The Essentials of the Chiropractic, Orthopedic and Neurologic Examination

What Follows is a Summary of Common Exam Procedures Seen in a Chiropractic Office

Many Other Tests Exist That Aren’t Included in This Module

Learning About the Patient Involves Several Steps

- Consultation with patient
- History-taking
- Examination
- Diagnostic testing options

The Examination Often Has More Than One Component

- General physical examination*
- Chiropractic examination
- Orthopedic examination
- Neurologic examination

It depends on the patient and condition

*Covered in a previous module

PART Formula Identifies the Minimum Requirements to Report

- Pain reported by patient / areas of tenderness found on examination
- Asymmetry / misalignment of an anatomical structure
- Range of motion findings
- Tissue changes / muscle tone abnormalities discovered

Used in documentation for Medicare and others

I. The Chiropractic Examination

- A variety of methods are used to determine what spinal or other body areas may or may not benefit from chiropractic treatment
- Is not limited to but significantly depends on palpation
- Includes bony structural, soft-tissue, postural and range of motion components
Postural Examination

May use observation, a plumb line or a posture grid to assess recent or long-standing postural issues.

Examining for Spinal Scoliosis

- It is a lateral curvature of the spine of 10° or more
- Under 10° is considered a normal variant
- May be more than one spinal curve
- 65% idiopathic (from an unidentifiable cause); 15% congenital; 10% due to neuromuscular disease
- Affects 3-5% of the population
- Generally isn’t the source of pain
- Graded in four categories; 95% are in the mildest category (Grade I)
- Male / female incidence is equal, but females are 8 times more likely to develop a larger curvature
- Age of onset usually 10-15 years

Joint Palpation

The chiropractor feels for mobility (or lack of it) in bony structures, as well as issues with alignment and symmetry.
Joint Palpation
- Static palpation - patient is not moving during the exam
- Motion palpation - patient is asked to move while contact is held on two or more bony structures

Examining for Joint Mobility
- Hypermobility (more mobility than expected) can involve
  - 2 adjacent segments
  - Multiple joints in one area
  - Entire regions of the spine or other structures
- Hypomobility (reduced mobility) can involve
  - 2 adjacent segments
  - Multiple joints in one area
  - Entire regions of the spine or other structures
  - Often referred to by chiropractors as subluxation, joint fixation or “locked joints”

Soft-Tissue Examination
For muscle tone, swelling, masses, temperature changes

Percussion
- Tapping an area to listen for sounds and to elicit complaints
- Conditions that inflame bone can cause pain if the structure is percussed (and sometimes when palpated)
- Examples are fracture, infections, and malignancy

Leg Length Examination
- A difference in length between the lower extremities can contribute to lower back and lower extremity symptoms
- Examination by observation (at right)
- Examination by measurement
  - A measuring device (below left)
  - With radiography and a scanogram ruler (the most accurate method, but often not worth the radiation)

II. The Orthopedic Examination
- Mechanical tests to isolate area(s) of involvement, frequently performed with the chiropractic examination
- Tests vary from one anatomical area to another
- Dozens of orthopedic tests exist, but some are more routinely used than others
- Tests in a chiropractic office for the spine, shoulder, knee, elbow, wrist, ankle, hip, foot
- Tests are usually done in the order of patient’s position
Common Cervical Spine Orthopedic Tests

- **Jackson Compression Test:** examiner exerts downward pressure on top of the patient’s head; positive if this exacerbates cervical and or radiating pain or other symptoms to the arm, indicating nerve root compression
- **Soto-Hall Test:** the examiner flexes the head and neck upon the sternum and is mainly used to diagnose and localize vertebral bony disease and injuries

Common Lumbar Spine Orthopedic Tests

- **Kemp’s Test:** the patient is placed into extension and rotation of the lumbar spine and, if productive of pain and or numbness or tingling radiating from the lower back to the buttocks or legs, indicates disc or facet joint involvement
- **Straight-Leg Raise (SLR):** is typically used to determine if a low back spinal nerve is under tension after the leg is raised; also localizes source of pain

Common Shoulder Orthopedic Tests

- **Impingement Test:** pain upon this action may indicate tendon entrapment
- **Drop arm test:** if patient can’t hold the arm up, the topmost rotator cuff tendon (supraspinatus) may be torn

Common Knee Orthopedic Tests

- **Abduction and adduction stress tests:** pain upon compressing or distracting the knee may indicate damage to the exterior (collateral) ligaments
- **Drawer tests:** unusual play in the knee joint may indicate damage to the internal (cruciate) ligaments

The Most Common Hip Orthopedic Test

**Fabere (Patrick’s) Test:** if pain is produced in the movement seen here, arthritis or other inflammation of the hip or sacroiliac involvement is usually indicated

Range of Motion (ROM)

- Helps to localize problem areas
- Compare patient ROM with normal values
- Demonstrates what movements cause symptoms
- Can be done manually or with ROM devices
**Range of Motion (ROM)**

- Spine and extremities can be measured
- Extremity ROM measurement uses devices seen here (goniometers)

**III. The Neurologic Examination**

Frequently performed with the chiropractic examination to confirm or rule out
- Specific nerve involvement
- Neurologic disease

**Observation is a Major Component of the Neurologic Examination**

Hand tremors are present in a number of neurologic conditions

**Cranial Nerve (CN) Evaluation**

- Testing function of the 12 pairs of nerves that originate in the brain
- One or more of the CN can be affected by conditions such as tumors, aneurysm and neurologic disease

**Cranial Nerve Evaluation**

- I (olfactory n.) - smell
- II (optic n.) - vision
- III (oculomotor n.) - light response, eye movement
- IV (trochlear n.) - eye movement
- V (trigeminal n.) - facial sensation
- VI (abducens n.) - eye movement
- VII (facial n.) - facial muscles, taste
- VIII (auditory n.) – hearing, balance
- IX (glossopharangeal n.) - taste, gag reflex
- X (vagus n.) – speaking, swallowing
- XI (spinal accessory n.) - shoulder shrug
- XII (hypoglossal n.) - tongue movement
Sensory Examination

• Helps identify areas of increased or decreased sensation
• May be correlated with nerve distribution (dermatomes) to confirm where problem is originating from

Dermatomes of the body

Reflexes

• Involuntary and instantaneous movements in response to a stimulus
• Deep tendon reflexes (DTR’s), pathological reflexes, and superficial reflexes
• Abnormal response to testing may reveal certain neurologic disorders

Strength Testing (Motor Function)

• May reveal neurologic deficits
• May reveal functional deficits
• May identify areas that need strengthening
• Can be performed manually or with instruments

Gait Examination

• Gait is observed for possible abnormalities
• Patient may then be asked to attempt various walking maneuvers to rule out neurologic disease (and sometimes nerve root irritation)
Examples of Abnormal Gait

All raise the possibility of neurologic disease

Testing for Carpal Tunnel Syndrome

A condition of the wrist, hand and fingers caused by irritation of one or more nerves at the wrist, often causing pain, tingling or numbness

- **Tinel Sign**: gentle tapping over the anterior wrist may cause pain and or tingling there and or into the hand

- **Phalen's Sign**: holding wrists as shown for 30 to 60 seconds may cause pain and/or tingling there and or into the hand

Blood Laboratory Studies

(“Labwork,” “Labs”)

- To confirm or rule out other health care conditions that might either be the cause of the patient’s symptoms or might be a factor
- To confirm or rule out certain inflammatory joint conditions such as rheumatoid arthritis, ankylosing spondylitis
- To confirm or rule out connective tissue diseases such as systemic lupus erythematosus (SLE)

“Imaging”

Relates to any diagnostic procedure that produces an image of a body part

- Radiography (includes mammography)
- MRI
- CT
- Diagnostic ultrasound
- Nuclear medicine
- PET
- Echocardiography
- Bone mineral densitometry

Common Imaging Studies Ordered by Chiropractic Doctors

Exam may identify a need for diagnostic testing

- Blood laboratory studies
- Imaging
- Neurodiagnostic studies
- Other, as needed

Exam may identify a need for diagnostic testing

- Blood laboratory studies
- Imaging
- Neurodiagnostic studies
- Other, as needed

Exam may identify a need for diagnostic testing

- Blood laboratory studies
- Imaging
- Neurodiagnostic studies
- Other, as needed

Exam may identify a need for diagnostic testing

- Blood laboratory studies
- Imaging
- Neurodiagnostic studies
- Other, as needed
Radiography (X-Ray)

- Best for demonstrating bone
- Shows soft tissue poorly
- Can show some types of misalignment, but less reliably than once thought
- Most chiropractors rely much more heavily on exam findings than x-ray

Magnetic Resonance Imaging (MRI)

- Uses radio frequencies to make “slices” instead of x-ray
- Best for soft tissue, brain, muscles, heart, and cancer detection
- Often ordered by chiropractors to rule out disc herniations (ruptures) and spinal stenosis (narrowing of the opening where the spinal cord and or spinal nerves pass through)

Computerized tomography (CT)

- Also CAT (computerized axial tomography)
- X-ray machine makes circular movements around patient, taking “slices” (images)
- Best suited for viewing bone, lung and chest problems and cancers

Nuclear Medicine Bone Scan

- Radioactive substance is injected into patient and the scanner camera detects it in bone
- Chiropractors use it to detect
  - Subtle fractures that are otherwise difficult to see
  - Inflammatory bone conditions
  - Bone cancer

Bone Mineral Densitometry (BMD)

- A low-power x-ray machine
- Measures density of bone in hip and spine (smaller units measure extremities instead)
- Computer model then predicts possibility of fracture
- Chiropractors order BMD to rule out osteopenia and osteoporosis (conditions where bone minerals are being lost faster than they can be rebuilt)

Neurodiagnostic Studies (EMG,* NCV**)

- Electrical tests performed to find diseases that damage muscle tissue or nerves that result in weakness, paralysis, or muscle spasms

*Electromyography  **Nerve conduction velocity