Western HealthSciences

S✦ART
Solving Traumatic Pain and Disability
through Advanced Research Translation

PainandQualityofLife
INTEGRATIVE RESEARCH LAB | P.I.R.L.

The End of Rehabilitation

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Objectives

1. Define recovery from MSK trauma from a future-oriented perspective

2. Describe new ways of measuring the process and state of recovery

Disclosures

- I am owner-operator of David Walton Rehabilitation Education, Consulting and Research.

- I am lead developer of the tools described herein, but both are freely available and I make no profit off of their use.

The end of physiotherapy

Ioannis Poulis

It is well understood but seldom remarked that physiotherapy intervention has no obvious or well-defined end point. There is a real sense in which there cannot be too much therapy since all, or almost all, people benefit both from exercise and from instruction in how to exercise safely given individual variables such as physical condition or age. In this sense, the relationship with the patient is 'open ended'.

What is Recovery – Empirical Information

- Most commonly identified through (Walton 2009)
  - Pain Intensity
  - Standardized neck-related disability scale
  - Work status
  - Claims status
  - Psychiatric morbidity
- People usually follow 1 of 3 trajectories over 6-12 months:
  1. Rapid, complete recovery (~30-50%)
  2. Slow, incomplete recovery (~30-40%)
  3. No recovery, significant disability (~10-25%)

Compensation claim lodgement and health outcome developmental trajectories following whiplash injury: A prospective study

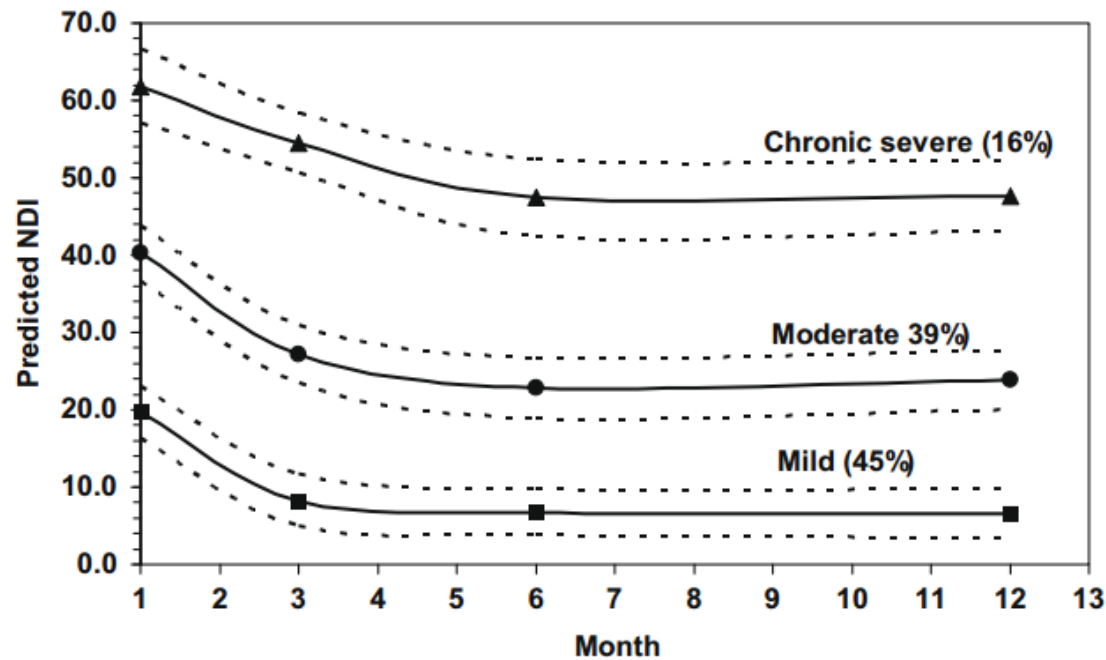Michele Sterling [a,*], Joan Hendrikz [b], Justin Kenardy [b]

Fig. 1. Predicted NDI trajectories with 95% confidence limits and predicted probability of membership (%). Suggested cut-offs for the NDI are 0–8% (no pain and disability); 10–28% (mild pain and disability), 30–48% (moderate pain and disability), 50–68% (severe pain and disability) and >70% (complete disability) [13].
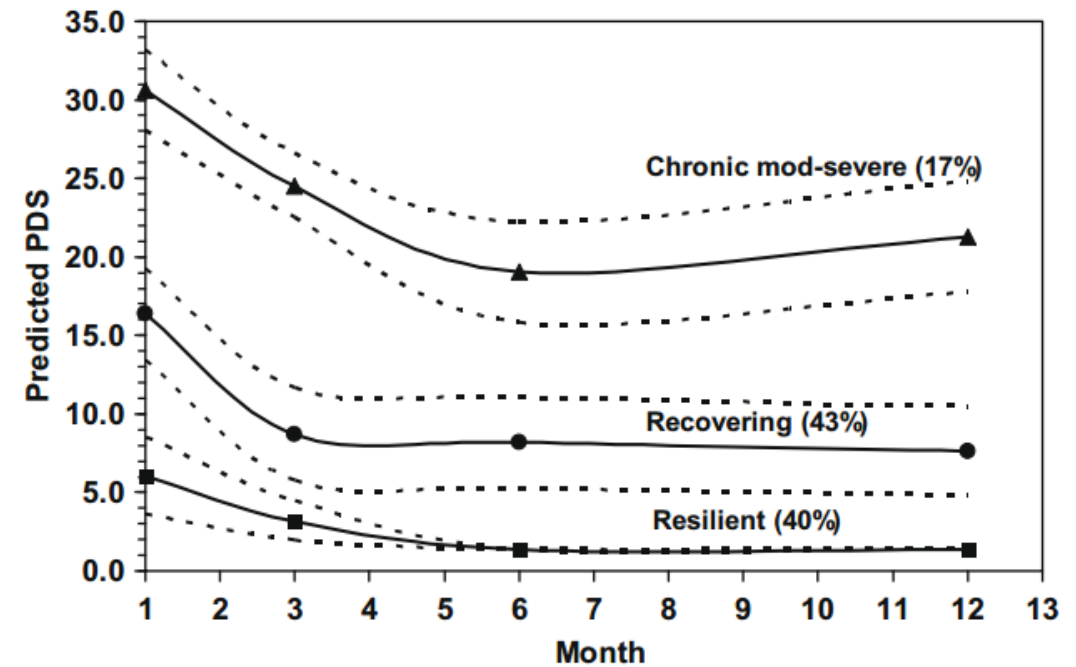
Fig. 2. Predicted PDS trajectories with 95% confidence limits and predicted probability of membership (%). Suggested cut-offs for the PDS total symptom severity score are 0 no rating, 1–10 mild, 11–20 moderate, 21–35 moderate to severe and $\geqslant 36$ severe [15].

What is Recovery – Pragmatic Considerations

- First must consider
  - What is health?
  - What is disease?
  - What drives healthcare consumption?
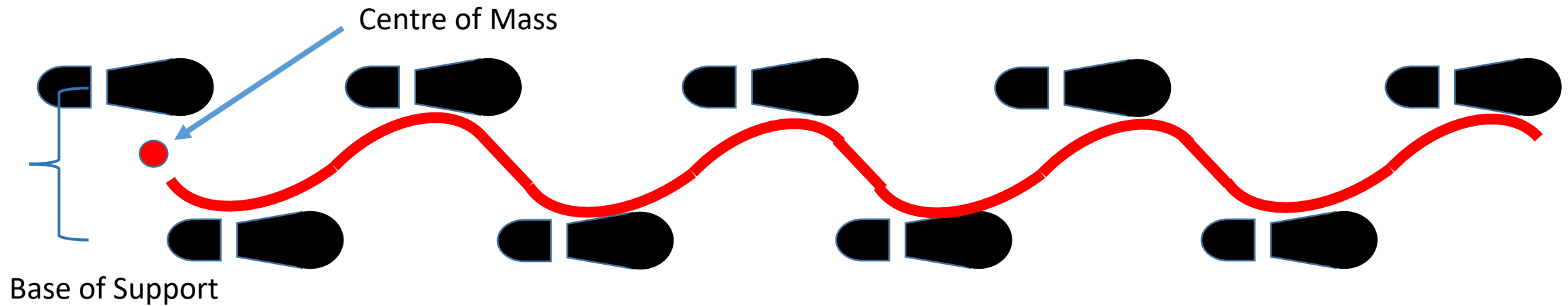 - From who's perspective?

The concept of Recovery

- Traditional

Health

Recovery (from a biomechanical perspective)

Centre of Mass

Base of Support

Stumble

Centre of Mass

Base of Support
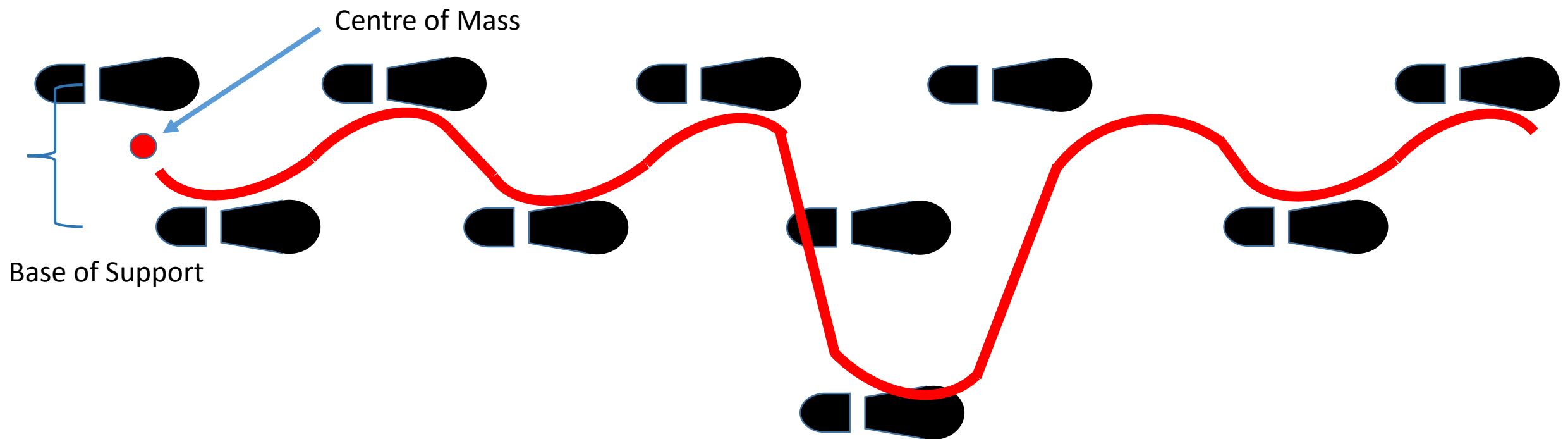
Recovery (carrying on)

Recovery revisited

Ought

Actual

Ideal

Discordance between
actual and ought

Resolution

Ought

Actual

Ideal

Re-established pre-injury status

Redefinition

Ought

Actual

Ideal

Ought
expanded

Survivor Pride

Actual

Ideal

Ought
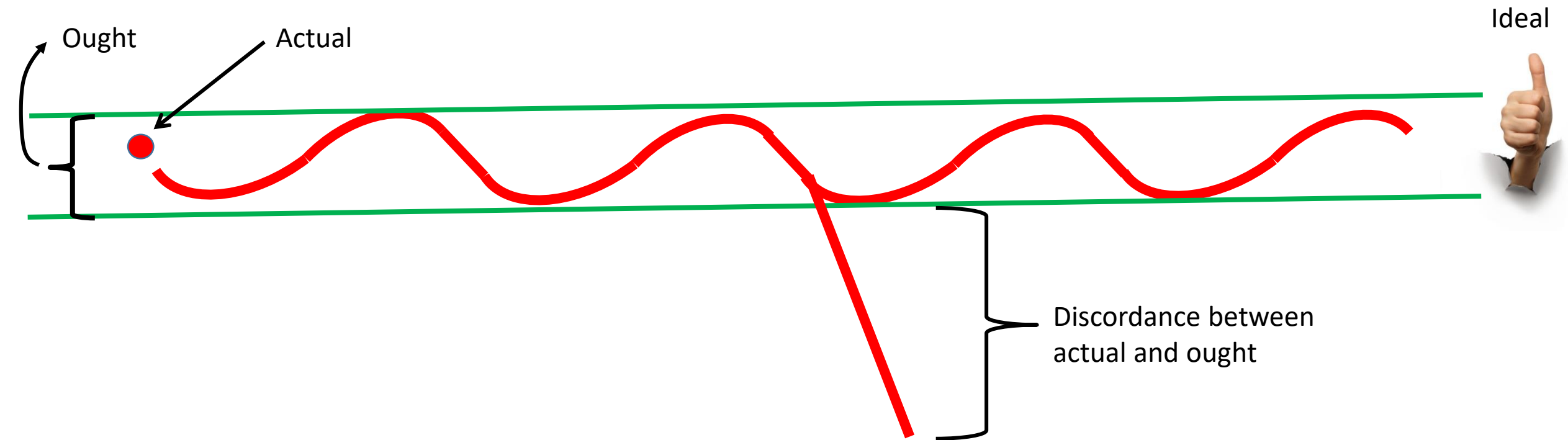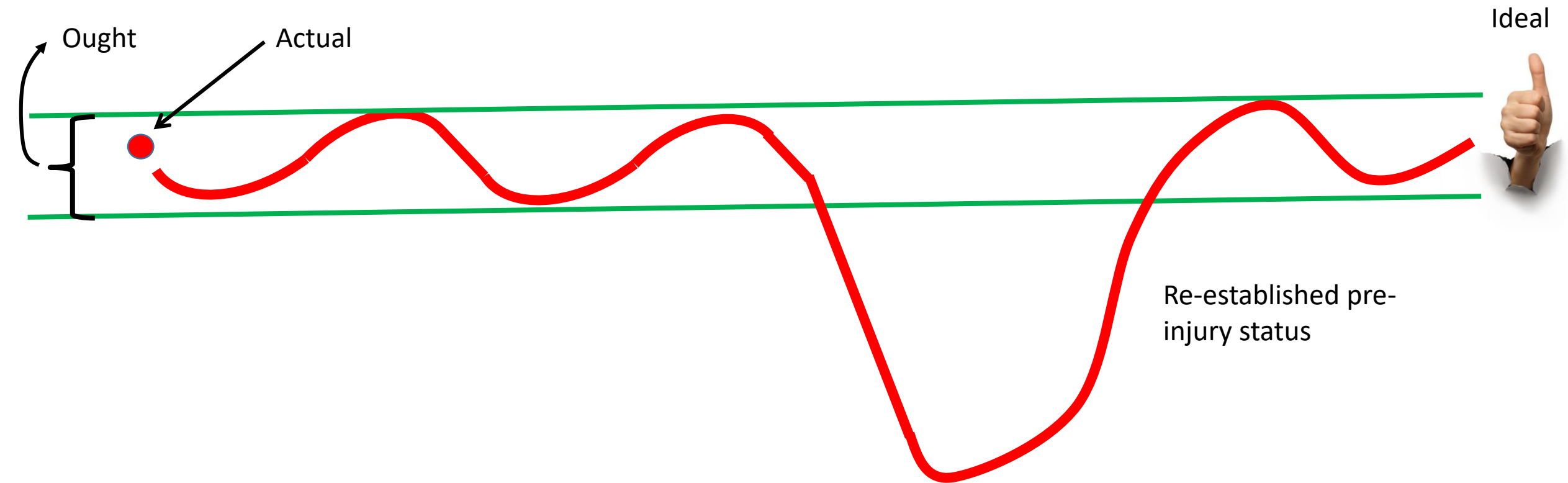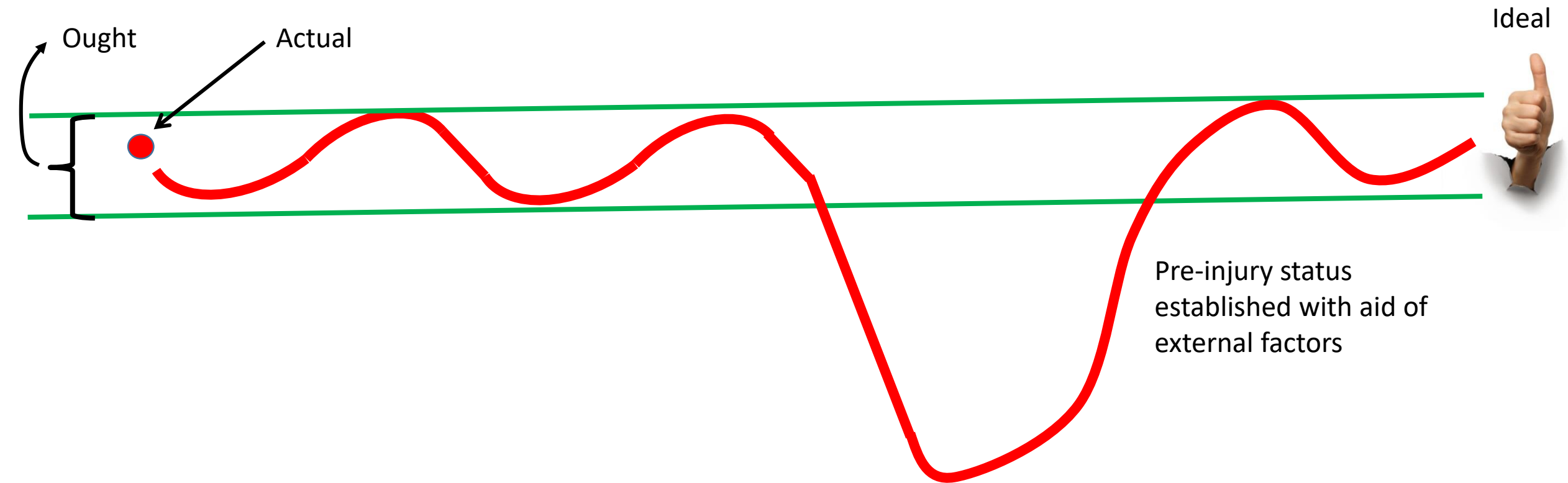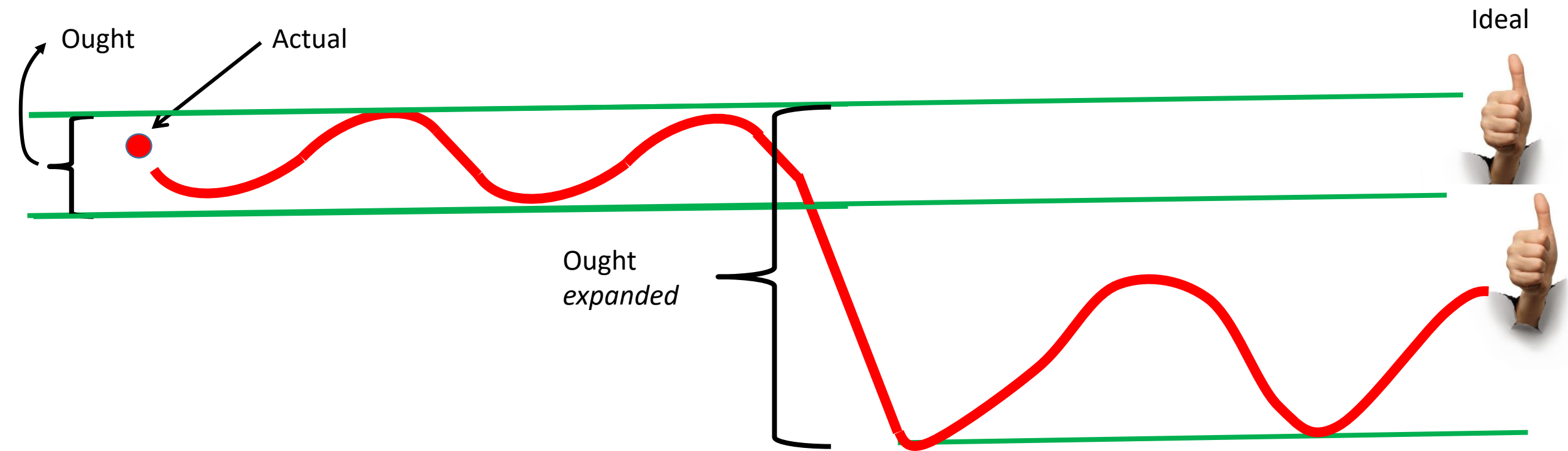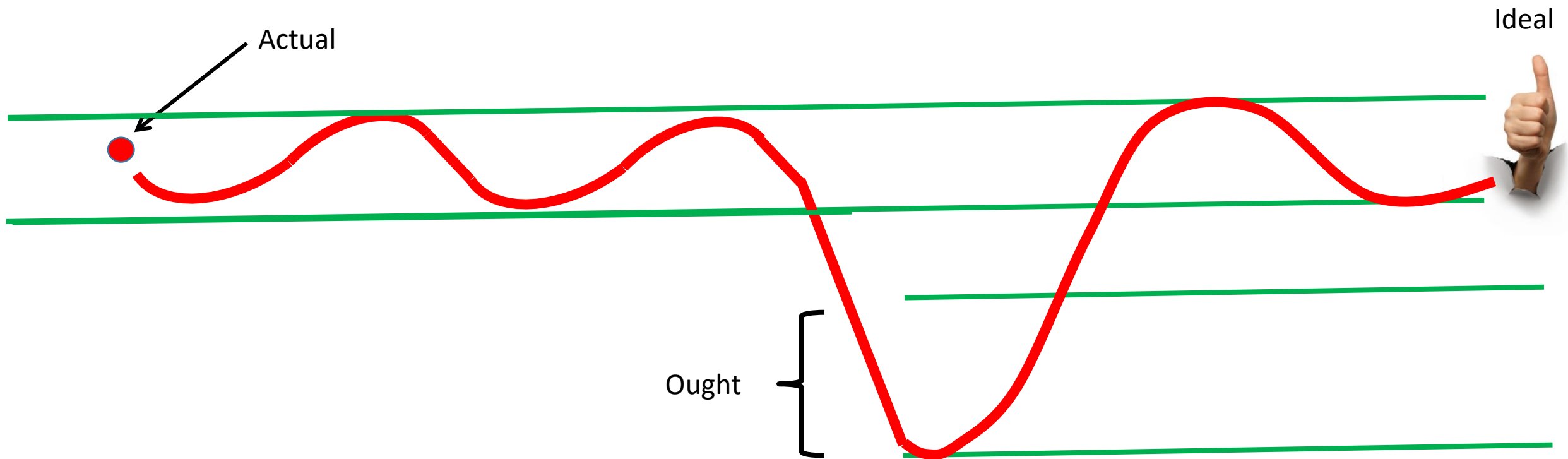
Reconceptualizing recovery: Summary
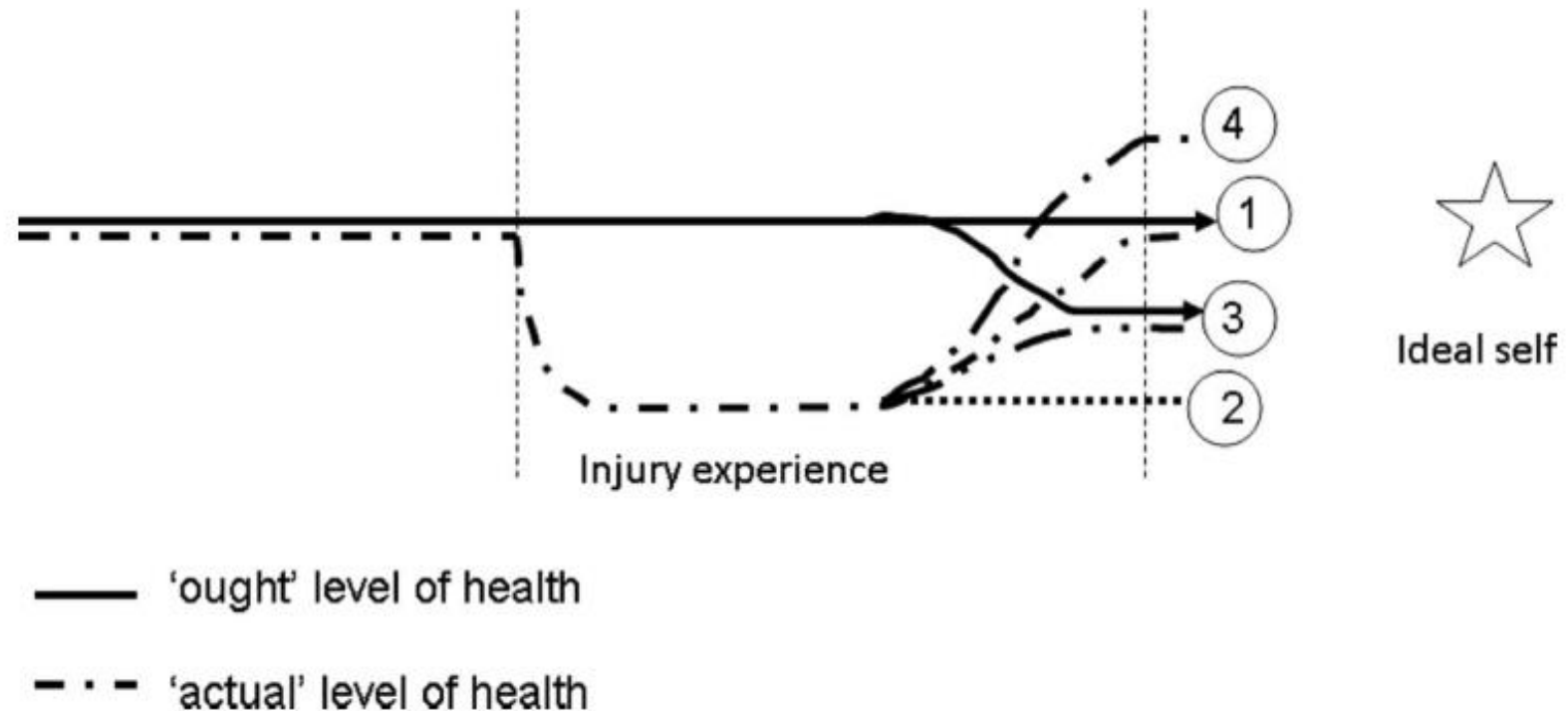
Injury experience

—— 'ought' level of health

– · – 'actual' level of health

Ideal self

Walton, MacDermid & Nielson 2010

What Does 'Recovery' Mean to People with Neck Pain? Results of a Descriptive Thematic Analysis

David M. Walton[*,1], Joy C. MacDermid[2], Todd Taylor[3] and ICON[§]

Table 2. Top 5 Most Important Indicators of Recovery, as Voted on by the Informants of Each Focus Session

GROUP 1 Mean NDI*: 82% Mean Duration: 59 Months Mean Age: 56.5 y.o.	GROUP 2 Mean NDI*: 32% Mean Duration: 20 Months Mean Age: 48.5 y.o.	GROUP 3 Mean NDI*: 55% Mean Duration: 39 Months Mean Age: 42.5 y.o.
1. Enjoying Intimacy 2. Finding the will to make new goals for the future 3. Being able to perform the necessities of everyday life 4. Less financial stress 5. Finding enjoyment in socializing with others (who are non-injured)	1. Be rid of symptoms 2. No fear, worry or hesitation when doing basic things 3. Feel more comfortable driving 4. Return to "pre-accident" life, fulfill roles 5. Have energy to work and still enjoy leisure time/socializing	1. Strengthen connections with immediate family (spouse, children) 2. Able to shovel snow, drive long distances, mow lawn, carry children, run, exercise without worrying about after effects 3. Mood improved, less psychological distress (depression, anxiety, PTSD) 4. Would be free from medication 5. Could manage pain, keep it under control, decrease interference with daily life

*: Neck Disability Index

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1. Absent, or at least manageable, symptoms
2. Participation in valued life roles
3. Having the physical capacity one *ought* to have
4. Feeling positive emotions
5. Autonomy and Spontaneity
6. Re-establishing a satisfactory sense of self

Measuring Recovery

- **The Satisfaction and Recovery Index**
    - A 10-item Patient-Reported Outcome intended to measure both the *process* and *state* of recovery through the construct of *importance-weighted, health-related satisfaction*.
    - 9 substantive items, 1 attention check
    - Each item is rated twice: once for importance, once for satisfaction
    - Score is weighted, such that more important domains influence the score more than less important domains

Development and Initial Validation of the Satisfaction and Recovery Index (SRI) for Measurement of Recovery from Musculoskeletal Trauma

David M. Walton[*,1], Joy C. MacDermid[2,3], Mathew Pulickal[1], Amber Rollack[1] and Jennifer Veitch[1]

Table 2.   Individual item analysis results.

N = 123	Mean	Median	Range	Recovery Correlation	AUC (95% CI)
1. Meeting your most basic needs	9.6	10	5 - 10	0.53**	0.82 (0.67, 0.97)
2. Being mentally sharp	9.5	10	7 - 10	0.56**	0.87 (0.73, 1.00)
3. Being physically fit compared to others like you	9.1	10	5 - 10	0.53**	0.84 (0.67, 1.00)
4. Fulfilling your life roles	9.5	10	3 - 10	0.45**	0.74 (0.57, 0.93)
5. Intimate relationships	9.2	10	4 - 10	0.38*	0.68 (0.48, 0.89)
6. Being connected with your community at large	**7.3**	**8**	**0 - 10**	**0.19**	**0.51 (0.25, 0.77)**
7. Being independent	9.5	10	2 - 10	0.48**	0.90 (0.79, 1.00)
8. Being spontaneous	8.1	8	3 - 10	0.51**	0.84 (0.69, 1.00)
9. Feeling positive emotions	9.3	10	6 - 10	0.34*	0.89 (0.77, 1.00)
10. Feeling like you've got the potential to achieve new or greater things in the future	9.2	10	5 - 10	0.42**	0.81 (0.65, 0.98)

Columns 2-4: Importance ratings for each of the 10 items. 0 = not important to me at all, 10 = extremely important. Column 5: Pearson's r correlation coefficient between each item and score on a recovery NRS (0 = not recovered at all, 10 = completely recovered). Column 6: The area under the Receiver Operating Characteristic curve (AUC) for discriminating between changed and stable recovery status over a 3-month period. Bold indicates the single item that failed all 3 tests for retention and was removed from the final tool.
* = correlation significant at the p < 0.05 level.
** = correlation significant at the p < 0.01 level.

Satisfaction and Recovery Index

Below are 10 areas of life that other people in pain have identified as influencing recovery and satisfaction. For each row, please indicate 1: how *important* that area is to you personally, and 2: how *satisfied* you currently feel in that area considering any interference from your injury or symptoms. Note that it is possible to feel satisfied in an area that is not important to you, or to feel dissatisfied in an area that is important to you. Use the following scale:

Importance:

0	1	2	3	4	5	6	7	8	9	10

Not important
to me at all

Moderately
important to me

Extremely
important to me

Satisfaction:

0	1	2	3	4	5	6	7	8	9	10

Not satisfied at all
(complete interference)

Completely satisfied
(no interference)

	Importance (0-10)	Satisfaction (0-10)
1. Meeting your most basic needs (e.g., eating well, good sleep, good personal hygiene, etc…)		
2. Being mentally sharp (i.e., your ability to concentrate, remember or think quickly)		
3. Being physically fit (eg., strong, energetic or flexible) compared to other people of your age and sex		
4. Fulfilling your 'life roles' (e.g., being a spouse, friend, parent, coworker and/or volunteer)		
5. Intimate relationships, whether they be physical relationships or close personal relationships above the level of normal friendship		
6. For validation purposes, place a '4' in the Importance column, and a '6' in the Satisfaction column in this row		
7. Being independent (e.g., making your own decisions and being in control of your own life)		
8. Being spontaneous (doing things without having to plan)		
9. Feeling positive emotions (e.g. happiness, joy, self-esteem)		
10. Feeling like you've got the potential to achieve new or greater things in the future		

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Not satisfied at all
(complete interference)

Completely satisfied
(no interference)

SRI = 49%

	Importance (0-10)	Satisfaction (0-10)
1. Meeting your most basic needs (e.g., eating well, good sleep, good personal hygiene, etc...)	10	7
2. Being mentally sharp (i.e., your ability to concentrate, remember or think quickly)	10	5
3. Being physically fit (eg., strong, energetic or flexible) compared to other people of your age and sex	9	4
4. Fulfilling your 'life roles' (e.g., being a spouse, friend, parent, coworker and/or volunteer)	9	5
5. Intimate relationships, whether they be physical relationships or close personal relationships above the level of normal friendship	5	4
6. For validation purposes, place a '4' in the Importance column, and a '6' in the Satisfaction column in this row	4	6
7. Being independent (e.g., making your own decisions and being in control of your own life)	9	4
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Importance:

0	1	2	3	4	5	6	7	8	9	10

Not important   Moderately   Extremely
to me at all   important to me   important to me

Satisfaction:

0	1	2	3	4	5	6	7	8	9	10

Not satisfied at all   Completely satisfied
(complete interference)   (no interference)

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SRI = 49%

⬇

SRI = 52%

⬆ **3%**

Not likely important

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Not important
to me at all

Moderately
important to me

Extremely
important to me

Satisfaction:

0	1	2	3	4	5	6	7	8	9	10

Not satisfied at all
(complete interference)

Completely satisfied
(no interference)

SRI = 49%

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8. Being spontaneous (doing things without having to plan)	7	5
9. Feeling positive emotions (e.g. happiness, joy, self-esteem)	10	8
10. Feeling like you've got the potential to achieve new or greater things in the future	8	6

SRI = 49%

↓

SRI = 54%

↑

5%

Likely important

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	Responsiveness AUC (95%CI)
SRI	0.82 (0.67, 0.97)
Region-specific disability	0.79 (0.62, 0.96)
SF12 PCS	0.69 (0.42, 0.86)
SF12 MCS	0.50 (0.25, 0.70)

SRI = Satisfaction and Recovery Index; SF12 PCS = Physical Component Summary score of SF-12; SF12 MCS = Mental Component Summary score of the SF-12.

- SRI score > 80% likely indicates satisfactory recovery

- SRI score > 90% strongly indicates satisfactory recovery

Summary

- Encourage to change the conversation regarding 'recovery' as a return to some pre-traumatic state
  - Consider future outlook, adequate satisfaction rather than a set threshold
- The SRI appears to function as a sound approach for measuring the *process* and *state* of recovery from MSK injury from a clinician and patient perspective
- Good Patient-Reported Outcomes should open lines of communication, provide guidance for treatment decisions, and facilitate the transition to discharge and independent management

Thanks

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