LOW BACK PAIN

CLINICAL PRACTICE GUIDELINES
EXAMINATION & INTERVENTIONS

Theresa A. Schmidt, PT,DPT,MS,OCS,LMT,CEAS
www.educise.com

1

Provider Disclaimer

- Allied Health Education and the presenter of this webinar do not have any financial or other associations with the manufacturers of any products or suppliers of commercial services that may be discussed or displayed in this presentation.
- There was no commercial support for this presentation.
- The views expressed in this presentation are the views and opinions of the presenter.
- Participants must use discretion when using the information contained in this presentation.

WELCOME: WHY THIS TOPIC?

- **Clinicians lack knowledge in using the APTA's Clinical Practice Guidelines and clinical reasoning to diagnose and manage low back pain.**
- **After completing this webinar, the participant will be able to utilize clinical practice guidelines together with clinical reasoning to design a plan of care for managing low back pain.**

3

OBJECTIVES

- 1. Discuss the current clinical practice guidelines (CPG) for patients with low back pain (LBP) as developed by the Orthopedic Section of The American Physical Therapy Association (APTA)
- 2.Conduct an examination for patients with low back pain and interpret the results to diagnose anatomical and functional impairments and classify people into the associated impairment-based category

4

OBJECTIVES

- 3. Describe intervention strategies to address activity restriction/limitations and functional mobility impairments based on the CPG classification of impairments.

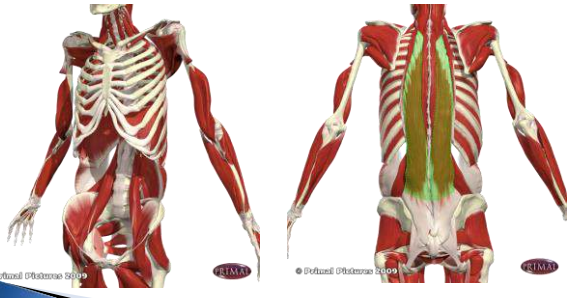
- ***Do we rely strictly on guidelines? No!***
- Your clinical experience and individual patient needs add an important dimension to determine your approach.

5

Welcome! by Theresa A. Schmidt, www.Educise.com

6

LOW BACK PAIN



7

WHAT IS LOW BACK PAIN?

- "Acute or chronic pain in the lumbar or sacral regions, which may be associated with musculo-ligamentous sprains and strains; intervertebral disk displacement; and other conditions."
- Includes loin pain and lumbago NOS
- *(2017 ICD-10-CM Diagnosis Code Low Back Pain)*

8

LBP AFFECTS MANY PEOPLE

- Back pain is the second most common symptom-related reason for clinician visits in the United States (Deyo, 1987)
- Up to 84 percent of adults have low back pain at some time in their lives (Cassidy, 1998)

9

LOST WORK DAYS

"Back pain is the number one cause of lost work days in the U.S," said Dr. Anders Cohen, chief of neurosurgery and spine surgery at the Brooklyn Hospital Center, in New York City.

(Low Back Pain Leading Cause of Disability Worldwide Study, 2014)

10

PREVALENCE OF LBP

- "A global review of the prevalence of low back pain in the adult general population has shown its point prevalence to be approximately 12%,
  with a one-month prevalence of 23%,
  a one-year prevalence of 38%, and
  a lifetime prevalence of approximately 40%."

(Manchikanti, 2014)

11

SCHOOLS OF THOUGHT ON LBP

- **Patho-anatomical model-** traditional medical diagnoses based on **structure** (facet joints, HNP)
- **Disablement model-** ICF model based on **function**, activity impairments and participation limitations,
- **assess based on**
  - pain provocation exam and
  - response to treatment interventions
- Include biomechanical- patho-mechanical model: structures out of alignment contribute to disablement

12

THE REAL ISSUES:

How do YOU categorize patients presenting with positive signs and symptoms related to LBP?

- Do you do the same tests on everyone?
- How do you select exam tools to use?
- What determines your management plan?
- What does it mean for your practice?

13

TERMINOLOGY UPDATES

What do we call it for diagnosis and billing purposes?

14

LOW BACK PAIN DIAGNOSIS CODES

- Before October 1, 2015
- **Lumbago** NOS: ICD-9 diagnosis: code 724.2

- After October 1, 2015
- **Dorsalgia**: ICD-10 diagnosis :code M54.5

(ICD9Data.com,2017)

15

ICD-10 code: M54.5

- Acute LBP under 3 months (ALBP)
- Chronic LBP over 3 months (CLBP)
- LBP in pregnancy
- LBP with or without radiculopathy
- Mechanical LBP
- Lumbago

(Ibid.)

16

ICD-10 code: M54.5 *Excludes*

- Lumbago secondary to IV disk displacement (S39.012)
- Low back strain (S39.012)
- Lumbago with sciatica (M54.4)
- Loin, low back, lumbalgia, lumbago, lumbar or syndrome or pain (M54.4)
- Pain in spine (M54.9)

(Ibid.)

17

QUESTIONS

- What is the recommended way to classify types of LBP?
- How do we examine and manage the condition?
- Is there a clinical practice protocol, set of rules or guideline?
- Is there a way to match patients with specific clinical presentations to potentially successful interventions to promote successful outcomes?

18

CLINICAL PRACTICE GUIDELINES (CPG) FOR LOW BACK PAIN (LBP)

19

WHAT ARE CLINICAL PRACTICE GUIDELINES? (CPG)

- "systematically developed statements to **assist** practitioner and patient decisions about appropriate health care for specific clinical circumstances."

(Field 1990.)

20

WHAT IS THE GOAL?

CPGs aim to promote best practice in light of systematic reviews of current evidence-based research, and provide recommendations for examination and management

21

WHY DO WE NEED A CPG?

- Research places patients into a group labeled "LBP" when they have any one of multiple conditions, sometimes even including LBP!
- Uncertainty & heterogeneity prevailed in studies on LBP!
- LBP is *not* a homogenous condition
- We needed a more accurate description of the various conditions contributing to LBP

22

WHAT DO YOU KNOW ABOUT CPG?

- According to a survey published by JOSPT, PTs demonstrated a "varied understanding" of CPGs when making clinical decisions on management of people with low back pain.
- Learman et al. reported there is no predictor for establishing correct responses to questions about CPG for LBP
- (Learman, et al, JOSPT, 2014;94(7), p. 934.)

23

CPG SURVEY RESULTS

Almost 4000 surveys measured how PTs in US applied CPGs in their care of LBP

- *Responses were in alignment with CPGs for:*
- Imaging 55.9%
- Medication 54.7%
- Advising to stay active 62%
- Referral after failed care 92.7%
- Better compliance with CPG in outpatient setting (Learman, et al. 2014)

24

THINK OF YOUR PATIENTS

- Not all patients have the same etiology or clinical presentation, but they may have the same diagnosis: **LBP**
- What does LBP result in? Inability to perform specific actions, (poor ROM, strength) activity participation is restricted and participation is limited (inability to work or play)
- The new classification system categorizes it according to the ***impairment, activity restriction or participation limitations***

25

WE DON'T TREAT A DIAGNOSIS, WE TREAT THE PROBLEMS A PERSON PRESENTS THAT CREATE LIMITATIONS/ IMPAIRMENTS

26

VALUE OF CPG

The CPG offers a way to classify patients according to our exam findings into impairment categories, which is something we already do as PTs, we detail impairments, then we can design intervention plans based on evidence-

We can use this to assist us in matching patients with specific impairments to treatments which may be beneficial based on systematic reviews

27

WHAT IS A CLINICAL PREDICTION RULE? (CPR)

- A CPR is a "clinical tool that quantifies individual contributions that various components of the history as well as the physical examination results make towards the diagnosis, prognosis, or likely response to treatment in an individual patient."

28

WHY USE A CPR?

If you have a patient with LBP, and you are trained in manipulation, how do you decide who will benefit from manipulation vs. just giving an exercise program?

The CPR gives you an idea of what interventions to select based on the research.

(Childs, 2004)

29

HOW WERE THE CPG DEVELOPED?

- Considering the
- prevalence, range of risk factors,
- heterogeneity, and
- recurrent nature of LBP,
- Orthopaedic Section of APTA identified the need for a **standard of care**, a set of ***recommendations*** to consider when addressing low back pain. (Cutrone)
- ***NOT REGULATIONS, NOT PROTOCOLS***

30

THE 2012 PUBLICATION

Low Back Pain:
Clinical Practice /Guidelines Linked to the International Classification of Functioning, Disability and Health

from the Orthopaedic Section of the American Physical Therapy Association

Journal of Orthopedic and Sports Physical Therapy. 2012 Apr;42(4):A1-A57.

31

Evidence Analysis: SYSTEMATIC REVIEW

- Content experts conducted systematic review including CINAHL, MEDLINE, Cochrane Database (1966-2010)
- Selected high evidence level articles
- for development of the CPG, based on classification, examination and intervention categories for LBP
- Search was limited by current terminology

(National Guideline Clearinghouse, 2017)

32

EVIDENCE LEVELS

- Studies were rated from I-V
- according to Center for Evidence-based Medicine criteria
- Ranged from high-quality studies (I) to expert opinion (V)
- Recommendations were based on content expert consensus chosen by Ortho section APTA *(8 authors, 14 reviewers)*
- Validated by internal and external peer review

33

WHAT DO CPGs LOOK AT?

- Examination- impairment measures
- Interventions
- Bodily function and structure
- Individual activity and participation limitations
- Outcome measures

34

WHAT'S THE DIFFERENCE?

CPG is a ***treatment****-based* classification, related to impairments, not the old fashioned ***diagnosis****- based* classification, using structural or mechanical- based categories for therapy

35

WHO USES THEM?

- **Not just physical therapists**
- Insurance adjusters, claims agents
- Physicians, physician extenders, nurses
- Rehabilitation professionals
- Patients link at Jnl. Ortho Spts PT website

(Delitto, 2012)

36

HOW TO PREVENT LBP?

- The Guidelines' authors, DeLitto, et al, found:

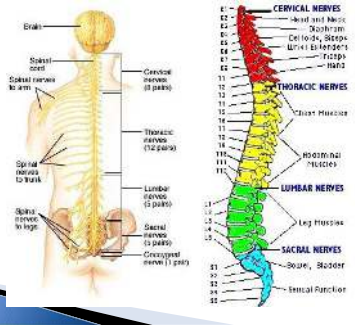
The literature does not provide evidence for the initial cause of LBP (DeLitto, 2012)

So how do we prevent it when we are not certain of a specific cause?

37

38

PT DIAGNOSIS & PATIENT CLASSIFICATION



39

CPG EVIDENCE GRADES

- **Authors rated strength of recommendations**

- A= Strong evidence (L1I–II studies)
- B= Moderate (Mostly LII, 1 RCT minimum)
- C= Weak (1 LII or mostly LIII–IV with expert agreement)

(National Guideline Clearinghouse, 2017)

40

CPG EVIDENCE GRADES

- **Authors rated strength of recommendations**

- D= Conflicting (Differing conclusions by hi-quality studies)
- E=Theoretical (basic sci, conceptual models, animal/cadaver studies
- F= Expert opinion of team= experience

(National Guideline Clearinghouse, 2017)

41

RECOMMENDATIONS OF CPG

- Risk factors for LBP
- Clinical course of LBP
- Classification & diagnosis: ICD, ICF
- Differential Diagnosis
- Examination, outcome measures
- Interventions
- Qualifying statements

42

RISK FACTORS for LBP

- For **initial** cases of LBP they identified **no definitive cause**, based on research
- **Population specific**
- **Multifactorial**
- Weak association between the risk factors cited in some studies and the occurrence of LBP

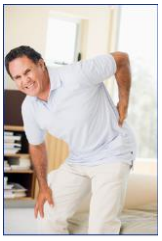
(National Guideline Clearinghouse, 2017)

43

CLINICAL COURSE

- Acute (ALBP)
- Subacute (SALBP)
- **Recurrent* (RLBP)**
- **Chronic* (CLBP)**

***highly prevalent**



44

ICD DIAGNOSIS CATEGORIES

- Low back pain (ICF: back, buttock, groin, thigh pain)
- Lumbosacral somatic dysfunction
- Lumbago
- Low back strain

45

ICD DIAGNOSIS CATEGORIES

- Flatback syndrome
- Instability
- Lumbago with sciatica
- Lumbago with disk displacement

46

ABBREVIATIONS

- **LSSD**= lumbosacral somatice/mechanical dysfunction
- **ALBP**= acute low back pain
- **SALBP**= subacute LBP
- **CLBP**= chronic low back pain
- **IVD**= intervertebral disc
- **LE**= lower extremity
- DX= diagnosis
- TX= traction

47

ICF CLASSIFICATION– next slides

- **Low back pain**, Pain in back = b28013
- Pain in body part, such as groin, thigh, buttock = b28018
- Acute, subacute or chronic back pain,

48

Nonspecific LBP DIAGNOSIS- ICD *CLASSIFICATION- ICF:*

- Excluding serious medical or psychological signs/symptoms, associated with:
- "(1) Mobility impairment in the thoracic, lumbar, or sacroiliac regions,
- (2) Referred or radiating pain into the lower extremity, and
- (3) generalized pain"
- Associated with impairments of body function

(National Guideline Clearinghouse, 2017)

49

DX CLASSIFICATIONS

- Old ICD
- New ICF
- Base your classification on the *clinical picture* and match them to *interventions* according to the CPG and measure outcomes

50

ICD: LSSD- lumbosacral segmental somatic dysfunction= ICF: Acute LBP with mobility deficits

- ALBP or buttock, groin or thigh pain
- Limited lumbar ROM, segmental mobility
- LE symptoms provoked by testing of lower thoracic, lumbar or SI joint segments, associated with LBP

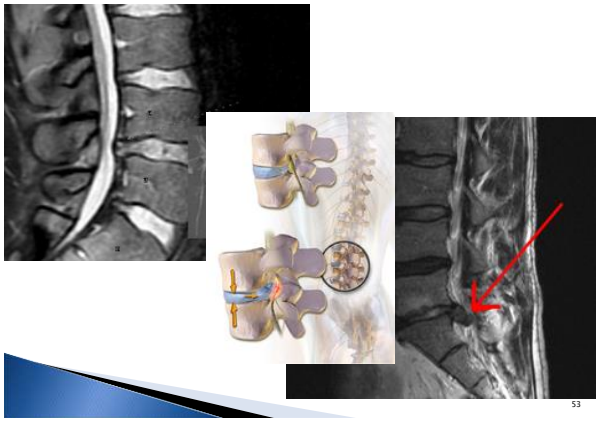
(National Guideline Clearinghouse, 2017)

51

ICD: LSSD- lumbosacral segmental somatic dysfunction= ICF: Subacute LBP with mobility deficits

- SLBP, pain in unilateral lumbar, buttock or thigh
- Symptoms provoked by testing of of lower thoracic, lumbar or SI joint segments, and end-range spinal motions
- Active, segmental or accessory mobility deficits in thoracic. lumbar, pelvis, or hip

52



53

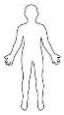
ICD: Spinal instabilities ICF: ALBP with movement coordination impairments

- Recurrent LBP in acute exacerbation and referred LE pain
- Symptoms provoked by testing involved lumbar segments and beginning to mid-range spinal movements
- Lumbar flexion and extension motions associated with lumbopelvic movement coordination impairments

54

ICD: Spinal instabilities
ICF: Subacute LBP with movement coordination impairments

- Recurrent LBP in subacute exacerbation and referred LE pain
- Symptoms provoked by testing involved lumbar segments and produced during movement toward midrange, worsening during end-range spinal movements or positions



55

Continued SALBP/ movt coord

- Segmental hypermobility in lumbar region
- Thoracic and hip/pelvic mobility deficits
- Decreased strength and endurance of trunk or pelvis
- Impairments in movement coordination during home management or self-care activities

56

57

ICD: Spinal instabilities
ICF: Chronic LBP with movement coordination impairments

- Chronic, recurrent LBP with referred LE pain and at least 1 or more of:
- LBP +/- LE related pain aggravated by sustained end-range positions or movements
- Segmental mobility testing shows lumbar hypermobility

58

Continued ICD: Spinal instabilities
ICF: CLBP movt coord

- Chronic, recurrent LBP with referred LE pain and at least 1 or more of:
- LBP +/- LE related pain aggravated by sustained end-range positions or movements
- Segmental mobility testing shows lumbar hypermobility
- Diminished mobility, strength and endurance of lumbopelvic/hip and thorax areas
- Impairments in movement coordination during home management or self-care activities

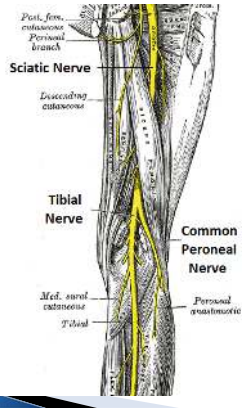
59

60

ICD: Flatback syndrome
Lumbago 2° displaced IV disc
ICF: Acute LBP with referred LE Pain

- LBP with related buttock, thigh, or leg pain worse with sitting or flexion
- LBP/LE pain centralized by repeated movements, positioning or manual procedures
- Reduced lordosis, lateral trunk shift,
- limited extension, and movement coordination impairments associated with chronic or subacute LBP

61



62

ICD: Lumbago with sciatica
ICF: Acute LBP with radiating pain

- ALBP with radiating pain into LE
- LE paraesthesias, weakness or numbness
- Symptoms provoked by beginning to mid-range spinal movements, straight leg raise, slump test or LE tension test,
- Nerve signs present: reflex, sensory or strength deficits
- Symptoms similar to ALBP with referred pain, above.

63

ICD: Lumbago with sciatica
ICF: Subacute LBP with radiating pain

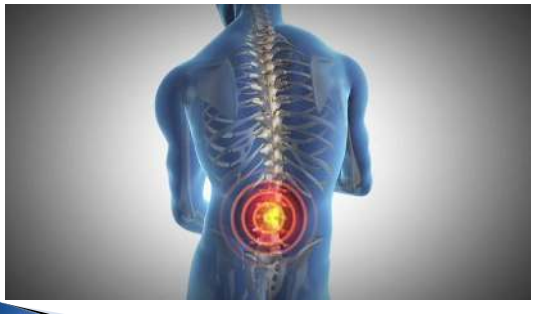
- Recurring subacute mid-low back pain radiating pain into LE with reflex, sensory or strength deficits
- Symptoms provoked by mid-range spinal movements, worse in end-range of straight leg raise, slump test or LE tension testing

64

ICD: Lumbago with sciatica
ICF: Chronic LBP with radiating pain

- Recurring chronic mid to low back pain radiating pain into LE with reflex, sensory or strength deficits
- Symptoms provoked by sustained end-range straight leg raise, slump test or LE tension testing

65



66

ICD: LBP, LB strain, lumbago
ICF: ALBP/SALBP with related cognitive or affective tendencies

- ALBP/SALBP/ LBP with referred LE pain +
- 2 positive depressive symptom responses on Primary Care Evaluation of Mental Disorders
- Excess fear/anxiety behaviors and high score on Fear Avoidance Beliefs Questionnaire
- High score on Pain Catastrophizing Scale and cognitive processes indicating high pessimism/helplessness/rumination

67

ICD: LBP, LB strain, lumbago
ICF: Chronic LBP with related generalized pain

- Low back =/- associated referred LE pain
- Over 3 months
- Generalized pain (inconsistent with these criteria)
- Pain catastrophizing, fear-avoidance beliefs, or depression present

68

DIFFERENTIAL DIAGNOSIS

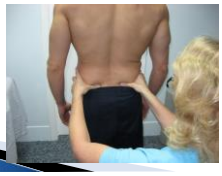
Medical referral is recommended for

1. Serious medical pathology or psychosocial factors may be present
2. Reported impairments of body function or reported activity limitations inconsistent with guidelines classification
3. Symptoms fail to resolve with interventions

69

EXAMINATION

- Outcome measures
- Activity limitation and participation restriction measures
- Remember, *not all patients* can be classified into these specific groups



70

Outcome Measures

Identify baseline status with validated self-reporting questionnaires:

- Roland-Morris Disability Q
- Oswestry Disability Index Q

Measure change of status/progress for:

- pain, disability, function, impairments

71

ROWLAND MORRIS DISABILITY Q

- This questionnaire is recommended by the CPG for use with patients who present with low back pain.
- The following slides are questions quoted from the Rowland Morris.

(Roland & Fairbank, 2014)

72

- "1. I stay at home most of the time because of my back.
- 2. I change position frequently to try and get my back comfortable.
- 3. I walk more slowly than usual because of my back. 4. Because of my back I am not doing any of the jobs that I usually do around the house.
- 5. Because of my back, I use a handrail to get upstairs.
- 6. Because of my back, I lie down to rest more often. 7. Because of my back, I have to hold on to something to get out of an easy chair.
- 8. Because of my back, I try to get other people to do things for me.

(Roland & Fairbank, 2014)

73

- 9. I get dressed more slowly then usual because of my back.
- 10. I only stand for short periods of time because of my back.
- 11. Because of my back, I try not to bend or kneel down.
- 12. I find it difficult to get out of a chair because of my back.
- 13. My back is painful almost all the time.
- 14. I find it difficult to turn over in bed because of my back.
- 15. My appetite is not very good because of my back pain.
- 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 my back.

74

- 18. I sleep less well on my back.
- 19. Because of my back pain, I get dressed with help from someone else.
- 20. I sit down for most of the day because of my back.
- 21. I avoid heavy jobs around the house because of my back.
- 22. Because of my back pain, I am more irritable and bad tempered with people than usual.
- 23. Because of my back, I go upstairs more slowly than usual.
- 24. I stay in bed most of the time because of my back.
- The score is the total number of items checked—i.e., from a minimum of 0 to a maximum of 24."

75

Instructions for RMDQ

"When your back hurts, you may find it difficult to do some things you normally do.
This list contains 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, put a tick against it.
If the sentence does not describe you, then leave the space blank and go on to the next one. Remember, only tick the sentence if you are sure it describes you today."

(Roland & Fairbank, 2014)

76

Rowland-Morris Disability Questionnaire (RMDQ)

- Used as self-reported physical disability outcome measure for patients with A/SA/C LBP.
- Use for min-mod level of disability
- For severe disability the Oswestry disability questionnaire

(Roland & Fairbank, 2014)

77

SCORING ROWLAND MORRIS Q

- questionnaire has either 24, 18, or and 11items
- Patient selects answer that applies that day.
- Sum the selected choices for the score
- Score of 0=no disability
- Score 11, 18 or 24 =max. disability respective of the # of questions

(Roland, 2000)

78

Reliability of Rowland Morris

- **Test-retest Reliability:** 24-, 18- and 11-item tests:

  - 24-item: ICC from 0.42 – 0.91
  - 18-item: Stratford: ICC from 0.68 – 0.75
  - 11-item: ICC ranges from 0.89

(Macedo, 2011)

79

Quebec Back Pain Disability Scale

- The next two slides are from the Physical Therapy Journal; to view a copy of the disability questionnaires, visit:

(From:http://ptjournal.apta.org/content/81/2/776.full.)

80

"Quebec Back Pain Disability Scale.

This questionnaire is about the way your back pain affects your daily life. People with back problems may find it difficult to perform some of their daily activities. We would like to know if you find it difficult, because of your back, to perform any of the activities listed below. For each activity there is a scale that ranges from 0 (not difficult at all) to 5 (unable to do). Please choose the **one** response for each activity that best describes your current condition and place a check mark in the appropriate box. Please answer all of the questions.

Because of your back problems, how difficult do you find it today to . . .	Not Difficult at All	Minimally Difficult	Somewhat Difficult	Fairly Difficult	Very Difficult	Unable to Do
Get out of bed?						
Sleep through the night?						
Turn over in bed?						
Ride in a car?						
Stand up for 20 to 30 minutes?						
Sit in a chair for several hours?						
Climb one flight of stairs?						
Walk a few blocks?						
Walk several miles?						
Reach up to high shelves?						
Throw a ball?						
Run one block?						
Take food out of the refrigerator?						
Make your bed?						
Put on socks or pantyhose?						
Bend over to clean the bathtub?						
Move a chair?						
Pull or push heavy doors?						
Carry two bags of groceries?						
Lift and carry a heavy suitcase?						

* Reprinted by permission of Lippincott Williams & Wilkins from Kopec JA, Esdaile JM, Abrahamowicz M, et al. The Quebec Back Pain Disability Scale: measurement properties. Spine. 1995;20:1945–1949.

Julie M Fritz, and James J Irrgang
PHYS THER 2001;81:776-788

Physical Therapy

Physical Therapy

Modified Oswestry Low Back Pain Disability Questionnairea.

This questionnaire has been designed to give your therapist information as to how your back pain has affected your ability to manage in everyday life. Please answer every question by placing a mark in the **one** box that best describes your condition today. We realize you may feel that 2 of the statements may describe your condition, but **please mark only the box that most closely describes your current condition.**

Pain Intensity
- I can tolerate the pain I have without having to use pain medication.
- The pain is bad, but I can manage without having to take pain medication.
- Pain medication provides me with complete relief from pain.
- Pain medication provides me with moderate relief from pain.
- Pain medication provides me with little relief from pain.
- Pain medication has no effect on my pain.

Personal Care (eg, Washing, Dressing)
- I can take care of myself normally without causing increased pain.
- I can take care of myself normally, but it increases my pain.
- It is painful to take care of myself, and I am slow and careful.
- I need help, but I am able to manage most of my personal care.
- I need help every day in most aspects of my care.
- I do not get dressed, wash with difficulty, and stay in bed.

Lifting
- I can lift heavy weights without increased pain.
- I can lift heavy weights, but it causes increased pain.
- Pain prevents me from lifting heavy weights off the floor, but I can manage if the weights are conveniently positioned (eg, on a table).
- Pain prevents me from lifting heavy weights, but I can 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.

Walking
- Pain does not prevent me from walking any distance.
- Pain prevents me from walking more than 1 mile.*
- Pain prevents me from walking more than ½ mile.
- Pain prevents me from walking more than ¼ mile.
- I am in bed most of the time and have to crawl to the toilet.

Sitting
- I can sit in any chair as long as I like.
- I can only sit in my favorite chair as long as I like.
- Pain prevents me from sitting for more than 1 hour.
- Pain prevents me from sitting for more than ½ hour.
- Pain prevents me from sitting for more than 10 minutes.
- Pain prevents me from sitting at all.

Standing
- I can stand as long as I want without increased pain.
- I can stand as long as I want, but it increases my pain.
- Pain prevents me from standing more than 1 hour.
- Pain prevents me from standing more than ½ hour.
- Pain prevents me from standing more than 10 minutes.
- Pain prevents me from standing at all.

Sleeping
- Pain does not prevent me from sleeping well.
- I can sleep well only by using pain medication.
- Even when I take pain medication, I sleep less than 6 hours.
- Even when I take pain medication, I sleep less than 4 hours.
- Even when I take pain medication, I sleep less than 2 hours.
- Pain prevents me from sleeping at all.

Social Life
- My social life is normal and does not increase my pain.
- My social life is normal, but it increases my level of pain.
- Pain prevents me from participating in more energetic activities (eg, sports, dancing).
- Pain prevents me from going out very often.
- Pain has restricted my social life to my home.
- I have hardly any social life because of my pain.

Traveling
- I can travel anywhere without increased pain.
- I can travel anywhere, but it increases my pain.
- My pain restricts my travel over 2 hours.
- My pain restricts my travel over 1 hour.
- My pain restricts my travel to short necessary journeys under ½ hour.
- My pain prevents all travel except for visits to the physician/therapist or hospital.

Employment/Homemaking
- My normal homemaking/job activities do not cause pain.
- My normal homemaking/job activities increase my pain, but I can still perform all that is required of me.
- I can perform most of my homemaking/job duties, but pain prevents me from performing more physically stressful activities (eg, lifting, vacuuming).
- Pain prevents me from doing anything but light duties.
- Pain prevents me from doing even light duties.
- Pain prevents me from performing any job or homemaking chores.

*Modified by permission of The Chartered Society of Physiotherapy from Fairbanks JCT, Couper J, Davies JB, et al. The Oswestry Low Back Pain Disability Questionnaire. Physiotherapy. 1980;66:271-273.
*If pain = 1 C km.

Julie M Fritz, and James J Irrgang
PHYS THER 2001;81:776-788

Physical Therapy

Physical Therapy

OSWESTRY LOW BACK PAIN DISABILITY QUESTIONNAIRE

83

Oswestry Disability Questionnaire

This is a quote from the actual questionnaire:

- "This questionnaire has been designed to give us information as to how your **back or leg pain** is affecting your ability to manage in everyday life. Please answer by checking **one box in each section** for the statement which best applies to you. We realize you may consider that two or more statements in any one section apply, but please just shade out the spot that indicates the statement which **most clearly describes your problem**.
- (Oswestry Disability Index, 2012)

84

Section 1: Pain Intensity

0-I have no pain at the moment
1-The pain is very mild at the moment
2-The pain is moderate at the moment
3-The pain is fairly severe at the moment
4-The pain is very severe at the moment
5-The pain is the worst imaginable at the moment

Section 2: Personal Care (eg. washing, dressing)
0-I can look after myself normally without causing extra pain
1-I can look after myself normally but it causes extra pain
2-It is painful to look after myself and I am slow and careful
3-I need some help but can manage most of my personal care
4-I need help every day in most aspects of self-care
5-I do not get dressed, wash with difficulty and stay in bed

85

Section 3: Lifting
0-I can lift heavy weights without extra pain
1-I can lift heavy weights but it gives me extra pain
2-Pain prevents me lifting heavy weights off the floor but I can manage if they are conveniently placed (eg. on a table)
3-Pain prevents me lifting heavy weights but I can manage light to medium weights if they are conveniently positioned
4-I can only lift very light weights
5-I cannot lift or carry anything

Section 4: Walking*
0-Pain does not prevent me walking any distance
1-Pain prevents me from walking more than 1 mile
2-Pain prevents me from walking more than ½ mile
3-Pain prevents me from walking more than 100 yards
4-I can only walk using a stick or crutches
5-I am in bed most of the time

86

Section 5: Sitting
0-I can sit in any chair as long as I like
1-I can only sit in my favorite chair as long as I like
2-Pain prevents me sitting more than one hour
3-Pain prevents me from sitting more than 30 minutes
4-Pain prevents me from sitting more than 10 minutes
5-Pain prevents me from sitting at all

Section 6: Standing
0-I can stand as long as I want without extra pain
1-I can stand as long as I want but it gives me extra pain
2-Pain prevents me from standing for more than 1 hour
3-Pain prevents me from standing for more than 30 minutes
4-Pain prevents me from standing for more than 10 minutes
5-Pain prevents me from standing at all

87

Section 7: Sleeping
0-My sleep is never disturbed by pain
1-My sleep is occasionally disturbed by pain
2-Because of pain I have less than 6 hours sleep
3-Because of pain I have less than 4 hours sleep
4-Because of pain I have less than 2 hours sleep
5-Pain prevents me from sleeping at all

Section 8: Sex Life (if applicable)
0-My sex life is normal and causes no extra pain
1-My sex life is normal but causes some extra pain
2-My sex life is nearly normal but is very painful
3-My sex life is severely restricted by pain
4-My sex life is nearly absent because of pain
5-Pain prevents any sex life at all

88

Section 9: Social Life
0-My social life is normal and gives me no extra pain
1-My social life is normal but increases the degree of pain
2-Pain has no significant effect on my social life apart from limiting my more energetic interests e.g. sport
3-Pain has restricted my social life and I do not go out as often
4-Pain has restricted my social life to my home
5-I have no social life because of pain

Section 10: Traveling
0-I can travel anywhere without pain
1-I can travel anywhere but it gives me extra pain
2-Pain is bad but I manage journeys over two hours
3-Pain restricts me to journeys of less than one hour
4-Pain restricts me to short necessary journeys under 30 minutes
5-Pain prevents me from travelling except to receive treatment

89

Scoring the Oswestry

Scoring= (raw score/total possible) x 100

- Each question total possible is 5
- If <u>all ten sections</u> are completed the score is calculated as followed:
  - **Example:**
    - 30 (total patient score)
    - Out of 50 (total possible score)
    - 30/50 x 100 = 60%

90

Oswestry Interpretation

"The following interpretation of disability scores is excerpted from the developers of the Oswestry system:

- **0%–20%: Minimal disability**
  - This group can cope with most living activities. Usually no treatment is indicated, apart from advice on lifting, sitting posture, physical fitness, and diet. In this group some patients have particular difficulty with sitting, and this may be important if their occupation is sedentary, e.g., a typist or truck driver.

91

Oswestry Interpretation

"The following interpretation of disability scores is excerpted from the developers of the Oswestry system:

20%–40% Moderate disability

- This group experiences more pain and problems with sitting, lifting, and standing. Travel and social life are more difficult and they may well be off work. Personal care, sexual activity, and sleeping are not grossly affected, and the back condition can usually be managed by conservative means.

92

Oswestry Interpretation

- **40%–60%: Severe disability**
  - Pain remains the main problem in this group of patients, but travel, personal care, social life, sexual activity, and sleep are also affected. These patients require detailed investigation.
- **60%–80%: Crippled**
  - Back pain impinges on all aspects of these patients' lives—both at home and at work—and positive intervention is required.

93

Oswestry Interpretation

- **80%-100%**
  - These patients are either bed-bound or exaggerating their symptoms. This can be evaluated by careful observation of the patient during medical examination."

(Oswestry Disability Index, 2012)

94

ODQ Minimum Detectable Change

- **10% points**
- If it is under 10 % points difference, it may be due to error (90% confidence)

(Fairbank, 2000; Davidson, 2002)

95

96

Activity Limitation & Participation Restriction Measures

For the Rowland and Oswestry, as well as other indices:

- Monitor changes with validated performance-based measures **at baseline** and
- to **document progress** during treatment

97

98

INTERVENTIONS: Match Classification to Treatment

- Manual therapy
- Trunk coordination, strengthening endurance exercises
- Centralization and directional preference exercises and procedures
- Flexion exercises
- Lower quarter mobilization procedures
- Traction
- Patient education and counseling
- Progressive endurance exercise and fitness activities

99

When to Use Manual Therapy

- Thrust manipulation is recommended:

For patients with:

- **ALBP**, **buttock or thigh pain**,
- pain, disability, hypo**mobility deficits**

100

When to use Manual Therapy

- Use thrust and non-thrust mobilization

  -To improve mobility in spine and hip
  -Reduce pain and disability

- For patients with:
  -**SALBP, CLBP**
  - **Back-Referred LE pain**

(Whatever happened to myofascial, massage?)

101

When to use trunk coordination, strengthening endurance exercises

To decrease LBP & disability for

-**SALBP and CLBP** patient with movement coordination impairments
& post-lumbar microdiscectomy

102

When to use Centralization & Directional Preference Exercises & Procedures

- Use repeated exercises, movements, or procedures to promote centralization to decrease **ALBP** with **LE pain**
- Use repeated directional exercises to improve mobility and reduce symptoms of **ALBP, SALBP, CLBP** with mobility deficits

10 3

When to use Flexion Exercises

Use flexion exercises with
- manual therapy,
- strengthening,
- nerve mobilization
- progressive walking

in older patients with **CLBP** with **radiating pain** to decrease pain and disability

10 4

When to use LE Nerve Mobilization

- For patients with **SALBP and CLBP** with **radiating pain,**
- To reduce pain and disability

10 5

Intermittent Lumbar Traction

LBP: *Conflicting evidence*

Some evidence for efficacy in patients with **positive crossed straight leg raise**

- signs of nerve root compression along with symptom **peripheralization**
- Using *prone* traction

Traction not recommended for managing **ALBP, SALBP, or non-radicular LBP or CLBP**

106

Patient Education & Counseling

Avoid if counseling may increase perceived fear associated with LBP, **avoid:**

- extended bed-rest
- in-depth, pathoanatomical explanations for the specific cause of the patient's low back pain.

107

When to use Patient Education

- Understanding of the anatomical strength of the spine
- Pain perception explaining neuroscience of pain
- Generally favorable prognosis of LBP
- Teach active pain coping strategies to reduce fear and catastrophizing
- Early return to activities despite pain
- Significance of improved activity levels, not strictly focusing on pain relief

108

When to use Progressive Endurance Exercise & Fitness Activities

Recommend:

- moderate- to high-intensity exercise for patients with **CLBP without generalized** pain
- progressive, submaximal low-intensity fitness and endurance activities for patients with **CLBP** with **generalized** pain

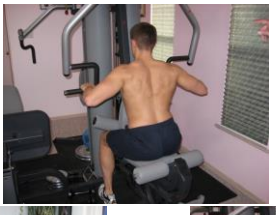
109

Summary : When to use Interventions Based on Classification

Put patients into categories to guide selection of interventions; match classification to intervention based on:

- **Acuity/Chronicity (A/SA/C LBP)**
- **Mobility: hyper or hypo**
- **Pain location: Radicular or not**
- **Pain symptoms: Centralized or peripheralized**
- **Age**

110

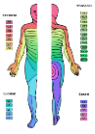


111

WHERE TO FIND THE CPG

- **Print copies**:
  Orthopaedic Section APTA, Inc,
  2920 East Avenue South, Suite 200,
  La Crosse, WI 54601
- **E-mail**: icf@orthopt.org
- **Website**: http://www.jospt.org/

PRACTICE!



- Examine your patient
- Use functional outcome measures
- Diagnose & classify them according to ICF impairments, participation restrictions and activity limitations
- Identify interventions to manage impairments based on evidence using 8 interventions: manual therapy, trunk coordination, strength, & endurance exercises

PRACTICE!

- Centralization exercise & procedures, flexion exercises, nerve mobilization, traction, patient education/counseling, progressive fitness & endurance activities
- Implement program, measure progress and modify according to outcomes
- (Was classification/dx accurate? Changes in pain, disability level, function, quality of life, mobility, general health, back-specific function, patient satisfaction)

11 5

IN SUMMARY

- **CPG ARE *NOT* A SUBSTITUTE FOR EXCELLENT CLINICAL REASONING, EXPERIENCE**
- **CPG PREP *WAS LIMITED* BY TERMINOLOGY ISSUES: new and old terminology do not match, new terms were not found in the literature**

11 6

Home Practice: SAMPLE MATCHING

- ***ICD: Spinal instability***
- **ICF: ALBP/ MOVEMENT COORDINATION IMPAIRMENTS**
- Acute LBP Flareup + LE pain provoked by initial to midrange motions
- Lumbo-pelvic movemt incoordination with flex/ext motions

ICF CLASSIFICATION

- Manual therapy
- Trunk coordination, endurance and strengthening exercises
- Repeated centralization and directional preference exercise, procedures
- Patient education
- Activity limit/participation restriction as needed

INTERVENTION

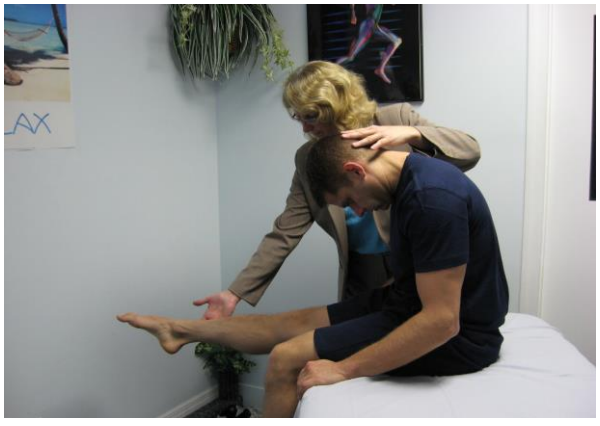
11 7

Home study interpretation of CPG

- ICD: LS somatic dysfunction
- ICF: ALBP mobility deficits
- (B7101 mobility several joints)
- ALBP or butt, groin, thigh pain
- Limited ROM, LE symptoms assoc with LBP
- Manual therapy– thrust mobilization
- Centralization exercise and procedures
- Patient Education and counseling

ICF CLASSIFICATION | INTERVENTION

118



CPG INTERPRETATION

- ICD: LS somatic dysfnctn
- ICF: SALBP, unilat back, butt thigh pain
- Endrange motions & testing spinal segments provoke symptoms
- Active, segmental, or accessory mobility deficits in spine pelvis, or hip (b7101)
- Manual therapy, thrust and nonthrust
- Centralization exercise and procedures
- LE nerve mobilization
- Patient Education and counseling

ICF CLASSIFICATION | INTERVENTION

120

CPG INTERPRETATION

- ICD: Spinal instability
- ICF: ALBP with coordination impairments
- Acute exacerbation of recurrent LBP
- Beginning to midrange movements and testing involved segments provoke symptoms
- Lumbar flex/ext motions associated with lumbopelvic movement coordination impairments (b7601)

- Trunk coordination, strengthening and endurance exercises
- Patient Education and counseling

ICF CLASSIFICATION | INTERVENTION

121

CPG INTERPRETATION

- ICD: spinal instability,
- ICF: SALBP with movement coordination impairment & referred LE pain
- Provoked by testing involved segments and moving toward midrange, worse at endrange movements or positions Segmental hypermobility
- Thor/hip mobility deficits
- Strength endurance deficit- trunk/pelvis
- Impaired coord ADL

- Trunk coordination, strengthening and endurance exercises
- Patient Education and counseling

ICF CLASSIFICATION | INTERVENTION

123

CPG INTERPRETATION

- ICD: Spinal instability
- ICF: CLBP with movmt coord impairments
- CLBP with LE pain and one or more of
- LBP +/- LE pain worse in sustained endrange motions
- Lumbar hypermobility
- Decr. Mob, strength, endur lumbopelvic/hip/thorax
- Movement coord impaired ADL

- Trunk coordination, strengthening and endurance exercises
- Patient Education and counseling

ICF CLASSIFICATION | INTERVENTION

CPG INTERPRETATION

- ICD: Flatback syndrome Lumbago/ displaced disc
- ICF: ALBP with LE pain
- LBP + butt/thigh/leg pain worse in sitting or flexion
- Centralized by repeated motions or positions or manual therapy
- Decr. Lordosis, lat. Shift, limited ext., movmt coord deficits assoc with C/SALBP

- Manual therapy, thrust and nonthrust
- Centralization and directional preference procedures exercises
- Patient Education and counseling

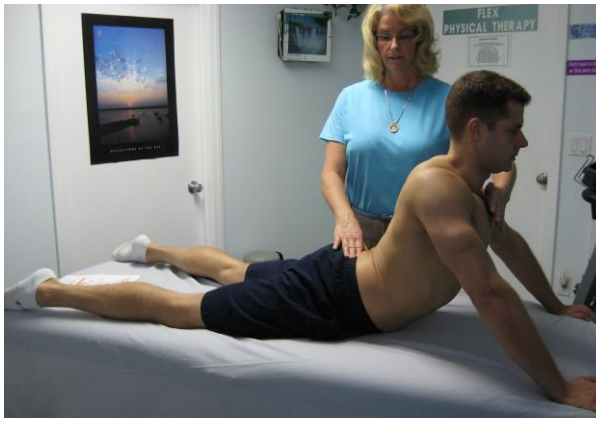
ICF CLASSIFICATION | INTERVENTION

INTERPRETATION

- ICD: Lumbago with sciatica
- ICF: ALBP with radiating pain
- ALBP+ LE pain, (b2805) parasthesia, numbness, weakness provoked by beginning to midrange movment, SLR, slump test or LE tension test
- Nerve signs, like ALBP with referred pain

- Manual therapy, thrust and nonthrust
- Centralization and directional preference procedures exercises
- Patient Education and counseling

ICF CLASSIFICATION | INTERVENTION



CPG INTERPRETATION

- ICD: Lumbago with sciatica
- ICF: SALBP +radiating pain + reflex, sensory or strength deficits
- provoked by midrange spinal movment, worse in endrange of SLR, slump test or LE tension test
- (b2804- radiating pain in a segment or region)

- Manual therapy, thrust and nonthrust
- Centralization and directional preference procedures exercises
- LE nerve mobilization
- Patient Education and counseling
- Traction if they have peripheralization or +SLR

ICF CLASSIFICATION | INTERVENTION

CPG INTERPRETATION

- ICD: Lumbago with sciatica
- ICF: Chronic mid to LBP + radiating pain + reflex, sensory, strength deficits
- provoked by sustained endrange SLR, slump test or LE tension test

- Manual therapy, thrust and nonthrust
- Centralization and directional preference procedures exercises
- Flexion exercise on older adults
- LE nerve mobilization
- Patient Education and counseling

ICF CLASSIFICATION | INTERVENTION

130

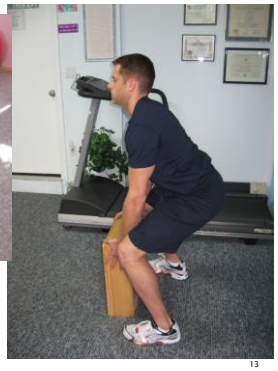
CPG INTERPRETATION

- ICD: LPB, LB strain, lumbago
- ICF: ALBP/SALBP **with** related cognitive or affective tendencies
- ALBP/SALBP + 2 + depressive symptom replies on Primary Care Eval of Mental Disorders
- Excess fear/anxiety behaviors, high score on Fear Avoidance Beliefs Q., & Pain Catastrophizing Scale and cognitive processes high pessimism, helplessness, rumination (b2703, 1522, 1608, 1528)

- Patient Education and counseling
- Referral
- Progressive Endurance exercise & fitness at moderate to high intensity when WITHOUT generalized pain,
- submaximal and low intensity activities for CLBP WITH generalized pain

ICF CLASSIFICATION | INTERVENTION

132



133

CPG INTERPRETATION

- ICD:LBP, LB strain, lumbago
- ICF: CLBP **with** related generalized pain
- LBP+/– LE pain
- Over 3 months
- Generalized pain
- depression, pain catastrophizing, fear avoidance beliefs
- (b2800 generalized pain, b1520 appropriate emotion, b1602 content of thought)

ICF CLASSIFICATION

- Progressive Endurance exercise & fitness at moderate to high intensity when WITHOUT generalized pain,
- submaximal and low intensity activities for CLBP WITH generalized pain

INTERVENTION

134

QUESTIONS?

To learn more and
access your free videos, visit us at:
http://www.educise.com

135

THANK YOU! From Allied Health Education Theresa Schmidt and Educise

136

REFERENCES

- 2017 ICD-10-CM Diagnosis Code Low Back Pain. ICD9Data.com. http://www.icd10data.com/ICD10CM/Codes/M00-M99/M50-M54/M54-/M54.5. Published 2017. (Slide 7, 14-16)
- AHRQ's National Guideline Clearinghouse is a public resource for summaries of evidence-based clinical practice guidelines. Home | National Guideline Clearinghouse. https://www.guideline.gov/. Published 2017. (Slide 30,38, 41, 46-67)
- Alrwaily M, Timko M, Schneider M, Stevans J, Bise C, Hariharan K, Delitto A. Treatment-Based Classification System for Low Back Pain: Revision and Update. Physical therapy. 2016 Jul 1;96(7):1057.
- Bernhardsson et al. Evaluation of a tailored, multi-component intervention for implementation of evidence-based clinical practice guidelines in primary care physical therapy: a non-randomized controlled trial. BMC Health Services Research 2014, 14:105 http://www.biomedcentral.com/1472-6963/14/105Vol 14

137

- Bishop FL, Dima A, Ngui J, Little P, Moss-Morris R, Foster NE, Lewith GT. "Lovely Pie In The Sky Plans": A Qualitative Study Of Clinicians'perspectives On Guidelines For Managing Low Back Pain In Primary Care In England. Bone Joint J. 2016 Feb 1;98(SUPP 6):31-.
- Cassidy JD, Carroll LJ, Côté P. The Saskatchewan health and back pain survey: the prevalence of low back pain and related disability in Saskatchewan adults. Spine. 1998 Sep 1;23(17):1860-6. (Slide 8)
- Childs JD, Fritz, JM, Flynn, TW, Irrgang, JJ, Johnson, KK, Majkowski, GR, Delitto, A: A clinical prediction rule to identify patients with low back pain most likely to benefit from spinal manipulation: a validation study. Ann Intern Med 2004, 141:920-928. (Slide 19)
- Davidson M & Keating J. A comparison of five low back disability questionnaires: reliability and responsiveness. Physical Therapy Phys Ther. 2002 Jan;82(1):8-24. (Slide 91)

138

- Davies, C, NItz, AJ, Mattacola, CG, Kitzman, P, Howell, D, Viele, K, Baxter, D, and Brockopp, D, Practice patterns when treating patients with low back pain: a survey of physical therapists. Physiotherapy Theory and Practice, August 2014; 30(6):399-408
- Delitto A, George SZ, Van Dillen LR, Whitman JM, Sowa G, Shekelle P, Denninger TR. Low back pain. J Orthop Sports Phys Ther. 2012;42(4):A1-A57. doi:10.2519/jospt.2012.0301.
- Delitto, A, George, SZ, VanDillen, LR, Whitman, JM, Sows, G, Shekelle, P, Denniger, TR, Low Back Pain: Clinical Practice /Guidelines Linked to the International Classification of Functioning, Disability and Health from the Orthopaedic Section of the American Physical Therapy Association. *Journal of Orthopedic and Sports Physical Therapy*. 2012 Apr;42(4):A1-A57. (Slide 27, 34)
- Field MJ, Lohr KN, Committee to Advise the Public Health Service on Clinical Practice Guidelines, Institute of Medicine. Clinical Practice Guidelines: Directions of a New Program. Washington, DC: National Academy Press; 1990.) (Slide 10)

139

- Globe G, Farabaugh RJ, Hawk C, Morris CE, Baker G, Whalen WM, Walters S, Kaeser M, Dehen M, Augat T. Clinical practice guideline: chiropractic care for Low back pain. Journal of manipulative and physiological therapeutics. 2016 Jan 31;39(1):1-22.
- Golec SJ, Valier AR. The Effect of Following Clinical Practice Guidelines on the Pain and Disability Outcomes of Patients with Low Back Pain-A Critically Appraised Topic. Journal of Sport Rehabilitation. 2017:1-7.
- Jensen CE, Jensen MB, Riis A, Petersen KD. Systematic review of the cost-effectiveness of implementing guidelines on low back pain management in primary care: is transferability to other countries possible?. BMJ open. 2016 Jun 1;6(6):e011042.
- Julie M Fritz, JM, Irrgang, JJ, Phys Ther 2001;81:776-788, from: Kopec, et al, Spine 1995;20:1945-1949 (Slide 79-80)

140

- Kuijer et al. An Evidence-Based Multidisciplinary Practice Guideline to Reduce the Workload due to Lifting for Preventing Work-Related Low Back Pain. Annals of Occupational and Environmental Medicine 2014, 26:16. http://www.aoemj.com/content/26/1/16
- Ladeira CE, Cheng MS, da Silva RA. Clinical Specialization and Adherence to Evidence-Based Practice Guidelines for Low Back Pain Management: A Survey of United States Physical Therapists. Journal of Orthopaedic & Sports Physical Therapy. 2017 Mar 3(0):1-44.
- Learman, K, Ellis, AR, Goode, AP, Showalter, C, and Cook, CE, Physical Therapists' Clinical Knowledge of Multidisciplinary Low Back Pain Treatment Guidelines. Phys Ther. 2014, From http://ptjournal.apta.org/content/early/2014/03/05/ptj.20130567.short. Accessed Feb. 6, 2015.
- Low Back Pain Leading Cause of Disability Worldwide Study. U.S. News. http://health.usnews.com/health-news/articles/2014/03/25/low-back-pain-leading-cause-of-disability-worldwide-study. Published March 24, 2014. (Slide 10)

141

- Manchikanti, L., Singh, V., Falco, F. J. E., Benyamin, R. M. and Hirsch, J. A. (2014), Epidemiology of Low Back Pain in Adults. Neuromodulation: Technology at the Neural Interface, 17: 3–10. doi: 10.1111/ner.12018 (Slide 9)
- Mizell JS, Rosen M. Complications of abdominal surgical incisions. UpToDate, Waltham, MA. 2014;1328:e5. (Slide 8)
- Oswestry Disability Index. Makes Learning About Pain, Painless. http://thepainsource.com/oswestry-disability-index/. Published December 12, 2012. (Slide 81- 90)
- Owens S. New Clinical Practice Guideline for Low Back Pain Recommends Non-Drug Treatment as First-Line Therapy. Neurology Today. 2017 Feb 16.

142

- Primal Pictures copyright with permission (Slide 2)
- Qaseem A, Wilt TJ, McLean RM, Forciea MA. Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of PhysiciansNoninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain. Annals of Internal Medicine. 2017 Feb 14.
- Rabin, A, Shashua, A, Pizem, K, Dickstein, R, and Dar, G, A Clinical Prediction Rule to Identify Patients With Low Back Pain Who Are Likely to Experience Short-Term Success Following Lumbar Stabilization Exercises: A Randomized Controlled Validation Study J Orthop Sports Phys Ther 2014;44(1):6-B13. Epub 21 November 2013. doi:10.2519/jospt.2014.4888
- Riis A, Jensen CE, Bro F, Maindal HT, Petersen KD, Bendtsen MD, Jensen MB. A multifaceted implementation strategy versus passive implementation of low back pain guidelines in general practice: a cluster randomised controlled trial. Implementation Science. 2016 Oct 21;11(1):143.

143

- Roland M, Fairbank J. The Roland-Morris Disability Questionnaire and the Oswestry Disability Questionnaire. Spine 2000;25(24):3115-24, From: http://www.physio-pedia.com/Roland%E2%80%90Morris_Disability_Questionnaire (Slide 70-77)
- Rutten, GM, Harting, J, Bartholomew, LK, Braspenning, J, Van Dolder, R, Heijmans, MFCJ, Hendriks, EJM, Kremers, SPJ, vanPeppen, RPS, Rutten, STJ, Schlief. A, deVries, NK, and Oostendorp, RAB, Development of a theory- and evidence-based intervention to enhance implementation of physical therapy guidelines for the management of low back pain. Archives of Public Health 2014, 72: From: http://www.archpublichealth.com/content/72/1/1http://www.biomedcentral.com/content/pdf/2049-3258-72-1.pdf. Accessed Feb. 12, 2015.
- Saragiotto BT, Maher CG, Hancock MJ, Koes BW. Subgrouping Patients With Nonspecific Low Back Pain: Hope or Hype?. Journal of Orthopaedic & Sports Physical Therapy. 2017 Feb;47(2):44-8.
- Saragiotto BT, Maher CG, Moseley AM, Yamato TP, Koes BW, Sun X, Hancock MJ. A systematic review reveals that the credibility of subgroup claims in low back pain trials was low. Journal of clinical epidemiology. 2016 Nov 30;79:3-9.

144

- Slade SC, Kent P, Patel S, Bucknall T, Buchbinder R. Barriers to Primary Care Clinician Adherence to Clinical Guidelines for the Management of Low Back Pain. The Clinical journal of pain. 2016 Sep 1;32(9):800-16.
- Wilson, N, Pope, C, Roberts, L, and Crouch, R, Governing healthcare: Finding meaning in a clinical practice guideline for the management of non-specific low back pain. Social Science and Medicine. 2014;102:138-145.
- Wong JJ, Côté P, Sutton DA, Randhawa K, Yu H, Varatharajan S, Goldgrub R, Nordin M, Gross DP, Shearer HM, Carroll LJ. Clinical practice guidelines for the noninvasive management of low back pain: A systematic review by the Ontario Protocol for Traffic Injury Management (OPTIMa) Collaboration. European Journal of Pain. 2016 Oct 1.

COPYRIGHT THANKS

- Sam Barrow of **Primal Pictures Ltd.** provided copyright permission to use the anatomy pictures from the Primal Pictures. Ltd. DVD: *Interactive Functional Anatomy, Second Edition*

  www.primalpictures.com
- Primal Pictures Ltd. 4th Floor, Tennyson House, 159-165 Great Portland St.
  London, W1W5PA, UK
- Clinical photos courtesy of: **www.educise.com**

Non-Endorsement Statement

- Products produced and/or distributed by Commercial Interest Organizations (CIOs) mentioned during this presentation are for educational purposes only and should not be considered an endorsement by the course presenter. No member of the planning committee has a relationship that could create a conflict of interest in presenting this material. Thank you.

Complete the Evaluation–

Thank you! www.educise.com

EDUCISE RESOURCES INC.