Ameet Nagpal, MD

Dr. Nagpal is a board certified PM&R and Pain Medicine physician who is a Clinical Assistant Professor in the Department of Anesthesiology at the University of Texas Health Science Center at San Antonio. He is the Assistant Program Director of the Pain Medicine Fellowship at UTSHCSA and the Associate Medical Director of the Pain Medicine Clinic as well. He has a Masters in Science in Biophysics from Georgetown University and a Masters in Education in Health Care Curriculum & Instruction from the University of Houston. He completed medical school in 2008 from New York Medical College and went on to complete his PM&R Residency at the University of Texas Health Science Center at Houston/Baylor College of Medicine PM&R Alliance Program and his Pain Medicine Fellowship at UTHSCSA. Dr. Nagpal speaks regularly at national meetings, including AAPM&R, ASA, and the Dannemiller Pain Medicine Board Review Course. His areas of ongoing research include conjoint couples therapy for chronic pain and novel radiofrequency ablation procedures for sacroiliac complex pain and his primary clinical interest is in chronic pelvic pain in women.
Physiatrist Approaches to Pain Management: Functional Outcomes

Texas Pain Society 8th Annual Scientific Meeting

Ameet Nagpal, MD, MS, MEd
October 28th, 2016
Objectives

• Define function (as well as impairment, disability, and handicap) in medical and societal terms

• Delineate the importance of evaluating function in a chronic pain population

• Describe the available measurement scales that allow for objective assessment of function

• We will *not* be discussing impairment ratings, functional capacity evaluations, etc.
Which Organizations Define Function?

• Federal Government
  – Americans With Disabilities Act (ADA), 2008 addendum
  – Social Security Administration (SSA)
  – Medicare

• World Health Organization (WHO)
  - International Classification of Functioning, Disability, & Health (ICF)
Others

- The American Medical Association Guides to Evaluation of Permanent Impairment (AMA Guides)
  - Most recent is 6th edition

- Private insurers

- State governments
  - Worker’s Compensation System (WC)
What Is Function?

• World Health Organization’s International Classification of Functioning, Disability, & Health (ICF)

• ICF: **Functioning** is characterized by all body functions, activities and participations.
  – **Body functions** are physiological functions of body systems (including psychological functions).
  – **Activity** is the execution of a task or action by an individual.
  – **Participation** is involvement in a life situation
What Are the Components of Function?

• ICF: “Disability therefore involves dysfuncioning at one or more of these same levels: impairments, activity limitations and participation restrictions.”

  – “Impairments are problems in body function or structure such as a significant deviation or loss.”

  – “Activity Limitations (disability) are difficulties an individual may have in executing activities.”

  – “Participation Restrictions (handicap) are problems an individual may experience in involvement in life situations.”
ICF Function - Breakdown

- **Body Function:**
  - Mental Functions
  - Sensory Functions and Pain
  - Voice and Speech Functions
  - Functions of the Cardiovascular, Haematological, Immunological and Respiratory Systems
  - Functions of the Digestive, Metabolic, Endocrine Systems
  - Genitourinary and Reproductive Functions
  - Neuromusculoskeletal and Movement-Related Functions
  - Functions of the Skin and Related Structures

**Activities and Participation:**
- Learning and Applying Knowledge
- General Tasks and Demands
- Communication
- Mobility
- Self Care
- Domestic Life
- Interpersonal Interactions and Relationships
- Major Life Areas
- Community, Social and Civic Life
Why Do We Care?

Chronic Pain

- Socioeconomic Factors
- Insomnia
- Deconditioning
- Original Pain Generator
- Anxiety
- Depression
- Obesity
Why Do We Care?


- Direct Cost: $261-$300 billion/year
- Days of Work Missed: $11.6-$12.7 billion/year
- Hours of Work Lost: $95.6-96.5 billion
- Lowered Wages: $190.6-$226.3 billion

Which means…

- The value of lost productivity due to chronic pain is somewhere between $299 and $335 billion!

- Total cost: $560-635 billion
Why Do We Care?

Total cost chronic pain/annum: $560-635 billion

- Heart Disease • $309 billion
- Cancer • $243 billion
- Diabetes • $188 billion
WHAT IF I TOLD YOU
IT'S ALL ABOUT MEASUREMENT?
Functional Independent Measure

- 6 subscales with 18 assessment items

- Subscales:
  - Self care
  - Sphincter control
  - Transfers
  - Locomotion
  - Communication
  - Social cognition

- 0-7 score on each item

- Clinical use: Inpatient rehabilitation settings
# FIM™ Instrument

## Levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Helper Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Complete Independence (Timely, Safely)</td>
<td>No Helper</td>
</tr>
<tr>
<td>6</td>
<td>Modified Independence (Device)</td>
<td>No Helper</td>
</tr>
<tr>
<td>5</td>
<td>Supervision (Subject = 100%+)</td>
<td>Helper</td>
</tr>
<tr>
<td>4</td>
<td>Minimal Assist (Subject = 75%+)</td>
<td>Helper</td>
</tr>
<tr>
<td>3</td>
<td>Moderate Assist (Subject = 50%+)</td>
<td>Helper</td>
</tr>
<tr>
<td>2</td>
<td>Maximal Assist (Subject = 25%+)</td>
<td>Helper</td>
</tr>
<tr>
<td>1</td>
<td>Total Assist (Subject = less than 25%)</td>
<td>Helper</td>
</tr>
</tbody>
</table>

## Self-Care

| A. | Eating |
| B. | Grooming |
| C. | Bathing |
| D. | Dressing - Upper Body |
| E. | Dressing - Lower Body |
| F. | Toileting |

## Sphincter Control

| G. | Bladder Management |
| H. | Bowel Management |

## Transfers

| I. | Bed, Chair, Wheelchair |
| J. | Toilet |
| K. | Tub, Shower |

## Locomotion

| L. | Walk/Wheelchair |
| M. | Stairs |

## Motor Subtotal Score

| Walk/Wheelchair | Both |

## Communication

| N. | Comprehension |
| O. | Expression |

## Social Cognition

| P. | Social Interaction |
| Q. | Problem Solving |
| R. | Memory |

## Cognitive Subtotal Score

| Auditory | Visual | Both |

## TOTAL FIM Score

| Score | Score | Score |

**Note:** Leave no blanks. Enter 1 if patient not testable due to risk.

---

FIM™ Instrument. Copyright ©1997 Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc. Reprinted with the permission of UDSMR, University at Buffalo, 232 Parker Hall, 3435 Main Street, Buffalo, NY 14214.
Short Form-36 (SF-36)

- Patient health survey; patient reported
- Used in research as a generalized measure of health
- 8 domains:
  - vitality,
  - physical functioning,
  - bodily pain,
  - general health perceptions,
  - physical role functioning,
  - emotional role functioning,
  - social role functioning,
  - and mental health
SF-36® Measurement Model

**Items**

- 3a. Vigorous Activities
- 3b. Moderate Activities
- 3c. Lift, Carry Groceries
- 3d. Climb Several Flights
- 3e. Climb One Flight
- 3f. Bend, Kneel
- 3g. Walk Mile
- 3h. Walk Several Blocks
- 3i. Walk One Block
- 3j. Bathe, Dress
- 4a. Cut Down Time
- 4b. Accomplished Less
- 4c. Limited in Kind
- 4d. Had Difficulty
- 7. Pain-Magnitude
- 8. Pain-Interferes
- 1. EVGHP Rating
- 11a. Sick Easier
- 11b. As Healthy
- 11c. Health To Get Worse
- 11d. Health Excellent
- 9a. Pep/Life
- 9e. Energy
- 9g. Worn Out
- 9i. Tired
- 6. Social-Extent
- 10. Social-Time
- 5a. Cut Down Time
- 5b. Accomplished Less
- 5c. Not Careful
- 9b. Nervous
- 9c. Down in Dumps
- 9d. Peaceful
- 9f. Blue/Sad
- 9h. Happy

**Scales**

- Physical Functioning (PF)
- Role-Physical (RP)
- Bodily Pain (BP)
- General Health (GH)*
- Vitality (VT)*
- Social Functioning (SF)*
- Role-Emotional (RE)
- Mental Health (MH)

**Summary Measures**

- Physical Health
- Mental Health

* Significant correlation with other summary measure.
Functional Capacity Evaluation

• Objective test of ability to perform a specific occupation for an entire work day
  – Attempt to replicate the job in question
  – Usually lasts 4-8 hours
  – Most commonly used is the ICF

• Outcome is suggesting performance restrictions

• Performed by a PT or OT or physician with specialized training
Oswetry Disability Index (ODI)

• Questions are related to capacity to perform a task; back pain specific

• Though it is called the Oswetry disability index, it is more a measure of function than disability
  – It does, however, calculate a “disability percentage”

• Most common measure of “function” used in research

• 0-5 score on each item
ODI

- Domains:
  - Pain intensity,
  - personal care,
  - lifting,
  - walking,
  - sitting,
  - standing,
  - sleeping,
  - sex life,
  - social life,
  - and ability to travel
oswestry low back pain questionnaire

name ................................................. address ................................................................. date .................
date of birth ............ age....... .................................................................
occupation .................................................................

how long have you had back pain? .......... years ........ months .......... weeks
how long have you had leg pain? .......... years ........ months .......... weeks

please read:
this questionnaire has been designed to give the doctor information as to how your back pain has affected your ability to manage in everyday life – please answer every section, & mark in each one only the one box which applies to you. we realise you may consider that 2 statements in any 1 section relate to you, but please just mark the box which most closely describes your problem

section 1 - pain intensity
☐ I can tolerate the pain I have without having to use pain killers
☐ the pain is bad but I manage without taking pain killers
☐ pain killers give complete relief from pain
☐ pain killers give moderate relief from pain
☐ pain killers give very little relief from pain
☐ pain killers have no effect on the pain and I do not use them

section 2 - personal care (washing, dressing, etc)
☐ I can look after myself normally without causing extra pain
☐ I can look after myself normally but it causes extra pain
☐ it is painful to look after myself and I am slow and careful
☐ I need some help but manage most of my personal care
☐ I need help every day in most aspects of self care
☐ I do not get dressed, wash with difficulty and stay in bed

section 3 - lifting
☐ I can lift heavy weights without extra pain
☐ I can lift heavy weights but it gives me extra pain
☐ pain prevents me from lifting heavy weights off the floor, but I can manage if they are conveniently positioned, eg on a table
☐ pain prevents me from lifting heavy weights but I cannot manage light to medium weights if they are conveniently positioned
☐ I can lift only very light weights
☐ I cannot lift or carry anything at all

section 4 - walking
☐ pain does not prevent me walking any distance
☐ pain prevents me walking more than 1 miles
☐ pain prevents me walking more than 1/2 mile
☐ pain prevents me walking more than 1/4 mile
☐ I am able to walk using a stick or crutches
☐ I am in bed most of the time and have to crawl to the toilet

section 5 - sitting
☐ I can sit in any chair as long as I like
☐ I can only sit in my favourite chair as long as I like
☐ pain prevents me from sitting more than 1 hours
☐ pain prevents me from sitting more than 1/2 hour
☐ pain prevents me from sitting more than 10 minutes
☐ pain prevents me from sitting at all

comments

section 6 - standing
☐ I can stand as long as I want without extra pain
☐ I can stand as long as I want but it gives me extra pain
☐ pain prevents me from standing for more than 1 hour
☐ pain prevents me from standing for more than 1/2 hour
☐ pain prevents me from standing for more than 10 minutes
☐ pain prevents me from standing at all

section 7 - sleeping
☐ pain does not prevent me from sleeping well
☐ I can sleep well only by using tablets
☐ even when I take tablets I have less than 6 hours sleep
☐ even when I take tablets I have less than 4 hours sleep
☐ even when I take tablets I have less than 2 hours sleep
☐ pain prevents me from sleeping at all

section 8 - sex life
☐ my sex life is normal and causes no extra pain
☐ my sex life is normal but causes some extra pain
☐ my sex life is nearly absent because of pain
☐ my sex life is severely restricted by pain
☐ my sex life is nearly absent because of pain
☐ pain prevents any sex life at all

section 9 - social life
☐ my social life is normal and gives me no extra pain
☐ my social life is normal but increases the degree of pain
☐ pain has no significant effect on my social life apart from limiting my more energetic interests, eg dancing etc
☐ pain has restricted social life and I do not go out as often
☐ pain has restricted my social life to my home
☐ I have no social life because of pain

section 10 - travelling
☐ I can travel anywhere without extra pain
☐ I can travel anywhere but it gives me extra pain
☐ pain is bad but I manage journeys over two hours
☐ pain restricts me to journeys of less than one hour
☐ pain restricts me to short necessary journeys of less than 1/2 hour
☐ pain prevents me from travelling except to the doctor or hospital

Physiotherapy 1980; 66: 271-73
ODI - Scoring

• Add up individual scores, double this number, and a “percent disability” is derived

• Levels of disability:
  – 0%-20%: Minimal disability
  – 21%-40%: Moderate disability
  – 41%-60%: Severe disability
  – 61%-80%: Crippled
  – 81%-100%: Bed bound
## ODI - Scoring

<table>
<thead>
<tr>
<th>ODI Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 20%</td>
<td><strong>Minimal Disability</strong>: Patient can cope with most ADL’s. No treatment indicated except change posture, lifting etc.</td>
</tr>
<tr>
<td>21 – 40%</td>
<td><strong>Moderate Disability</strong>: Patient has more pain with sitting, lifting, standing. Social life is difficult, occasionally off work. Most ADL’s and sex activity not affected. Conservative therapies indicated.</td>
</tr>
<tr>
<td>41 – 60%</td>
<td><strong>Severe Disability</strong>: Pain is significant problem for patient with significant problems with sleep, travel, personal care, ADLs, sexual activity.</td>
</tr>
<tr>
<td>61 – 80%</td>
<td><strong>Crippled</strong>: Back pain has impact in all aspects of daily living and work. Surgical treatment indicated.</td>
</tr>
<tr>
<td>81 – 100%</td>
<td><strong>Bed bound</strong>: These patients are bed bound or exaggerating symptoms.</td>
</tr>
</tbody>
</table>
Roland Morris Disability Questionnaire (RMDQ)

- Disability rating scale specific for back pain
- 24 questions, to be answered if the patient has experienced the particular symptom *that day*
- 0 = no disability. 24 = maximal disability.
- Scoring categories differ depending on what validation study you read
When your back hurts, you may find it difficult to do some of the things you normally do.

This list contains some sentences that people have used to describe themselves when they have back pain. When you read them, you may find that some stand out because they describe you today. As you read the list, think of yourself today. When you read a sentence that describes you today, mark the box next to it. If the sentence does not describe you, then leave the space blank and go on to the next one. Remember, only mark the sentence if you are sure that it describes you today.

1. I stay at home most of the time because of the pain in my back.
2. I change position frequently to try and make my back comfortable.
3. I walk more slowly than usual because of the pain in my back.
4. Because of the pain in my back, I am not doing any of the jobs that I usually do around the house.
5. Because of the pain in my back, I use a handrail to get upstairs.
6. Because of the pain in my back, I lie down to rest more often.
7. Because of the pain in my back, I have to hold on to something to get out of a reclining chair.
8. Because of the pain in my back, I ask other people to do things for me.
9. I get dressed more slowly than usual because of the pain in my back.
10. I only stand up for short periods of time because of the pain in my back.
11. Because of the pain in my back, I try not to bend or kneel down.
12. I find it difficult to get out of a chair because of the pain in my back.
13. My back hurts most of the time.
14. I find it difficult to turn over in bed because of the pain in my back.
15. My appetite is not very good because of the pain in my back.
16. I have trouble putting on my socks (or stockings) because of the pain in my back.
17. I only walk short distances because of the pain in my back.
18. I sleep less because of the pain in my back.
20. I sit down for most of the day because of the pain in my back.
21. I avoid heavy jobs around the house because of the pain in my back.
22. Because of the pain in my back, I am more irritable and bad tempered with people.
23. Because of the pain in my back, I go upstairs more slowly than usual.
24. I stay in bed most of the time because of the pain in my back.
Can We Treat Dysfunction?

Short Answer: YES!
How Do We Treat Dysfunction?

• Using evidence-based medicine…

• Let’s just examine low back pain:
Yoga Is Good For Back Pain

• Improved function and pain levels in systematic review of 4 trials

• Meta-analysis of 8 trials shows improved disability scores and pain scores

Aquatherapy

• 2 month, 2-3 days/week aquatherapy decreases pain and disability and increases QOL$^{1,2}$

• Aquatherapy better than land-based exercise in disability and QOL improvements in one study$^3$ and similar in another$^4$

• No difference between twice a week and thrice a week$^{2,5}$

Walking

• Decreased back pain-related disability scores at 6 months (not 12 months)\(^1\)

• No difference between 6 week walk program and 6 week muscle strengthening program in sedentary patients

• Both groups showed improvement in: disability, function, muscle strength, and fear avoidance\(^2\)

Cognitive-Behavioral Therapy

- 2 week intensive CBT course leads to improved pain, function, and quality of life levels at 1- and 2-years$^{1,2}$
- Also decreased health care usage and return to work numbers increased!

Cognitive-Behavioral Therapy

- CBT patients increased their physical activity levels compared to controls with CLBP\(^1\)

- CBT improved the outcome of rehabilitation programs in patients with diagnosed depression\(^2\)

But...

- You Can’t Trust Everything

CIRCLE OF TRUST

YOU
Pilates

• Pilates is no different than general exercise in improving pain, disability, and function \(^1\)

• Pilates is only slightly better than education alone \(^2\)

• Pilates is better than inactivity \(^3\)

---

Multidisciplinary Programs

• Improved QOL, ROM, strength, pain, and disability at 12 and 18 months following a 6 month program\textsuperscript{1,2,3}

• Spine surgery group had better pain and endurance than MDP at 5 weeks\textsuperscript{4}

There are two types of people in this world:

Those who can extrapolate from incomplete data
In Summary

- The definition of “function” is not agreed upon

- Chronic pain is a huge societal burden and is due to the interplay of many factors

- Treatment of chronic pain must include focus on treating the patient’s functional abnormalities in addition to their pain
In Summary

• There are multiple ways to validly assess function (ODI, RMDQ, SF-36, etc.)

• Treatment of functional abnormalities associated with chronic pain should be based upon evidence-based medicine
Thank You

• Questions?