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CLINICAL TRAINING MANUAL

FCE PROTOCOL & SOFTWARE ADMINISTRATION

TABLE OF CONTENTS

INTRODUCTION	3
COMMON INJURIES	4
OBJECTIVITY & NEUTRALITY.....	12
ANATOMICAL ORIENTATION.....	13
RANGE OF MOTION	14
Goniometric Range of Motion	14
Functional Range of Motion	15
VITAL SIGNS.....	16
COMPONENT ADMINISTRATION	17
Patient Interview.....	17
Date Last Worked.....	17
Diagnosis.....	17
Medications	17
Heart Conditions.....	18
Medical History	19
Mechanism of Injury	19
Treatment History	19
Activity Tolerance:	20
Job/Employment Information:.....	20
Visual Analog Scale:	20
Borg Pain Scale:	21
Ransford Pain Drawing:	22
Grip Strength.....	23
Fine Manipulation.....	24
Sitting	25
Squatting	25
Reaching	25
Kneeling	26
Crawling	26
Lifting.....	27
Floor to Waist Lift with Rotation.....	27
Knee to Chest Lift without Rotation	27
Waist to Shoulder Lift with Rotation	28
Carrying.....	28
Climbing	29
Balancing	29
Standing	29
Walking	30
Pushing	30
Pulling	30
EVALUATORS NOTES	31
Effect Of Consistency On Recommendations	32
What Should Not Be Included In the Evaluator Notes	33
BIBLIOGRAPHY	34

INTRODUCTION

Knowledge of the injured worker's functional capacity is critical to a rapid rehabilitation and successful return to work. Use of this information by physicians, insurers and employers allows for more effective and less costly rehabilitation as the specific deficits can be addressed using objective data. Furthermore, this knowledge, when compared to the physical demands of a job, provides the ability to determine safe return to work levels. It also ensures that workers return to the workplace with a higher degree of certainty in their ability to avoid re-injury; critical for reducing experience modified worker's compensation rates for employers.

Early pioneers in the field of FCEs were tasked with answering questions about physical ability, return to work and level of effort. In order to establish an understanding, early FCEs were up to 40 hours long. This soon grew impractical. In the mid-1980's, a few commercial FCE systems became available. These companies were started mostly by therapists and sold equipment and training to other therapists. These companies included Blankenship System, Key Method, Mattheson, Isernhagen and Valpar. Later companies include Ergos, Isotechnologies, Polinski and Ergo Science. In the late 1980's work hardening gained popularity. Unfortunately, it lost favor less than five years later, mostly as a result of abusive and excessive billings by a very small number of therapists. During this time, however, the FCE was used as the gatekeeper to work hardening. Frequently, many FCE reports contained referrals for work hardening even when the referral source did not want work hardening. When work hardening began to lose popularity so did the FCE.

COMMON INJURIES

You will experience a broad variety of injuries during the administration of the FCE. By and large, these injuries will fall under the general heading of “neuromusculoskeletal” injuries. It is important to have a good understanding of anatomy, physiology, mechanism of injury, biomechanics and the interrelationships involved in the kinesiology of the affected area.

It is also possible that the diagnosis of the patient is not completely accurate. You may frequently receive a patient’s medical chart prior to the FCE. This may include various test reports that will help to confirm a given diagnosis. Be certain to review medical records prior to the FCE whenever possible.

When entering a FCE, do not let a diagnosis cloud your judgment. For example, you may have a patient with a diagnosis of lumbar strain with an injury date of more than two years prior. This is often assumed to be a red flag for an individual who may be abusing the workers compensation or disability insurance system. Always remember that diagnoses can be incorrect, or may have changed due to additional injury. In any event, your job is to remain objective before, during and after the FCE, regardless of a diagnosis.

The diagnoses below are some of the most commonly seen in the FCE:

Lumbar Spine

Sprain/Strain – These problems are typically the result of a traumatic injury, usually lifting or bending. Damage to the supporting structures result in pain, inflammation and decreased function and mobility. Resolution of symptoms will usually occur within 1-3 months of proper treatment.

Potentially Affected Activities:

- Lifting Activities
- Bending at the Waist
- Prolonged Sitting
- Knee Walking
- Prolonged Standing

Herniated Nucleus Pulposis (HNP) – A herniated disc is typically caused by traumatic injury, usually lifting or bending. Symptoms frequently include decreased spinal mobility, radiating pain down one or both legs, decreased strength of spine and legs and decreased sensation or numbness. Treatment may include surgical repair. Time for rehabilitation may vary depending on level and type of intervention. It will usually, however, be successfully rehabilitated in 3-6 months of proper treatment.

Potentially Affected Activities: Lifting Activities
Bending at the Waist
Prolonged Sitting
Prolonged Standing

Spinal Stenosis – Spinal nerves branch off of the spinal cord then pass through the intervertebral foramen. A narrowing of this foramen creates a spinal stenosis. This pathology can be caused by changes in bone structure, inflammation, or degeneration of the disk. Symptoms frequently include decreased spinal mobility, radiating pain down one or both legs, decreased strength of spine and legs and decreased sensation or numbness. Treatment may include surgical repair. Time for rehabilitation may vary depending on level and type of intervention. It will usually, however, be successfully rehabilitated in 1-3 months of proper treatment.

Potentially Affected Activities: Lifting Activities
Bending at the Waist
Prolonged Sitting
Prolonged Standing
Knee Walking

Laminectomy – Spinal surgery that involves the removal of bone tissue in order to alleviate pressure on nerves and surrounding structures. Symptoms frequently include decreased spinal mobility, radiating pain down one or both legs, decreased strength of spine and legs and decreased sensation or numbness. Surgical procedure usually will have reduced these symptoms. Time for rehabilitation may vary depending on level and type of intervention. It will usually, however, be successfully rehabilitated in 2-3 months of proper treatment.

Potentially Affected Activities: Lifting Activities
Bending at the Waist
Prolonged Sitting
Prolonged Standing
Knee Walking

Additional Lumbar Diagnoses:

Discectomy; Spondylolysthesis; Spondylolysis; Degenerative disc disease (DDD); Spinal Fusion;

Cervical Spine

Sprain/Strain – These problems are typically the result of a traumatic injury, usually motor vehicle accidents or high velocity movements of the head and neck. Damage to the supporting structures result in pain, inflammation and decreased function and mobility. Resolution of symptoms will usually occur within 1-3 months of proper treatment.

Potentially Affected Activities: Cervical Mobility
Overhead Lifting
Standing Overhead Assembly
Crawling

Herniated Nucleus Pulposis (HNP), a.k.a. Herniated Disc – A herniated disc is typically caused by motor vehicle accidents or high velocity movements of the head and neck. Symptoms frequently include decreased head and neck mobility, radiating pain down one or both arms, decreased strength and decreased sensation or numbness. Treatment may include surgical repair. Time for rehabilitation may vary depending on level and type of intervention. It will usually, however, be successfully rehabilitated in 3-6 months of proper treatment.

Potentially Affected Activities: Cervical Mobility
Overhead Lifting
Standing Overhead Assembly
Crawling

Spinal Stenosis – Spinal nerves branch off of the spinal cord then pass through the intervertebral foramen. A narrowing of this foramen creates a spinal stenosis. This pathology can be caused by changes in bone structure, inflammation, or degeneration of the disk. Symptoms frequently include decreased spinal mobility, radiating pain down one or both arms, decreased strength of spine and arms and decreased sensation or numbness. Treatment may include surgical repair. Time for rehabilitation may vary depending on level and type of intervention. It will usually, however, be successfully rehabilitated in 1-3 months of proper treatment.

Potentially Affected Activities: Cervical Mobility
Overhead Lifting
Standing Overhead Assembly
Crawling

Laminectomy – Spinal surgery that involves the removal of bone tissue in order to alleviate pressure on nerves and surrounding structures. Symptoms frequently include decreased spinal mobility, radiating pain down one or both arms, decreased strength of spine and arms and decreased sensation or numbness. Surgical procedure usually will have reduced these symptoms. Time for rehabilitation may vary depending on level and type of intervention. It will usually, however, be successfully rehabilitated in 2-3 months of proper treatment.

Potentially Affected Activities: Lifting Activities
Bending at the Waist
Cervical Mobility
Prolonged Sitting
Prolonged Standing
Standing Overhead Assembly
Crawling

Additional Cervical Diagnoses:

Discectomy; Spondylololsthesis; Spondylolysis; Degenerative disc disease (DDD); Spinal Fusion;

Shoulder

Rotator Cuff Tear – This is a common injury that occurs in individuals who may be required to perform repeated lifting overhead, or other activities that require repeated use of the shoulder. The rotator cuff is actually a group of four muscles, which act to rotate the shoulder joint, as well as stabilize the head of the humerus during overhead activities. Common findings with a rotator cuff tear include inability to lift the arm and shoulder pain that may radiate down the arm. Treatment may include surgical repair. Time for rehabilitation may vary depending on level of tear and type of intervention. It will usually, however, be successfully rehabilitated in 2-4 months of proper treatment.

Potentially Affected Activities: Overhead Lifting
Carrying
Pushing/Pulling
Standing Overhead Assembly
Crawling

Impingement Syndrome – This occurs during flexion or abduction between 70 and 120 degrees. The impingement is caused, and subsequently affects, several structures in the shoulder. It is often caused by weakness of the rotator cuff. The result is inflammation and pain in the affected range. Resolution of symptoms will usually occur within 1-3 months of proper treatment.

Potentially Affected Activities: Overhead Lifting
Pushing/Pulling
Standing Overhead Assembly
Crawling

Sprain/Strain – These problems are typically the result of a traumatic injury. Damage to the supporting structures result in pain, inflammation and decreased function. Resolution of symptoms will usually occur within 1-3 months of proper treatment.

Potentially Affected Activities: Overhead Lifting
Pushing/Pulling
Standing Overhead Assembly
Crawling

Bursitis/Tendonitis – These problems are typically the result of overuse. Inflammation in the structures causes pain during movement. Use of several muscles may lead to painful movement patterns. Resolution of symptoms will usually occur within 1-3 months of proper treatment.

Potentially Affected Activities: Overhead Lifting
Pushing/Pulling
Standing Overhead Assembly
Carrying
Crawling

Brachial Plexus Injuries (Stingers) – An injury to the brachial plexus is often caused by traumatic injury. The plexus can, however, be affected by a number of other musculoskeletal disorders, including overuse syndromes. The impact of such an injury may vary, but usually includes decreased strength throughout the extremity, decreased sensation and pain. Length of time for rehabilitation will vary significantly based on extent and nature of the injury.

Potentially Affected Activities: Overhead Lifting
Carrying
Pushing/Pulling
Standing Overhead Assembly
Grip Strength
Gross/Fine Manipulation
Keyboarding
Crawling

Dislocation/Subluxation – The shoulder joint was designed for mobility, therefore stability is sacrificed (opposite to the hip joint). As a result, with trauma, the shoulder may dislocate; the humerus is knocked completely out of socket, or sublux; knocked partially out of socket. The result of this injury is decrease stability at the shoulder joint; this can lead to decreased strength, pain in the shoulder joint or down the arm. If the injury is severe enough, surgery is performed. Rehabilitation time will vary. Resolution of symptoms will usually occur within 2-3 months.

Potentially Affected Activities: Lifting, primarily overhead
Carrying
Pushing/Pulling
Standing Overhead Assembly
Crawling

Additional Cervical Diagnoses:

Thoracic Outlet Syndrome

Wrist

Carpal Tunnel Syndrome - This is an entrapment of the median nerve as it passes through the carpal tunnel. It is typically the result of overuse and/or poor ergonomics in the workplace. The result is decreased strength and sensation in the wrist and hand. Length of time for rehabilitation will vary significantly based on extent and nature of the injury. Surgery may be necessary.

Potentially Affected Activities: Grip Strength
Gross/Fine Manipulation
Keyboarding
Crawling
Lifting Activities
Standing Overhead Assembly

Additional Wrist Diagnoses:

Fracture

Knee

Medial Collateral Ligament (MCL)/Lateral Collateral Ligament (LCL) Sprain or General Knee Sprain/Strain - These problems are typically the result of a traumatic injury. Damage to the supporting structures result in pain, inflammation and decreased function. Resolution of symptoms will usually occur within 1-3 months of proper treatment.

Potentially Affected Activities: Kneeling
 Squatting
 Floor Lifting
 Stair Climbing
 Crawling
 Walking
 Prolonged Standing

Bursitis/Tendonitis - These problems are typically the result of overuse. Inflammation in the structures causes pain during movement. Use of several muscles may lead to painful movement patterns. Resolution of symptoms will usually occur within 1-3 months of proper treatment.

Potentially Affected Activities: Kneeling
 Squatting
 Floor Lifting
 Stair Climbing
 Crawling
 Walking
 Prolonged Standing

Meniscus Tears - These problems may be the result of a traumatic injury or chronic overuse or degeneration. Damage to the supporting structures result in pain, inflammation and decreased function. Resolution of symptoms will usually occur within 1-3 months of proper treatment.

Potentially Affected Activities: Kneeling
 Squatting
 Floor Lifting
 Stair Climbing
 Crawling
 Walking
 Prolonged Standing

Anterior Cruciate Ligament (ACL) Tear - An ACL tear is typically caused by a traumatic injury involving rotation and extension of the knee. Typical treatment includes surgical repair. Length of time for rehabilitation will vary significantly based on extent and nature of the injury. Patients will often present wearing a de-rotation brace.

Potentially Affected Activities: Kneeling
 Squatting
 Floor Lifting
 Stair Climbing
 Crawling
 Walking

Additional Knee Diagnoses:

Total Knee Arthroplasty

Other Diagnoses

Chronic Pain Syndrome - This diagnosis is typically seen in patients who present with significant reports of pain, but no positive findings upon evaluation and diagnostic testing. The course of treatment varies widely, but often includes medication, biofeedback and pain management.

Potentially Affected Activities: Various

Fibromyalgia - is a non-inflammatory, diffuse pain syndrome of unknown cause. The result is usually debilitating fatigue and severe muscle pain. Other symptoms include sleep disturbance, memory loss and headaches. Treatment may include physical therapy and medications, but may vary.

Potentially Affected Activities: Various

Chronic Fatigue Syndrome - is diagnosed as the presence of severe unexplained fatigue for over six months that is of a new or definite onset; not due to continuing exertion; not resolved by rest and is functionally impairing. Additionally, the presence of four or more of the following new symptoms: impaired memory or concentration, tender lymph nodes, muscle pain, pain in several joints, new onset of headaches, “un-refreshing” sleep or post-exertion malaise lasting more than 24 hours.

Potentially Affected Activities: Various

Myofasciitis - Inflammation of a muscle and its surrounding fascia. Can be caused by trauma to area or overuse. Symptoms include pain and swelling in the affected body part. Treatment may include physical therapy and medications, but may vary.

Potentially Affected Activities: Various

OBJECTIVITY & NEUTRALITY

Maintaining your objectivity throughout the evaluation is crucial. In providing information from the FCE, you are providing an *objective* source. Objectivity must be maintained on many levels. This ranges from the way you dress and the tone of your voice to your own attitudes and opinions. Additionally, the way you administer instructions and answer questions must always be in a non-biased manner.

To maintain general objectivity, dress professionally and appropriately. Never offer opinions for “how to handle a situation” involving the patient and any other party involved in the post-injury process. It is always best to keep your comments to a minimum.

When working with a patient, do not become “overly friendly.” There is a fine line between professional concern & compassion and giving the appearance of “being a friend.”

The way you speak must also remain objective. For this reason, it is important to follow the on screen wording at all times. You must also avoid being too positive (coaching, cheer leading) or too negative (overly monotone, disinterested).

If you think a patient is not giving their best effort, you *will not* alter your objectivity. If you suspect such behavior, however, you should pay particular attention to safety issues. These may include a patient dropping a box with weights or making inappropriate comments, which must be documented.

Objectivity must also be maintained in your report writing. You will develop a “professional opinion” by the end of each FCE. This is, however, still an opinion. *Do not include your opinions in the report.* Your opinions should not be documented in a written report. If appropriate, you may wish to call the referral source and discuss your opinions by telephone.

ANATOMICAL ORIENTATION

An understanding of the following terms is necessary in order to describe movement, position and location of the structures of and within the body.

Planes:

- Sagittal:* Divides the body into right and left halves.
- Frontal:* Divides the body into anterior and posterior sections.
- Transverse:* Divides the body into superior and inferior halves.

Directional Motions:

- Abduction:* movement away from the middle
Adduction: movement toward the middle
- Extension:* movement that straightens a limb
Flexion: movement that bends a joint/limb
- Anterior:* toward the front
Posterior: toward the back
- Superior:* located above
Inferior: located below
- Medial:* toward the middle
Lateral: toward the outside
- Proximal:* closest to a reference point
Distal: farthest from a reference point
- Rotation:* turning about an axis

RANGE OF MOTION

Understanding “normal” range of motion is vital. When assessing function, you will need to determine what, if any, limitations exist in range of motion during various activities. Traditional goniometric measurements provide only a numeric value. While this is important for the successful restoration of normal motion, the FCE is measuring capacity to function, not the lack thereof. You will not only be assessing single joint range of motion, but the relationship of numerous joints simultaneously.

During the course of a FCE, you may need to document any motion that is outside “normal” range. While you will not be called upon to determine the degree of deficit, you will need to correlate the decrease in motion to its impact on function. Additionally, you may be required to make recommendations for treatment to improve range of motion so as to improve functional capacity.

Goniometric Range of Motion

Upper Extremity

<i>Shoulder:</i>	extension	0 - 50
	flexion	0 - 180
	adduction	0 - Arm should be able to rest against side of body
	abduction	0 - 180
	internal rotation	0 - 80
	external rotation	0 - 90
	<i>Elbow:</i>	extension
flexion		0 - 145
<i>Forearm:</i>	supination	0 - 90
	pronation	0 - 85
<i>Wrist:</i>	extension	0 - 70
	flexion	0 - 80
	radial deviation	0 - 20
	ulnar deviation	0 - 30
<i>Hand:</i>	flexion	full grasp
	extension	open hand fully
	opposition	thumb touches tip of 5 th digit

Lower Extremity

<i>Hip:</i>	flexion	0 - 125
	extension	0 - 30
	abduction	0 - 45
	adduction	0 - 30
	internal rotation	0 - 45
	external rotation	0 - 45
<i>Knee:</i>	flexion	0 - 135
	extension	0 - Knee should fully straighten
<i>Ankle:</i>	dorsiflexion	0 - 20
	plantarflexion	0 - 50
	inversion	0 - 35
	eversion	0 - 20

Spine

<i>Cervical:</i>	flexion	chin touches chest
	extension	look at ceiling
	lateral flexion	0 - 45
	rotation	chin in line with shoulder
<i>Thoracic/Lumbar:</i>	flexion	reversal of curve
	extension	0 - 60
	lateral flexion	0 - 35
	rotation	0 - 45

Norkin, CC and White, D.J., 1985, Measurement of Joint Motion: A Guide to Goniometry

Functional Range of Motion

During the FCE, range of motion should be measured differently than traditional goniometric measurements. Ranges should be measured as a percent of full, normal range of motion. It is best to base these measures on quarters of full range of motion. That is, record motions for activities in 0, 25, 50, 75 or 100 percent of normal range of motion. It is also acceptable to use the terms minimal and full when discussing functional range of motion. Remember that we are looking at functional mobility.

VITAL SIGNS

Heart rate is monitored throughout the FCE. The primary purpose is to monitor patient safety. If you think the patient is exceeding his/her safe capabilities at any time, you must pause or terminate the evaluation immediately. This is also true if the patient has any related reports during the course of the evaluation.

During the FCE a Heart Rate Monitor (HRM) is used for monitoring the heart rate at all times. If it fails, or if one is not available, the heart rate is taken at the radial artery for 15 seconds. You may use the carotid artery site if the radial pulse is difficult to obtain.

Prior to the start of the FCE, the HRM is donned, and vital signs are taken. This includes the resting blood pressure, and resting respirations. In addition, the patient is asked his/her height and weight. All of this information must be clearly documented.

NOTE: IF THE SYSTOLIC BP IS GREATER THAN 150 OR DIASTOLIC IS GREATER THAN 110, it is recommended to only complete the health questionnaire (no physical tasks at all) then retake the blood pressure. If the blood pressure remains elevated, it is recommended that the FCE be terminated. (Refer to The American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on Exercise Testing) Gibbons, et al., Exercise Testing Guidelines, JACC Vol. 30, No. 1, July 1997:260-315 for additional information)

NOTE: IF THE RESTING HEART RATE IS GREATER THAN 80% of the patient's age-adjusted heart rate, it is recommended to follow the procedure above; complete the questionnaire (no physical tasks at all) then retake the heart rate. If the heart rate remains elevated, it is recommended that the FCE be terminated.

COMPONENT ADMINISTRATION

Patient Interview

After setting up the equipment, you will conduct an interview with the patient. There are a number of purposes for the interview. While the software will direct you to gather all the appropriate information, the process should also be used to evaluate the patient's sitting tolerance and make you aware of any safety issues and/or any overt behavior that is suggestive of a patient's unwillingness to fully cooperate. Additionally, you should use this time to develop a clinical history that will be helpful in understanding the many things you will observe during the FCE. Finally, a successful rapport may be built during the interview.

Date Last Worked

Document this date and the length of time since work was last performed. Length of time out of work directly relates to behavior towards avoiding work. In other words, a patient takes on the sick role the longer they are away from work.

Diagnosis

When you receive a referral, it will have a diagnosis. This may or may not be an exact diagnosis, but rather a statement of the patient's problems/complaints. Additionally, the patient may state they were diagnosed as something other than what is on the referral form. Be sure to obtain the source of the diagnosis and any other additional diagnoses the patient believes they have.

Medications

During the scheduling of a FCE, the patient should be informed to take their medication(s) as prescribed. A patient might otherwise take additional medication in anticipation of the evaluation. During the review of medical history at the start of the FCE, the patient should again be questioned as to what, if any, medications they are currently taking and whether they have altered the prescribed dosage.

During the interview, you will inquire what, if any, medications the patient is taking. Be sure to ask:

- Have you taken your medications as prescribed prior to this evaluation?
- Are you taking any non-prescription medications?

You should be alert to whether any medications may impact on the patient's ability to participate in the FCE. This includes decreased cognition (ability to understand instructions) and decreased safety (ability to perform required activities).

If you are uncertain as to a patient's ability to safely participate, it is recommended to contact their physician to discuss your concerns. You may also refer to a pharmaceutical reference guide. If concerns still exist, for the safety of the patient, it is recommended not to conduct the evaluation.

In addition to medications, also be aware as to the effects of alcohol and illicit drugs. If a patient arrives under the influence and is obviously impaired, it is recommended to terminate the evaluation immediately. If so, explain why you are terminating the evaluation. If you suspect, but are not certain, it is recommended to **politely** ask the patient if they have been drinking or taking any "other" drugs. If a situation is unsafe, such as increasing agitation from the patient, it is recommended to stop this line of questioning and politely excuse yourself.

Many medications are prescribed to affect change on the cardiovascular system. During a FCE, a patient's heart rate or blood pressure may, or may not, rise or fall, in an expected manner if they are taking such a medication. It is, therefore, important to understand whether a given physiologic response is "appropriate" or "expected" when the patient is taking such a medication.

Heart Conditions

If a patient reports a heart condition of any kind, it is recommended to contact their cardiologist (or primary physician if they do not have a cardiologist) before proceeding. Inform the cardiologist the patient is about to participate in a FCE and explain the physical nature of the tasks. It is further recommended to obtain verbal approval from the cardiologist and document the same in your evaluator notes, then send a letter to the physician for a signature upon completion of the evaluation (prior to the evaluation if able). This letter should include the date you spoke with the physician, what was discussed and his approval of the FCE.

Medical History

Obtain as much information as you can, whether or not it is related to the patient's diagnosis. Disease information may be relevant to overall functional capacity. If the patient has had surgery, questions should include dates, rehabilitation, current status and reason for surgery.

Mechanism of Injury

Having a thorough understanding of the mechanism of injury will help in developing a functional profile. Additionally, you will be better able to address safety and return to work issues by understanding what caused the initial injury.

Treatment History

Understanding of a patient's treatment history will help you to develop a picture of whether all appropriate measures are being taken to return the patient to work as expediently as possible. While you may not be in a position to return the patient to work, you may discover information that will be of value in doing so.

- Physical Therapy:* Is the patient receiving passive modalities or aggressive/active rehab?
What has been successful and what has not?
Is further treatment recommended?
- Physician:* What has the treating doctor said?
What has the IME doctor said?
Is surgery indicated?
What was the result of testing (e.g. MRI, EMG)?
Are you on any restrictions?
- Other:* Is the patient seeing a chiropractor?
Is the patient going for massage?
Is a TENS unit used?
Does the patient wear any braces or supports?
Is the patient receiving any pain management?
Is the patient receiving any psychological treatment?

Activity Tolerance:

Asking the patient how much or how long they can tolerate an activity provides them the opportunity to provide insight into their daily routine. This information should be correlated to the evaluation results as well as to what you know of their daily lives.

Sample questions: Do you have children at home?
How old?
If they are young – do you have to carry them around or can they walk?
How far do you live from work?

These questions directly relate to the lifting and driving tolerance questions. The idea is to ask questions that will offer information on their daily activities as they relate to the various components of the FCE.

By asking questions about the patient's daily life, you will be able to develop an understanding of what activities they report they can or cannot tolerate.

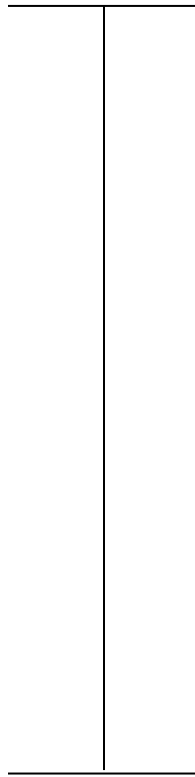
Job/Employment Information:

When applicable, questioning of a patient about their job will often give them the opportunity to express what they believe they can do at work and what modifications could be made to aid in returning them to work. It is useful to work to understand the job from a functional perspective. This will allow more appropriate and direct comparisons of the FCE results. You may also learn that the patient believes they are safe to return immediately or, conversely, that they do not intend to return to their former job.

Visual Analog Scale:

The Visual Analog Scale is 10 cm long. To begin, instruct the patient to make a mark (--) along the line from the extremes "No Pain At All" and "Pain As Bad As It Could Be," which they think represents their current pain in their major area of injury." The Scale is graded by using a ruler (in centimeters) to measure how far the line made by the patient is from the baseline. The number of centimeters, recorded as a whole number, is the score for this test.

Pain As Bad
As It Could Be



No Pain At All

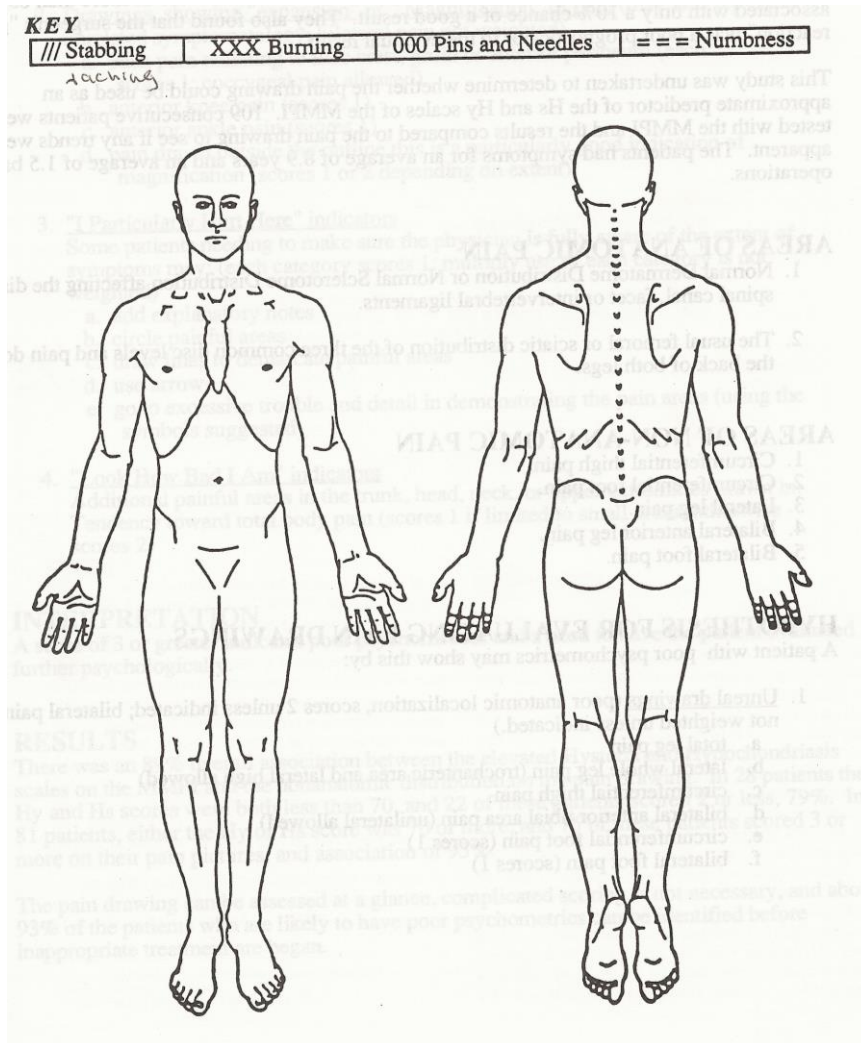
Borg Pain Scale:

The Borg Pain Scale uses a similar 0-10 scoring scale as the Visual Analog Scale. Using the printed or on-screen form, instruct the patient to rate their major area of pain using the scale and considering the word descriptors, at the present time.

10+	Maximal
10	Very, Very Strong
9	
8	
7	Very Strong
6	
5	Strong
4	Somewhat Strong
3	Moderate
2	Weak
1	Very Weak
0.5	Very, Very Weak
0	Nothing At All

Ransford Pain Drawing:

The Ransford Pain Drawing requires the patient to identify their areas and types of pain. Using a printed form, instruct the patient to indicate where their pain is located and what type of pain they feel at the present time. Have them use the symbols to describe the pain. Instruct them not to indicate areas of pain which are not related to the present injury or condition.



Scoring for the Ransford Pain Drawing is as follows:

1. Drawings with poor anatomic localization receives a score of 2 points unless anatomically indicated.
 - a. Total leg pain
 - b. Lateral whole leg pain (trochanteric area and lateral high allowed)
 - c. Circumferential thigh pain
 - d. Bilateral anterior tibial area pain (unilateral allowed)
 - e. Circumferential foot pain (scores 1)
 - f. Bilateral foot pain (scores 1)
 - g. Use of all four modalities (scores 1)
2. Drawings showing “magnification” of pain
 - a. Back pain radiating to iliac crest, groin or anterior perineum (each scores 1)
 - b. Anterior knee pain (scores 1)
 - c. Anterior ankle pain (scores 1)
 - d. Pain drawn outside the outline (scores 1)
3. “I particularly hurt here” indicators (each scores 1)
 - a. Addition of explanatory notes
 - b. Circling of painful areas
 - c. Drawing lines to demarcate painful areas
 - d. Use of arrows
 - e. Going to excessive trouble and detail in demonstrating the painful areas
4. “Look how bad I am” indicators
Additional painful areas in the trunk, head, neck or upper extremities drawn in. Tendency towards total body pain (scores 1 if limited to small areas, otherwise scores 2)

Grip Strength

Grip strength testing is a standardized test that is widely accepted in the medical rehabilitation community. In addition to determining a patient’s maximum grip strength, grip dynamometer testing is also well documented as a measure for consistency of effort.

Grip dynamometer testing is performed in each of the five positions of the dynamometer. At the 1st and 5th positions, the strength generated will typically be at the lowest because the muscles are at a mechanical disadvantage. At the 3rd position, grip should be at its strongest; however, this may vary depending on the size of one’s hand. For example, someone with larger hands may demonstrate the greatest strength at the 4th position. For smaller hands, the 2nd position may prove the highest reading. Each of these results is within acceptable norms.

When positioning the patient for this activity, have them sit comfortably in a chair. Their elbows should be bent to approximately a 90° angle. Elbows and forearms should not rest on any supports or on the patient's legs.

During instruction of this activity for the first time, you should explain to the patient that the gauge is hydraulic and that they will not feel the handle move, but the force will register by moving the needle. You may demonstrate this prior to the start of the activity.

When viewing the results graphically, they should look like a bell-shaped curve. A bell-shaped curve is indicative of a consistent effort. Again, some variations are still within acceptable limits. When a curve is not bell-shaped (*i.e.* flat-line, “w”-shaped, diagonal line, etc.), this is indicative of an inconsistent effort.

Fine Manipulation

Fine manipulation capacity is determined using the Perdue Pegboard protocol. This protocol was designed to measure the sort function capabilities of an individual by counting the number of units assembled in a very specific pattern. While the software will provide the specific instructions required to administer the test, you should become familiar with the specific patterns that are performed for each aspect of the protocol.

While administering this protocol it is important to remember to allow the patient sufficient opportunity to familiarize themselves with the protocol prior to administering the timed test. During the testing, your focus as the administrator is to ensure the time period is timed accurately and to count the actual number of pieces assembled. Final calculations of capacity will be performed by the software based upon the published data provided by Perdue Pegboard.

Sitting

Sitting is determined primarily through observing the length of time and quality of sitting during the first half of the FCE. During the interview, health questionnaire, gross manipulation and fine manipulation portions of the FCE, the subject will be seated continuously. Their focus, however, will be on the questions and tasks you will be asking them to answer/perform. As such, you will be able to observe their sitting tolerance in a distracted state.

In addition to simply quantifying the amount of time spent sitting continuously, you will also be observing whether the patient displays signs of discomfort with sitting. These may include, but are not limited to, fidgeting, weight shifting, repositioning, etc. If the individual chooses to stand at any time during these activities, you do not need to ask to have them sit. Allow them to choose their position without influence. This will, however, affect their time sitting continuously. You may choose to identify this as difficulty sitting if, in your judgment, the patient stood in order to relieve himself from the sitting position. Standing to go to the rest room, for example, is not necessarily a display of difficulty with sitting.

Squatting

During the instruction of the squatting, the patient should never be given a demonstration on how to perform the activity. Any such demonstration or explanation on how to squat may bias the patient in how to perform the task. Additionally, the patient should not be given instruction to change their body mechanics. Doing so may result in a false-positive representation of the squatting capacity. Upon completion of the evaluation you may offer body mechanics “tips” at your discretion.

During the analysis section of squatting, you will be required to address:

- Time completed
- Number of repetitions completed
- Demonstrated difficulties
- Cogwheeling

Select the answer that best represents the corresponding behavior.

Reaching

Reaching is a measure of the patient’s ability to tolerate assembly/disassembly activities with the hands in an overhead position. To conduct this activity, set up the Perdue Pegboard board by placing on top of the lifting platform set at shoulder height of the patient.

During this activity, the ability of the patient to stand is also assessed. Additionally, the use of both extremities in an overhead position is also evaluated along with fine manipulation. This activity will always be 5 minutes in length, unless the patient chooses terminate prior to the allotted time.

The patient may assemble/disassemble in any manner they desire. Remind the patient to attempt to use both hands during the activity unless they state before or during the activity they are unable.

During the analysis section of standing overhead assembly activity, you will be required to address:

- Time completed
- Demonstrated difficulties

Kneeling

This activity is performed by having the patient assume the kneeling position. They can kneel on one knee or two. This activity is being measured for overall ability with regard to completing the task. To conduct this activity, set up the Perdue Pegboard board by placing on top of the lifting platform set at 18 inches from floor height. This activity will always be 2 minutes in length, unless the patient chooses terminate prior to the allotted time.

The patient may assemble/disassemble in any manner they desire. Remind the patient to attempt to use both hands during the activity unless they state before or during the activity they are unable.

During the analysis section of standing overhead assembly activity, you will be required to address:

- Time completed
- Demonstrated difficulties

Crawling

Crawling is performed by first having the patient assume the “hands and knees” position then crawl forward 10 feet and back 10 feet. This activity is being measured for overall ability with regard to completing the task.

Please be sensitive to the fact that you are standing and your patient is on their knees. Position yourself off to the right, or left, and take a knee. Once you are eye to eye with the patient, you may begin the activity.

Without the patient standing up, you will have them continue the activity performing an assembly task. To conduct this activity, set up the Perdue Pegboard board by placing it on the floor in front of them. This activity will always be 2 minutes in length, unless the patient chooses terminate prior to the allotted time.

The patient may assemble/disassemble in any manner they desire. Remind the patient to attempt to use both hands during the activity unless they state before or during the activity they are unable.

During the analysis section of standing overhead assembly activity, you will be required to address:

- Time completed
- Demonstrated difficulties

Lifting

There are three lifting activities in the FCE. The first is the floor to waist lift with rotation. The second lift is the knee to chest lift without rotation. The third lift is the waist to shoulder lift with rotation. The protocol for the three lifts is essentially the same. The patient is introduced to the activity and positioned appropriately. The first lifting repetition is performed without weight in the box. Each subsequent lifting repetition is performed with an additional 5 pounds.

During the instruction of the lifting activity, the patient should not be given a demonstration on how to perform the activity. Any such demonstration or explanation on how to lift may bias the patient in how to perform the task. Additionally, the patient should not be given instruction to change their body mechanics. Doing so may result in a false-positive representation of their lifting capacity. Upon completion of the evaluation you may offer body mechanics “tips” at your discretion.

Floor to Waist Lift with Rotation

In order to set up for this activity, place the lifting container on the floor with all 5# weights positioned near the lifting container. Set up a lifting platform with a height setting of 30 inches. The platform should be approximately 2 feet from the lifting platform. The lifting container should be at a 90° to the lifting platform.

Knee to Chest Lift without Rotation

In order to set up for this activity, place the lifting container on a lifting platform with a height of 15 inches with all 5# weights positioned near the lifting container. Set up the second lifting platform with a height setting of 50 inches. The platform should be positioned directly behind the first lifting platform.

Waist to Shoulder Lift with Rotation

In order to set up for this activity, place the lifting container on a lifting platform with a height of 30 inches with all 5# weights positioned near the lifting container. Set up the second lifting platform with a height setting of 60 inches. The platform should be positioned approximately 2 feet from and at a 90° angle to the first lifting platform.

During the analysis section of each lift, you will be required to address:

- Pre-activity heart rate and blood pressure
- Post-activity heart rate and blood pressure
- Number of pounds lifted
- Number of lifting repetitions
- Presence of cogwheeling
- Amount of rotation at the waist
- Style of grip

Carrying

Carrying is performed using the lifting container with the patient gripping the dowel across the center of the container in whatever manner they choose. The first carrying repetition is performed without weight in the box. Each subsequent carrying repetition is performed with an additional 5 pounds.

During the instruction of the carrying activity, the patient should not be given a demonstration on how to perform the activity. Any such demonstration or explanation on how to carry may bias the patient in how to perform the task. Additionally, the patient should not be given instruction to change their body mechanics. Doing so may result in a false-positive representation of their carrying capacity. Upon completion of the evaluation you may offer body mechanics “tips” at your discretion.

Once the patient has lifted the container, they will walk ten feet forward, turn around and walk ten feet back. They will repeat this five times for a total of 100 feet carrying the container. You will provide the patient a rest for twenty seconds after each repetition and add five pounds to the container.

During the analysis section, you will be required to address:

- Pre-activity heart rate and blood pressure
- Post-activity heart rate and blood pressure
- Number of pounds carried 100 feet without difficulty
- Number of pounds carried 100 feet with difficulty
- Number of pounds in lifting container at termination
- Hand used to carry container

Climbing

The stair climbing activity is taken from the YMCA testing protocol. The patient is instructed to move at a comfortable pace. You may use any available stairway or stable stool to perform the activity.

Heart rate is taken prior to the start of the activity. **If the patient exceeds 85% of their age-adjusted heart rate or reports chest pain and/or inability to catch their breath, you must terminate the activity immediately.** Give the patient a rest and monitor their heart rate until it returns to its resting level prior to continuing. Should the patient's heart rate not return, or is slow to return to its resting level, contact their physician.

The patient is instructed to step up on the step with both feet, and then step down. Instruct the patient to step up and down at a pace of approximately one step every two seconds and continue stepping for one minute or until they feel the need to stop. During the activity, you will record the number of steps climbed up and down. Upon completion of the activity, heart rate is taken again.

Balancing

A patient's ability to balance is measured by their ability to perform a standing reach. You will use a ruler, placed at shoulder height to measure horizontal forward reach. Have the patient reach forward along the yard stick as far as possible using any strategy they choose. Instruct them not to touch the yard stick or any other surface or to take a step. Provide the patient with two practice trials. The testing protocol requires three trials. Each reach is recorded in inches.

Standing

Standing is determined primarily through observing the length of time and quality of standing during the second half of the FCE. During the physical capacity portions of the FCE, the subject will be standing almost continuously. Their focus, however, will be on the questions and tasks you will be asking them to answer/perform. As such, you will be able to observe their standing tolerance in a distracted state.

In addition to simply quantifying the amount of time spent standing continuously, you will also be observing whether the patient displays signs of discomfort with standing. These may include, but are not limited to, fidgeting, weight shifting, repositioning, etc. If the individual chooses to sit at any time during these activities, you do not need to ask to have them stand. Allow them to choose their position without influence. This will, however, affect their time standing

continuously. You may choose to identify this as difficulty standing if, in your judgment, the patient sat in order to relieve himself from the standing position.

Walking

This activity is calculated automatically by the software.

Pushing

This activity is calculated automatically by the software.

Pulling

This activity is calculated automatically by the software.

EVALUATORS NOTES

The FCE does not require you to produce any specific notes to be included in the written report. You may, however, wish to produce additional narrative information to be included in the report based upon your professional judgment. The following is a set of general guidelines you may wish to follow in generating evaluator notes:

Activity tolerance: Given the patient's diagnosis, it may or may not be appropriate to have difficulty tolerating various activities. You can identify the activities with which there was difficulty and correlate this to the stated diagnosis.

Patient comments: During the course of the FCE the patient may make comments of any nature of things. Where appropriate, document these in the Evaluator Notes. Other comments may be inappropriate to include in the report.

Interview information: The interview provides you and the patient an opportunity to interact and gather information in detail. You may learn information that is of importance regarding the case. This may or may not be related to the FCE. For example, a patient may state they want to go back to work, but their attorney is keeping them out, or they may report they have no plans to go back to the job due to conflicts with their employer. While this information is not directly related to their functional capacity, it is relevant to the "big picture."

Specific Treatment Recommendations: While recommendations for treatment will be infrequent, they will, on occasion, be appropriate. If a referral source specifically asks for treatment recommendations, you can use the following information to make concise, cogent recommendations. Remember that your recommendations should be supported by objective information obtained in the FCE.

Always take into consideration:

- Consistency Determination
- Time out of work
- Workday tolerance demonstrated during evaluation
- Capabilities compared to Job Analysis (if provided)
- Past treatments and whether treatment is successful
- Reports and Behaviors during evaluation
- Medical notes provided by referral source (Past Medical History)
- Age of patient
- Diagnosis

Effect of Consistency On Recommendations

The Consistency of Effort certainly has an effect on what to recommend. The following concepts should be kept in mind when documenting your Evaluator Notes.

Consistency of Effort Determinations

An overall consistency of effort is determined by the system through statistical analysis of the evaluation's validity factors based on the patient's demonstrated physical levels. The physical levels demonstrated by the patient are input into the system by the evaluator for analysis. Such factors include pain scale results, grip dynamometry results and cogwheeling among other factors. The system determines the overall rating based on these factors however, the actual consistency determination that is depicted on the final report is only made by the therapist who performed the evaluation. The therapist has the ability to accept/agree with the consistency the system defines, or they can choose a consistency level that best represents the patient's level of effort. The therapist must be able to show, through sound, objective, and/or accepted standards of practice, rationale for the level of effort they assign to a patient. No consistency of effort is defined on the final report until the therapist assigns his/her final determination of effort.

Consistent

The above recommendations are typically beneficial to the consistent participator.

Sub-Consistent

As with the consistent effort, the above recommendations are typically satisfactory as long as the Consistency level is addressed.

Inconsistent

Typically, it is not recommended for a rehabilitative program to be given due to the patient's documented inappropriate behavior. If the patient were to be referred for restorative care, it is likely he/she would not be compliant.

What Should Not Be Included In the Evaluator Notes

- Overly technical medical terminology
- Anything you cannot back up with your objective findings
- Slang or abbreviations
- Inappropriate subjective comments from the patient
- Recommendations solely on what the patient tells you
- Poor spelling and grammar

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