

*Manual for
Chiropractic
Licensure*



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SECTION 1.1: PRELIMINARY PROCEDURES**INSPECTION**

Observe the patient upon entry and assess the general status. Note abnormal speech, body movements, gait and habitus.

HISTORY

The history is an essential aspect to the evaluation of a patient as it directs the working diagnosis and examination. An effective interview includes questions pertinent to the presenting complaint and the interpretation of the responses. The history consists of:

CHIEF COMPLAINT

PRESENT ILLNESS

PAST MEDICAL HISTORY

ASSOCIATED SYMPTOMS

FAMILY MEDICAL HISTORY

PERSONAL SOCIAL HISTORY

PATIENT PROFILE

CHIEF COMPLAINT

Inquire and record the patient's reason for seeking care in their own words.

How can I help you today? What seems to be the problem? What brings you in today?

"o.p.q.r.s.t."

PRESENT ILLNESS

Obtain additional and specific details on the Chief Complaint.

onset- *When did you first notice this? What were you doing at the time?*

palliative & provocative- *Anything (position, activity, ice/heat, medications) make your problem better or worse?*

quality- *How would you describe (sharp, dull, achy, throbbing, etc.) the problem?*

radiating & site- *Show me (outline) where your pain is and any other problems anywhere else, even if it seems unrelated?*

severity- *How would you rate the pain? Has it changed (better or worse) in intensity?*

timing- *Is there any time where the problem seems better or worse?*

"m.d.t.h.i.s.drug"

PAST MEDICAL HISTORY

Investigate medical history and previous treatment.

malignancy- *Any history of cancer, weight loss or unusual bleeding/discharges?*

diabetes- *Are you diabetic? Do you have any excess/unusual thirst or urination?*

trauma- *Any falls, accidents or injuries that may be related to your current problem?*

hospitalizations- *Have you ever been hospitalized, and if so what for?*

illness/infections- *Any illnesses (other than childhood)? Recent or current fever?*

surgery- *Any surgery (tonsillectomy, appendectomy, dental surgery, etc.)?*

SECTION 1: PHYSICAL EXAMINATION

drugs- *Are you (now and in the past) on any medications. If so what for?*

previous treatment- *Have you seen anyone else for this condition?*

*Ask questions
about related
areas only!*

ASSOCIATED SYMPTOMS

To detect relevant illnesses or tendencies not revealed in the PAST HISTORY, question the patient on specific body systems;

eyes/ears/nose/throat, neuropsychiatric- *vision changes, headaches, confusion?*

respiratory- *coughing, wheezing, difficulty breathing?*

cardiovascular- *palpitations, coldness, pressure or pain in the chest?*

gastrointestinal- *stool changes (diarrhea, constipation, or color changes) or problems with foods?*

genitourinary /gynecological- *flank pain, urinary changes, LMP, or sex issues?*

vascular- *throbbing, coldness, pallor or cyanosis?*

FAMILY MEDICAL HISTORY

Review for any familial or genetic tendencies, and possible exposure to communicable or environmental conditions.

Anyone have this condition or any similar symptoms, now or in the past?

Any family history of cancer, diabetes, or major illnesses?

“s.o.s. & s.”

PERSONAL /SOCIAL HISTORY

Obtain a perspective of the patient’s personal interactions and relationships. Also review the patient’s occupation and hobbies to reveal potential health hazards.

sports & hobbies- *What sports and hobbies do you do (now and in the past)? Any of these activities seem to be related to or affected by your problem?*

occupation- *What do you do for a living (now and in the past)? What does it entail? Is your problem related to your job?*

smoking/drinking/recreational drugs- *Have you ever smoked, drank alcohol or used recreational drugs? If so, how much?*

sexual history- *Have you ever engaged in risky, unprotected sex?*

PATIENT PROFILE

Compose a general summary of the patient correlating the information brought forth from the interview.

SECTION 1: PHYSICAL EXAMINATION

VITAL SIGNS

	ADULT	INFANT
TEMPERATURE	98.6°	100°
PULSE RATE	60-100	110
RESPIRATORY RATE	14-18	20-40
BLOOD PRESSURE	120/80	95/60

GEORGE'S TEST- see SECTION 2.7

N.B.- A routine examination will involve all regions of the body. In a particular patient however, the examination will include a more detailed assessment of the organs and systems relevant to the working diagnosis. All examinations should follow a consistent, logical procedure:

"i.p.p.i."

INSPECTION
PALPATION
PERCUSSION
INSTRUMENTATION

Each element may be more or less pertinent in some situations and include additional or more detailed procedures.

SECTION 1.2: HEAD

EYES
EARS
NOSE/SINUSES/MOUTH/PHARYNX
NECK

EYE

INSPECTION

Inspect the outer structures for:

color- of the conjunctiva, sclera and iris
lesions- abnormalities of shape, corneal opacities, blockage of puncta
asymmetry- distribution of eyebrows (*myxedema*- loss of the lateral 1/3), deviation of gaze ("*strabismus*"), ocular movements, "*P.E.R.R.L.A.*"
masses / nodules- xanthelasma, hordeolum and chalazion
swelling/edema- of conjunctiva or lacrimal apparatus, periorbital edema
vascular changes- of conjunctiva and sclera



SECTION 1: PHYSICAL EXAMINATION

“m.a.t.t.e.r.”

PALPATION

Palpate the ocular orbits, the eyeball for tension, and the lacrimal gland/duct.

INSTRUMENTATION

A *DIOPTER* refers to the refractive power of a lens. The “0” diopter is used to visualize the red reflex and retina in normal vision.

BLACK NUMBERS (+)

convex/short focus

outer structures (cornea, lens)

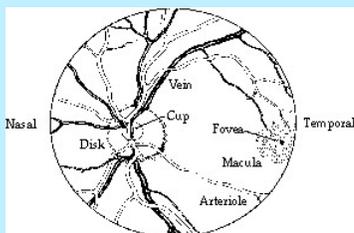
RED NUMBERS (-)

concave/long focus

inner structures (disc, vessels, retina)

Follow the Red Reflex to find the fundus, and bring the retina into focus. Examine the OPTIC DISC, BLOOD VESSELS, AND RETINA.

OPTIC DISC: Trace the blood vessels towards the optic disk. Note the Margin/Color of the Disk, and the Size/Shape of the Optic Cup.



MARGIN- The margin of the disk should be clear and well-defined.

COLOR- The disk will be a creamy-orange to a pinkish yellow.

SIZE- The CUP:DISK ratio is normally 1:2.

SHAPE- Look for elevation (**PAPILLEDEMA**), or depression (**CUPPING**).

BLOOD VESSELS: ARTERIOLES are smaller, thinner and brighter (the *LIGHT REFLEX*) than VEINS. The vessels may demonstrate *hypertensive changes* such as narrowing, tortuosity, thickening, copper/silver wire, and A-V nicking.

RETINAL FIELDS: The *MACULA* (and *FOVEA CENTRALIS*) is about 2 disc diameters temporally to the disc. Note any retinal pigmentation or deposits;

Exudates: “cotton wool” and “waxy” seen in hypertension.

Hemorrhages: “flame” and “deep” suggest hypertension.

Microaneurysms: diabetes mellitus.

EAR

INSPECTION

Inspect the *PINNA* for size, shape, color, position and nodules (e.g., tophi or sebaceous cysts). Check the *EXTERNAL AUDITORY MEATUS* (E.A.M.) for discharges.

PALPATION

Palpate the pinna for swelling or nodules. Pain upon pulling the pinna and tragus suggests *otitis externa*. Pain from pressure on the

tragus = otitis externa

mastoid = otitis media

INSTRUMENTATION

Make sure there are no obstructions. Select the largest *SPECULUM* which will fit into the canal. Tilt the patient's head laterally away and pull the pinna UP and BACK for adults; DOWN and BACK for children. Inspect the AUDITORY CANAL and TYMPANIC MEMBRANE for abnormalities.

AUDITORY CANAL- Look for discharges, growths, or discolorations and lesions.

TYMPANIC MEMBRANE- Identify the landmarks (*manubrium, umbo*, short process of the *malleus*), the LIGHT REFLEX (which points anterior-inferiorly) and the EARDRUM (normal color is pearly-gray). Look for bulging/retraction, perforations and fluid level:

ANGRY RED = otitis media

BLUE = hemorrhage

WHITE = suppurative otitis media

AMBER = serous otitis media

PINK = myringitis

A hearing disorder may be identified during the history and with the *WATCH* and *WHISPER* tests. *RINNE'S* and *WEBER'S* tests will help to distinguish between a *SENSORINEURAL* and a *CONDUCTION* problem. Select a tuning fork which approximates the frequency of normal speech (512-1024Hz).

RINNE'S: Hold the stem of tuning fork on the mastoid of the patient. When the patient is unable to hear the sound (by bone conduction), immediately move the tuning fork near the E.A.M. and until they no longer hear the sound (by air conduction).

RINNE POSITIVE (R+); (AC 2x's > BC) = normal

RINNE NEGATIVE (R-); (AC < BC) = air conduction deafness

RINNE EQUAL (R=); (AC = BC) = air conduction deafness

RINNE DIMINISHED (R↓); (AC & BC ↓) = nerve (sensorineural) deafness

SECTION 2.1: INTRODUCTION**PURPOSE**

Orthopedic tests are effective tools in making a diagnostic evaluation of a patient who presents with pain. The function of orthopedic tests is to;

introduce a FORCE or MOVEMENT which is designed to REPRODUCE the PAIN.

By understanding the mechanics of the test, you will be able to identify the mechanism of the pain.

SUBJECT STRUCTURE

Each orthopedic test consists of three components;

- 1) MECHANICS of the test,
- 2) (+) FINDINGS, and the
- 3) INDICATIONS

PRESENTATION FORMAT

For the exam, you must be able to;

- 1) DEMONSTRATE the tests, or
- 2) APPLY the appropriate and relevant tests to a specific case history or a condition, or
- 3) INTERPRET the findings from a series of tests (make a differential diagnosis).

While making your presentation for the exam, be sure to demonstrate a logical, SAFE procedure. It MAY be critical to state that you will make sure there are

!!!

NO CONTRAINDICATIONS (from the case history
or the radiographs before proceeding with the exam)!

Keep your presentation organized and follow a logical procedure. Start with the most innocuous procedures first;

- INSPECTION
- PALPATION
- PERCUSSION
- RANGES OF MOTION

INSPECTION

In addition to inspection of the specific areas of involvement, also note the patient's station and gait, and any evidence of antalgic posture or abnormal movements.

NOTE: The following descriptions of orthopedic tests must be prefaced by several statements;

- You will frequently encounter tests which are mechanically similar or identical. While apparently redundant, you must know and present these as separate tests.
- You may have learned slightly different procedures from other authors and teachers. Do not let the details confuse you. You must, however make sure that;
 - your procedure has a logical, mechanical basis,
 - you are able to apply the appropriate procedures, and
 - you make an interpretation consistent with the findings and history.
- The accuracy and validity of any test depends upon the stage and severity of the condition. The ability to make an interpretation is largely subjective as one must rely upon the patient's understanding of what is expected of them, and the veracity of their response.

SECTION 2.2: CERVICAL SPINE

COMPRESSION
DISTRACTION
SHOULDER-DEPRESSOR
BAKODY'S
SOTO-HALL
LHERMITTE'S
SWALLOWING

CERVICAL COMPRESSION

Place both hands on top of the patient's head and gradually apply a downward pressure...

(+)

→ nerve root compression

N.B.- A greater reduction of the I.V.F. can be achieved with variations of this maneuver.

Repeat the above procedure with;

- 1) JACKSON'S- lateral flexion with compression.
- 2) CERVICAL ROTATION- with compression.
- 3) MAXIMUM CERVICAL COMPRESSION- cervical rotation, lateral flexion, and extension.
- 4) SPURLING'S- maximal cervical compression with

- 2) **RADIATING REACTION**- suggests a PRIMARY BONE MALIGNANCY and generally rules out SECONDARY MALIGNANCIES and BENIGN neoplasms. This is also described as the “sun-burst” or “spiculated” appearance.
- 3) **LAMINATED**- or “onion-skin” appearance is associated with Ewing’ sarcoma.

CORTEX

The cortex is the outer layer of compact bone which provides strength. Normally, it is thickest along the diaphysis, and thinner towards the epiphysis. The cortex may be altered in two ways;

- 1) **THICKNESS**- Look for a DECREASED or INCREASED thickness.
 - a THINNED cortex is typical of OSTEOPOROSIS. Evidence of osteoporosis is an important diagnostic clue as it:
 - identifies the AGE of the patient
 - look for possible FRACTURES
 - a THICKENED cortex may be seen in PAGET’S
- 2) **CONTINUITY**- A break in the continuity of the cortex may suggest a FRACTURE. If a section of the cortex is missing, it may be indicative of a possible OSTEOLYTIC PROCESS:
 - MALIGNANCIES, or
 - INFECTION.

A fracture of bone will always disrupt the cortex (look for cortical buckling).

MEDULLA

The medullary (or bone marrow) cavity of the diaphysis is continuous with the spongy bone of the epiphysis, and demonstrates a mesh-like TRABECULAR PATTERN. This pattern may be INCREASED or DECREASED, or not visualized at all.

EPIPHYSIS

Risser’s sign correlates the iliac apophysis with skeletal/spinal maturation.

The presence of the growth plate will help to identify the skeletal AGE of the patient (narrowing the diagnostic possibilities). Also, this area of bone is predisposed to DYSPLASIAS and ISCHEMIAS.

ARTICULATIONS

Look for dislocations, intra-articular disturbances or evidence of the ARTHRITIDES:

- 1) irregular articular surfaces, 2) articular sclerosis, and 3) decreased joint space.

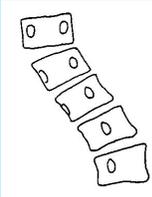
SALIENT FEATURES OF PRIMARY BONE TUMORS AND TUMOR-LIKE LESIONS

PROCESS	AGE & SEX	RADIOGRAPHIC FINDINGS	CLINICAL FEATURES
OSTEOSARCOMA	10-25 m2:1	metaphysis of long bone; 50-60% in the knee; periosteal elevation; bone expansion; cortical erosion	weight loss; anemia; local P! and swelling; ↑ alkaline phosphatase and ESR
EWING'S SARCOMA	5-30 m2:1	tubular bones (meta-diaphyseal) and flat bones; diffuse rarefaction; subperiosteal laminations- "onion-skin"; "cortical saucering"; and sclerosis	mimics osteomyelitis; P!, swelling, fever, rubor; leukocytosis, ↑ ESR; anemia
MULTIPLE MYELOMA	>40 m2:1	"punched out areas of osseous destruction"; general osteoporosis; pathological fracture; no reactive sclerosis or expansion	local P!, swelling; anemia; ↑ serum and urinary Ca ⁺⁺ ; Bence-Jones proteinuria; hyperglobinuria and -emia
OSTEOID OSTEOMA	10-25 m2:1	central radiolucent nidus (<2 cm in diameter) surrounded by a dense reactive sclerosis; favors the tibia and femur, and posterior spinal elements	local P!, "worse at night and relieved by aspirin"; scoliosis with spinal lesions
OSTEOBLASTOMA	10-25 m2:1	over 50% in posterior spine; radiolucent nidus (>2 cm in diameter) with minimal to absent reactive sclerosis	local P! less severe than osteoid osteoma, and not relieved by salicylates; cord signs
OSTEO-CHONDROMA	10-25 m2:1	pedunculated or sessile; cartilage capped "coat-hanger" or "cauliflower" exostosis; grows away from the epiphysis; favors the knee and humerus	generally asymptomatic unless pressure related

PEDICLE ROTATION

A-P dorsal / lumbar

The degree of vertebral rotation can be determined by the amount of pedicle displacement (on the concave side of the curve) towards the midline of the vertebral body.

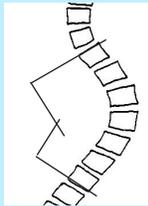


- + **Rotation-** pedicle 1/3 towards the midline
- ++ **Rotation-** pedicle 2/3 towards the midline
- +++ **Rotation-** pedicle at the midline
- ++++ **Rotation-** pedicle rotated beyond the midline

COBB'S METHOD FOR SCOLIOSIS

A-P thoracic

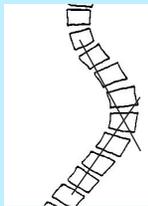
Lines are drawn on the superior endplate of the uppermost vertebra, and on the inferior endplate of the lowest vertebra of the curve (these are the vertebrae with the greatest degree of tilt into the concavity). Perpendiculars to these lines are constructed and the angle of intersection is used to measure the curvature.



RISER-FERGUSON'S METHOD FOR SCOLIOSIS

A-P thoracic

A line is drawn from the center of the superior-most vertebra of the curve to the center of the vertebra at the apex of the curve. A second line is drawn from the center of the inferior-most vertebra up to the apex. The angle at the intersection is determined.



LUMBAR SPINE

GRAVITATIONAL WEIGHT LINE

lateral lumbar

Also known as **FERGUSON'S LINE**. A vertical line, perpendicular to the true horizontal is drawn down from the center of L3. This line should approximate the anterior quarter of the sacral base. If the line is



- anterior to the sacral base → **hyperlordosis**,
- if the line is posterior → **hypolordosis**.

ANGLE OF CURVATURE

lateral lumbar

The angle formed by the intersection of perpendiculars to a line on the superior end-plate of L1 and a line on the inferior endplate of L5. The normal angle is approximately **50-60°**.

