

Cohérence au cours des épreuves fonctionnelles

Pain Behavior Assessment during Functional Capacity Evaluation

Dr. Peter Oesch
PhD PT

Klinikleitung Therapien

 **KLINIKEN VALENS**

Lecture content

- Functional Capacity Evaluation (FCE)
- Physical effort determination
- Perceived functional ability
- Nonorganic somatic components
- Pain Behavior Assessment
- Conclusions

Functional Capacity Evaluation

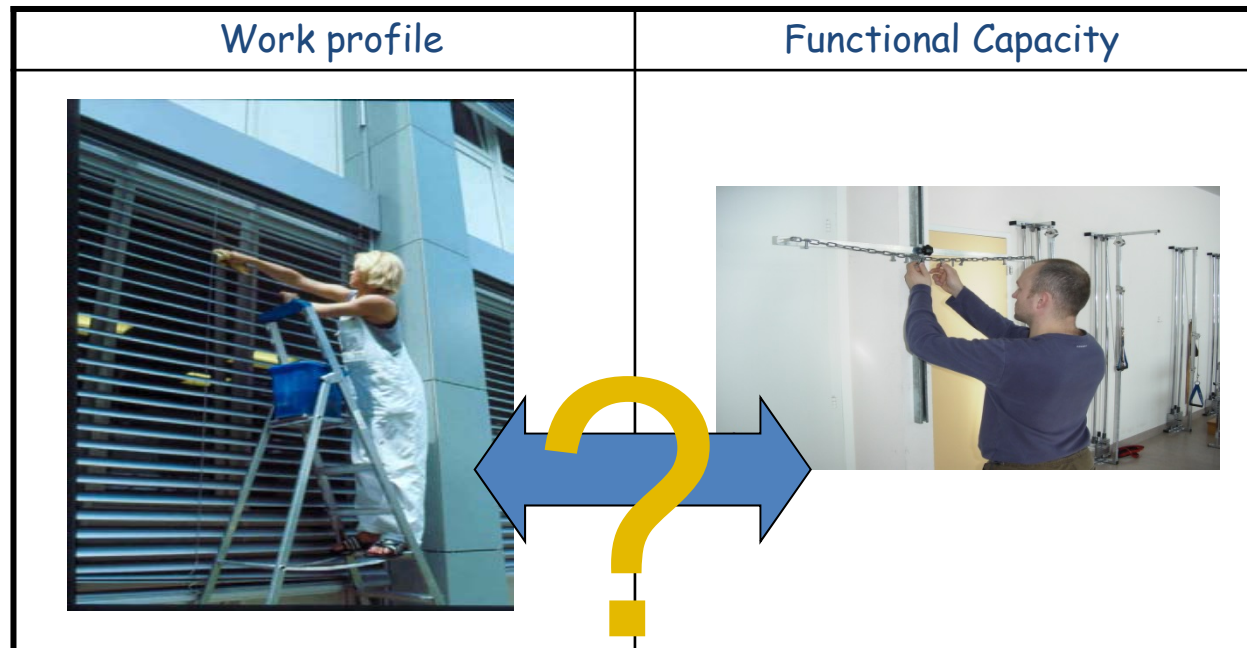
by Susan Isernhagen



- FCE is a standardized battery of clinical tests that purport to measure a patient's safe physical ability for work-related activity.
- Maximum effort of the client is required to obtain valid results in these physical performance tests.

Functional Capacity Evaluation

by Susan Isernhagen



Functional Capacity Evaluation

by Susan Isernhagen

 **KLINIKEN VALENS**



Weight capacity



Movement / Position



Coordination



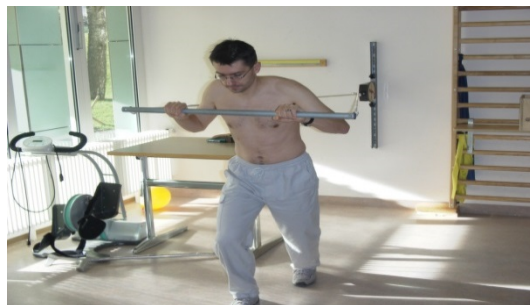
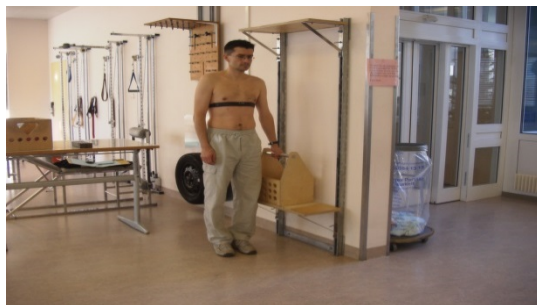
Ambulation

Cohérence au cours des épreuves fonctionnelles

FCE of weight capacity

by Susan Isernhagen

 KLINIKEN VALENS



Cohérence au cours des épreuves fonctionnelles

Functional Capacity Evaluation

Observational criteria to determine lifting performance



Maximum



Light



Heavy

Observational criteria for physical effort level determination during manual handling tests

Observational criteria	Weight load		
	Maximum weight	Heavy weight	Light – moderate weight
Muscle recruitment			
▪ Pace	J Occup Rehabil (2014) 24:361–369 DOI 10.1007/s10926-013-9470-9		
▪ Arm movement			
Base of support			
Posture			
Heart rate			
Control			
Pace	Very slow (increased pace would affect stability and control)	Distinctly slower. Very deliberate movements	Moderate/comfortable pace

Reliability of Clinician Rated Physical Effort Determination During Functional Capacity Evaluation in Patients with Chronic Musculoskeletal Pain

M. A. Trippolini • P. U. Dijkstra • B. Jansen •
P. Oesch • J. H. B. Geertzen • M. F. Reneman

Effort Rating is not an easy task!

 KLINIKEN VALENS

Video

Perceived functional ability for work tasks assessed with the Spinal Function Sort



Eur Spine J

DOI 10.1007/s00586-010-1429-3

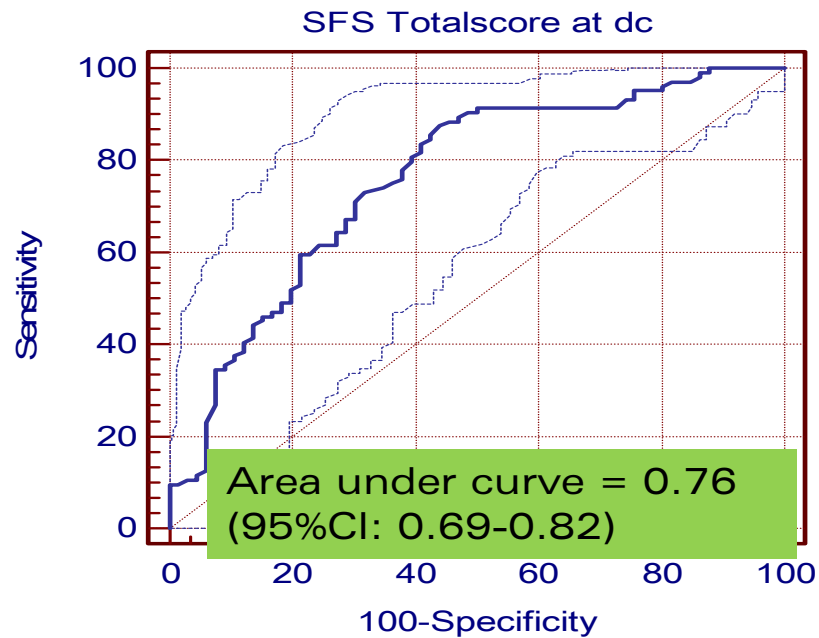
ORIGINAL ARTICLE

**Perceived functional ability assessed with the spinal function sort:
is it valid for European rehabilitation settings in patients
with non-specific non-acute low back pain?**

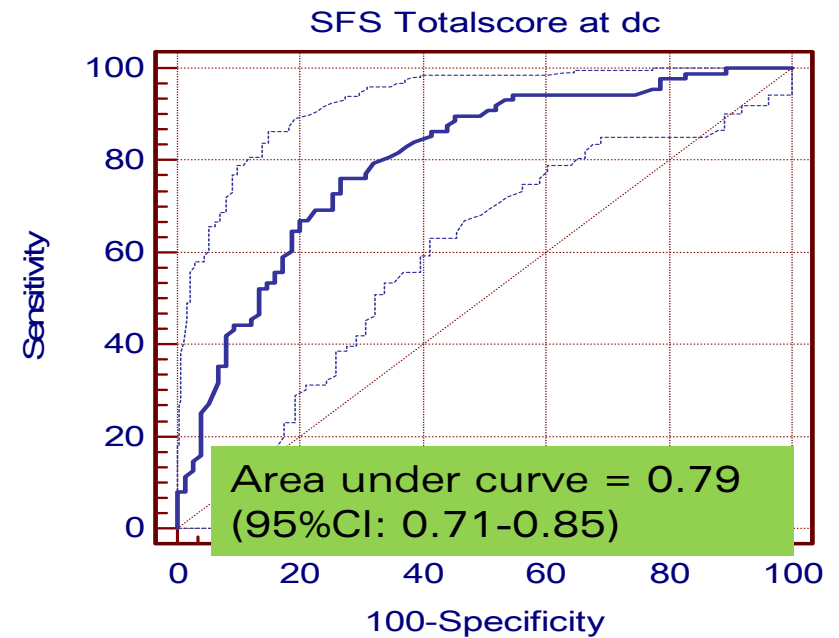
P. R. Oesch · R. Hilfiker · J. P. Kool ·
S. Bachmann · K. B. Hagen

Validity of the Spinal Function Sort

Return to work (1d) at 3 mth FU



Return to work (1d) at 12 mth FU



The role of 'nonorganic-somatic-components' (NOSC)

J Occup Rehabil (2015) 25:257–266
DOI 10.1007/s10926-014-9533-6



Functional Capacity Evaluation: Performance of Patients with Chronic Non-specific Low Back Pain Without Waddell Signs

Peter Oesch · Kathrin Meyer · Beatrice Jansen · Jan Kool

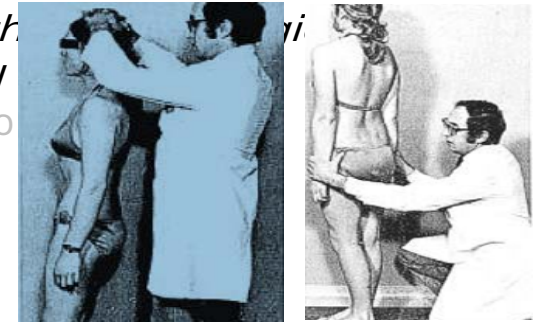
Published online: 5 September 2014
© Springer Science+Business Media New York 2014

Nonorganic-physical-signs

“By helping to separate the physical from the nonorganic, they clarify the assessment of purely physical conditions”

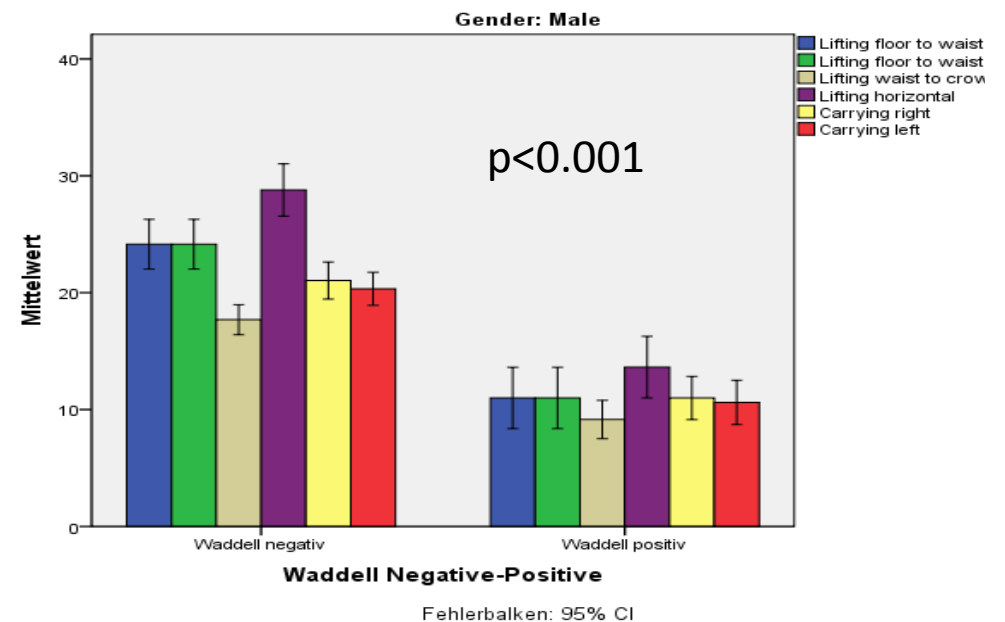
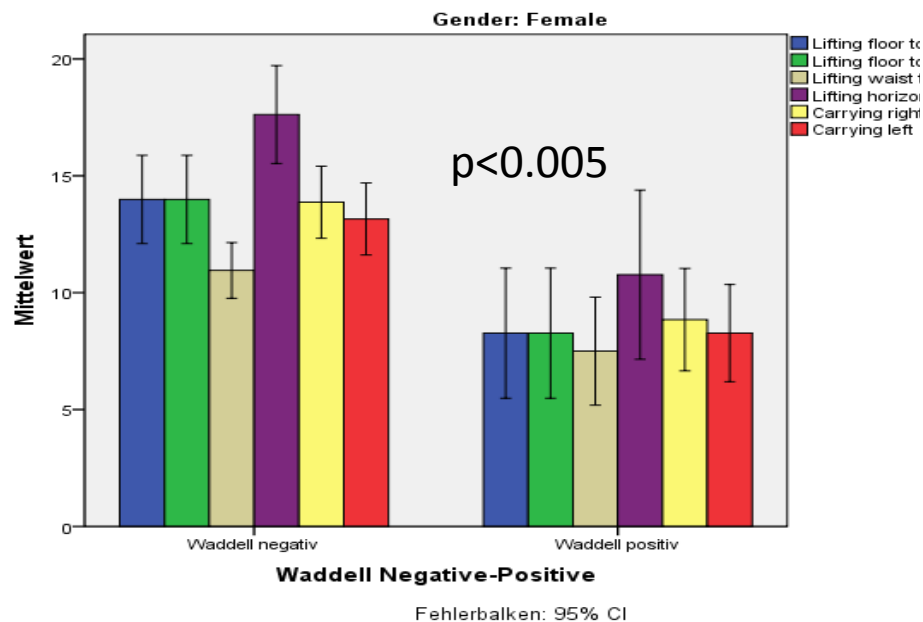
..... should be interpreted with reference to other physical and behavioral

Waddell et al. 1980

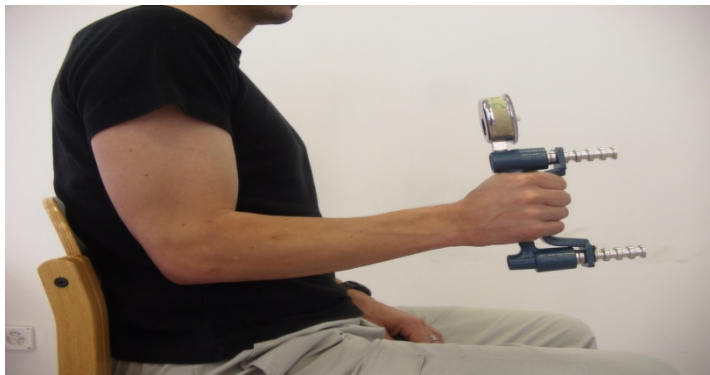


Do NOSC influence the outcome of a FCE?

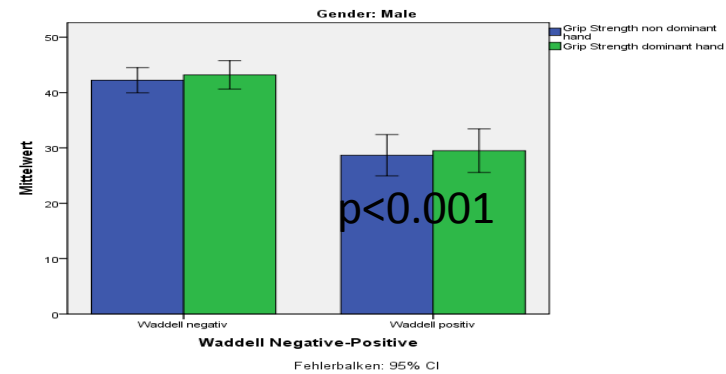
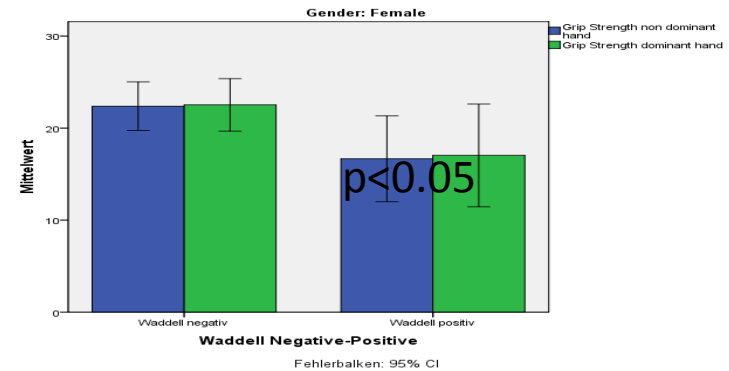
Weight Capacity in patients with negative and positive Waddell signs



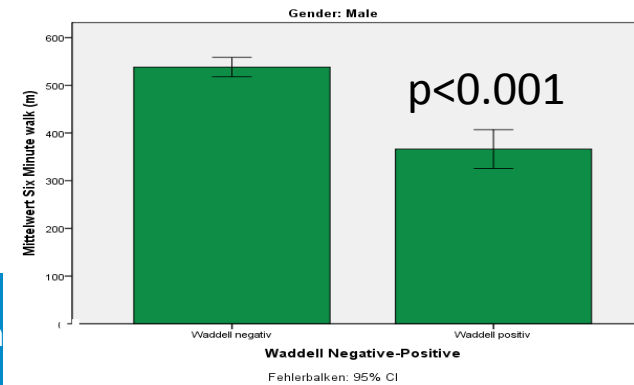
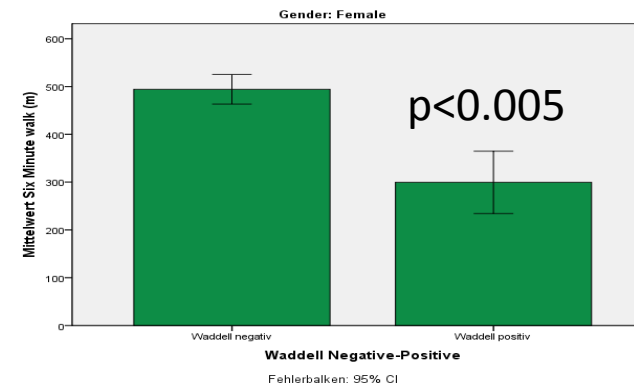
Hand Capacity in patients with negative and positive Waddell signs



Hand Capacity



Ambulation in patients with negative and positive Waddell signs



Cohérence au cours des épreuves fonction

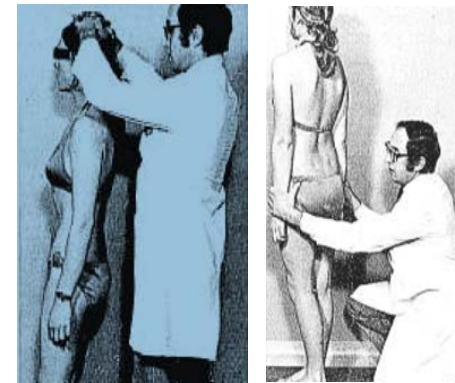
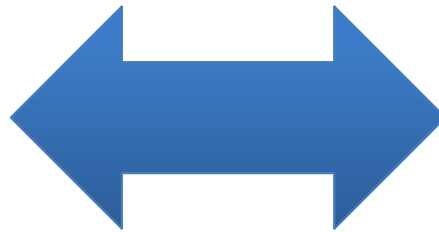
Influences on FCE

FCE tests	Adj. R2	Final model	Unstd. Coeff.	Sig.
Lifting from floor to waist (kg)	0.54	Perceived functional ability	0.11	<0.001
		Gender (male)	4.73	0.001
		'NOSC'	-0.95	0.009
Forward bend standing (sec)	0.42	'NOSC'	-20.49	<0.001
		Days off work	-0.03	<0.001
		Perceived functional ability	0.31	*0.065
Grip strength dominant hand (kg)	0.58	Gender (male)	15.97	<0.001
		Perceived functional ability	0.11	<0.001
		'NOSC'	-1.53	0.003
		Age	-0.25	0.005
Six minute walking distance (m)	0.52	'NOSC'	-27.13	<0.001
		Salary previous job	0.01	0.002
		Pain intensity	-11.65	0.018
		FAB work activities	-2.50	0.014
		Age	-1.90	0.025

* Not significant, but a confounder

Effort rating vs. 'Waddell signs'

- || Functional Capacity Evaluation (FCE) requires an effort determination by observation of effort indices for performance interpretation.
- || 'Waddell signs' have shown to be associated with decreased functional performance.





Comparison of Two Methods for Interpreting Lifting Performance During Functional Capacity Evaluation
Peter Oesch, Kathrin Meyer, Stefan Bachmann, Kåre Birger Hagen and Nina K. Vøllestad
PHYS THER. 2012; 92:1130-1140.
Originally published online May 31, 2012
doi: 10.2522/ptj.20110473



Concurrent validity of 'nonorganic-somatic-components' and 'submaximal effort'

	Lifting 'floor to waist'	Lifting 'waist to crown'	Lifting 'horizontal'
Sensitivity	53%	63%	62%
Specificity	84%	85%	85%

Conclusions

In patients with chronic nonspecific low back pain, 'Waddell signs' testing and determination of physical effort by observational criteria should not be interchangeably used for

1st summary

Influence on FCE

FCE is influenced by:

- Effort
- Perceived functional ability
- Nonorganic somatic components

Different measures cannot be interchangeably used for effort interpreting during FCE

Pain Behavior Assessment during FCE

A comprehensive assessment to screen for high levels of pain behavior should include different aspects of pain behavior such as:

- pain perception and description by the patient
- the behavior of the patient perceiving pain
- the patient's effort to perform physical tests
- patient's consistency of behavior

Video



Development and Validation of a Pain Behavior Assessment in Patients with Chronic Low Back Pain

Katharina Meyer¹ • Andreas Klipstein^{2,3} • Peter Oesch⁴ • Beatrice Jansen⁵ •
Jan Kool^{4,6} • Karin Niedermann⁶

Pain Behavior Assessment during FCE

Pain perception

1	Pain intensity	Indication of very severe pain when at rest (values on numeric rating scale >7 (NRS 0–10)
2	Widespread pain	Topographically wide diffusion of pain (clinically not plausible)
3	<i>Undifferentiated pain</i>	<i>One or more of the following:</i> <i>a. Description of pain (imprecise/undifferentiated/generalized)</i> <i>b. Circular distribution of pain around the extremity</i> <i>c. Description of pain does not correspond with known limitations of function</i>
4	Influence on pain	Pain barely influenced by movements/activities or therapeutic interventions
5	Undifferentiated limitations	Undifferentiated description of physical limitations (generalizing, without details)

Pain Behavior Assessment during FCE

Pain behavior

6	Guarding	Overcautious movements
7	Rigidity	Rigid or stiff posture
8	Rubbing	Rubbing of the painful part
9	Grimacing	Frequent grimacing
10	Sighing	Frequent sighing
11	<i>Telling about pain</i>	<i>Frequent telling about pain</i>
12	Overreaction	Overreaction during examination (tension, tremor, sweating)

Pain Behavior Assessment during FCE

Effort

13	Lifting	Minimal performance not achieved in lifting horizontally. Lifting horizontally is <8 % of the body weight
14	Overhead work	Below minimal performance of 60 s in work over shoulder height without additional weight
15	Gait speed	Gait speed ≤ 2.5 km/h
16	Grip strength	Grip strength clearly below normal range (<20 kg in men/<10 kg in women)
17	<i>Performance of involved body part</i>	<i>Not performing tests affecting the painful body part up to the observable functional limit</i>
18	Performance of not involved body part	Not performing tests affecting uninvolved body parts up to the observable functional limit
19	Heart rate	No substantial increase in heart rate and respiration during increased physical exertion
20	Slow performance	Extremely slow performance of tests
21	Denial	Denial of performance of test in the absence of medical reasons

Pain Behavior Assessment during FCE



Consistency of behavior

22	Inconsistent findings	Inconsistent findings during clinical examination
23	Discrepancy flexibility	Discrepancy in flexibility of the back during clinical examination and dressing or undressing
24	Discrepancy balance test	Discrepancy between the demonstrated range of motion of the back during clinical examination and during the balance test (tandem walking on a narrow beam)
25	Discrepancy overhead work	Rapid break of the overhead work test without a relevant clinical problem of the shoulder girdle, cervical or upper thoracic spine
26	<i>Further discrepancies</i>	<i>Further discrepancies during clinical examination between clinical findings/diagnoses and observed functional capacity or incapacity, respectively</i>
27	Inconsistent complaints and functions	Inconsistent statements about physical complaints or functional limitations
28	Discrepancy statements and capacity	Discrepancy between subjective statements about functional substantial or severe limitations and the observed functional capacity
29	Spinal function Sort (SFS)	The total score of the Spinal Function Sort is below 100 points
30	Suffering	The subjective statement of severe pain does not correspond to the suffering impression that the patient gives during activities
31	Inconsistent gait	Discrepancy between gait speed during formal testing and spontaneous walking

Pain Behavior Assessment during FCE

Patient characteristics

Male, n (percent)	145 (72.5)
Age, years ^a	43.3 (16.5)
Native language groups n (percent)	
German-speaking countries	102 (51)
Southwest Europe	28 (14)
Southeast Europe	56 (28)
Other parts of Europe	14 (7)
Duration of pain, months	
Median (IQR) ^b	34.4 (12–100)
Fear of losing job n (percent)	
Yes	47 (23.5)
No	56 (28)
No job contract	97 (48.5)
WAI ^a	21.3 (7.4)
FABQa ^a	32.1 (9.6)
FABQw ^a	19.2 (4.6)
ODI ^a	43.3 (16.5)

Results

- RASCH analysis supports the construct of the four subscales

Conclusion

The PBA is a valid method to assess pain behavior in patients with CNSLBP and is valid for use in individuals.

A comprehensive assessment to screen for pain behavior is preferred instead of a single test.

Thank you for your attention

Dr. Peter Oesch
PhD PT

Klinikleitung Therapien

 **KLINIKEN VALENS**