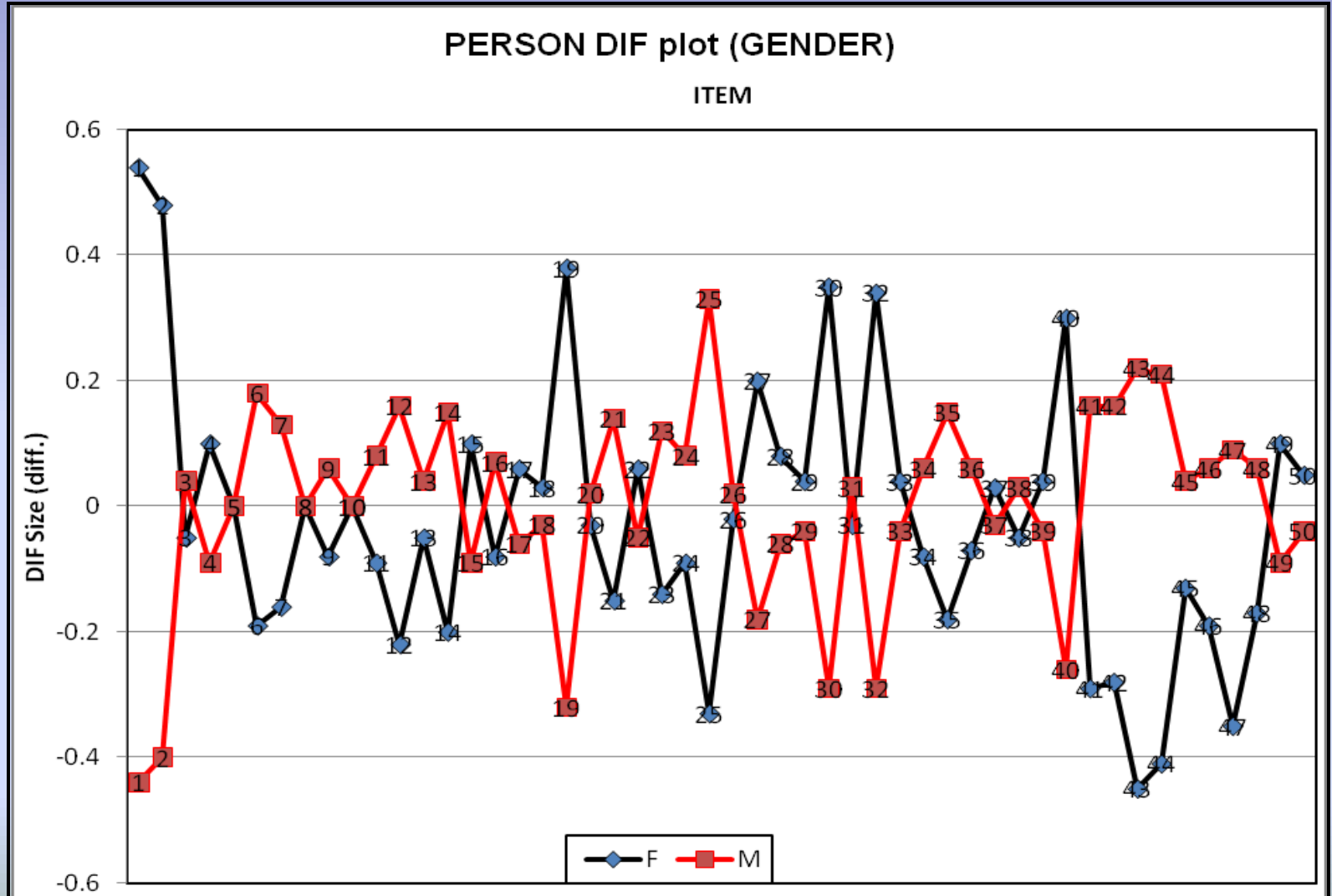
CUTHI = 2.5
CUTLO = 1.0



Results after Cutting

ITEM	PT-MEASURE (<i>r</i>)	OUTFIT MNSQ	ZSTD	INFIT MNSQ	ZSTD
02. Retrieve/tool/floor	.44	1.27	2.1	1.28	2.2
49. Paint brush/eye level	.45	1.26	1.9	1.28	2.1
19. Wash Dishes Sink	.42	1.19	1.6	1.17	1.4
21. Light Bulb Overhead	.41	1.62	4.1	1.60	4.7
37. Climb Step Ladder	.43	1.58	4.3	1.61	4.6
22. Install Face Plate	.47	1.10	1.0	1.13	1.0
01. Place /bottle/Floor	.44	1.18	1.4	1.20	1.5

DIF by Gender



SPINAL FUNCTION SORT

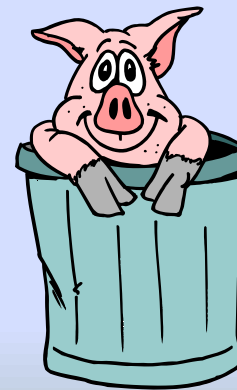
Silk Purse

- Small changes immediately improved scale
- Largely Unidimensional Scale
- Factor 2 Heavy Lifting – excellent.
- 5-point scale is effective
- Captures all respondents



Sow's Ear

- Some items demonstrate DIF by Gender
- 2 items had to be removed



Recommendations

- Remove the two items that were problematic
- Change to computer administration
 - Males in the activities for male test takers
 - Females in the activities for female test takers
 - Only administer the higher physical demand items to individuals requiring the ability to lift them.

