History Taking & OSCE Examination
Introductory Course for Fourth Year Medical Students

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Preface

OSCE is the abbreviation of “Objective Structured Clinical Examination”. This examination tests your clinical skills in gathering medical information from patients by history taking and physical examination. It is structured around a differential diagnosis of the presenting complaint; which is the systematic method of diagnosing a disorder (e.g., headache) that lacks unique symptoms or signs.

OSCE is made up of few stations (6 for the introductory course); in each you spend few minutes (5mins for the introductory course) to gather the medical information required. Questions are easy to answer if you had studied them and come in short statements. The exam is done on models (your colleagues) not true patients. You are obligated to comment on each step as you proceed along the examination. An examiner will be present in the room, but he’s not supposed to talk neither instruct you through those 5 minutes … so don’t try to ask for his help, he’s is present to assign you a mark only.

5 minutes may seem short time, actually they are not! … 5 mins will be enough Insha’a Allah to answer the provided question if you used them wisely. Don’t panic, Don’t hesitate making ‘mmmm’ or ‘ahhhhh’, and be polite. Self-confidence and clear voice are essential to master this exam.

Preparing for OSCE requires daily practice. Don’t leave its study for the last week of the semester. Try to practice one new physical examination skill each day, because practice is the key to master OSCE. Never be satisfied with your skills, try always to improve and fine tune them.

This dossier is intentionally made for daily-life clinical practice, to make your understanding of the provided topics more comprehensive. I’ve intension to make an exam night review version, asking Allah to give me good well and time to manage that. The dossier is the gather of practice and learning from residents and colleges plus reading OSCE books and websites, but in the core is based on Macleaod’s Clinical Examination Book 12th edition.

I highly recommend that you build a good relationship with Macleaod’s book; I think of it as the heart of clinical books.

For any suggestions to improve the contents or the design, please contact me on; http://www.facebook.com/hananmnsr or email me on; hanan.ju@gmail.com
Your suggestions are welcomed 😊 may Allah bless you
Acknowledgement

I am grateful to all those medical students who helped or contributed once in the past for making OSCE dossier; for ours being a continuation of theirs. I would like to thank MD. Mai Al-toos, my introductory course instructor, for her tolerance, encouragement, and dedication for teaching.
I greatly appreciate the work of the editors named, that was precise and of value to develop the content of this dossier. Finally, with a heart full of gratitude, I would like to thank our medical committee, named Saleh Roman, Anas Al-bawaliz, Abdallah Mansour, Belal Abu-hazem and Bara’a Al-sharqawi, for their giving and support through those hard years of medical school.

I am and all my work is the fruit of my parents, for whom I’m grateful to the end of my life, and for whom I dedicate this work.

بسم الله الرحمن الرحيم

(ُقُلْ يُؤْمِنَ مَنْ يَعْمَلُ مِنْ قَدَرٍ خَيْرًا يَرَهُ وَمَنْ يَعْمَلُ مِنْ قَدَرٍ شَرًا يَرَهُ)
سورة الزلزلة – الآيتان 7 و 8

اللهم تقبل أعمالنا خالصة لوجهك الكريم، واجعلها ثقيلا برحمتك في ميزان حسناتنا، وبارك الله في هذا العمل، وانفع به الناس...

أمين
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Section 1

History
Gathering Information

|| Patient profile:

- Patient’s name, age, sex, marital status, address and job
- Place of admission (floor, ICU, CCU, burn unit...etc)
- Source & time of referral (OPD, ER, other hospitals...etc)
- Source of history (patient himself, relative, healthcare worker...etc)
- History taken by who, time & date of history taking

|| Presenting/ chief complaint:

- The major problem in the pt’s own words with its duration.
  Ex. cough of 3 days prior to admission, knee pain of 3 years duration ... etc
- Do NOT use medical terminology.
  Ex. use shortness of breath instead of dyspnea, vomiting of blood or dark vomitus instead of hematemesis, abnormal shaking movements instead of tremor... etc
- Clarify what the patient means by any term he/ she uses; avoid jargons!
  Ex. if the patient says he has a "funny feeling in his head", clarify by asking "What do you exactly mean by "Funny feeling in your head"??
** Medical Jargon is to use medical terms while talking with patients, they may consider it as a rude behavior.
- The chief complaint must be precise and concise

|| History of presenting illness:

- It’s an analysis of the presenting complaint
- Involves active listening & reflection:
  Let the patient tell his own story, summarize what you have understood and ask for further clarification.
For any presenting complaint (typically pain but can be applied to ANY complaint with some modifications) describe ‘SOCRATES’:

1. **Site;** localized or generalized.

2. **Onset;** gradual, sudden, abrupt. Mention associated circumstances (ex. Playing football, watching TV, getting off bed...etc).
   
   Always begin with asking “What were you doing when the problem started?” the answer will reveal many details about the onset and the accompanying circumstances.

3. **Character;** sharp, dull, burning, tingling, boring, stabbing, crushing, tugging...etc
   
   It’s preferred to use the pt’s own description rather than offering suggestions.

4. **Radiation**
   
   الألم يضرب/ ينتقل/ يسبع لمكان آخر في جسدي؟ أو يبقى مكانه؟

5. **Associated symptoms**
   
   usually ask about nausea, vomiting, fever, chills (قشعريرة/ rigors (ارتجاج الجسم من البرد)), weight loss, headache, sweating, cough or any other related symptoms and explain them briefly

6. **Timing;** duration, course, and pattern. Either episodic (give duration & frequency) or continuous (describe change in severity along a specified time course like a day or a week)

7. **Exacerbating and relieving factors;**
   
   is it exacerbated by movement, light, sound ...etc
   is it relieved by rest, darkened room, pain killers, ... etc

8. **Severity;** using a scale of 10 where (0) no pain and (10) maximum pain similar to toothache or pain of labor.
   
   An alternative way to assess the severity is to ask if the pain woke the patient from sleep (very severe), did he come to the hospital driving and if he is capable of doing activities of daily living (not very severe), you can comment "the pain was severe enough to wake the patient from sleep"...etc

# ask following SOCRATES, but write in history as follows; character, then site and radiation, then onset and timing, then severity, then exacerbating and relieving factors, finally associated symptoms with brief description for each... this way is more logically synchronous for listener to follow up with you #
- Previous history of similar complaint. If present define change from current one.

- Include review of the system of the presenting illness
  i.e. if the pt has cough, you must mention review of respiratory system.

- Include other parts of the history **if relevant**
  ex) smoking status, family Hx, travel Hx,...etc

- Write down investigations which were done for the presenting illness, and medications given
  before admission – as in the ER

- Explain what happened to the pt from the time he sought medical advice to the current time

- At the end of the conversation, summarize the main points mentioned by the patient back to
  him, giving him the chance to correct or add anything [active listening & reflection!!]

- Effects on lifestyle ‘FIFE’
  Feelings related to the illness
  Ideas on what is happening to him
  Functioning in the terms of impact on daily life
  Expectations of the illness and you the doctor; modern medicine may be unable to cure the
  problem, and the important issue is what you can do to help a pt to function

  [[it’s preferred to avoid this section of history (FIFE) at fourth-year level, because this will
  probably provoke patient’s feelings you are not trained to deal with them]]

- Example (of SOCRATES modification);
  whenever the patient says that he has feeling of hotness you have to ask him;
  1- duration 2- documented or not and if documented ask about the degree and the route by
  which it was measured ( orally, rectally ...) 3- onset (gradual or sudden and the rate of
  development 4- continuous or intermittent or if it has a specific pattern 5- associated
  symptoms (chills, rigor, sweating, night sweating...) 6- exacerbating and relieving factors
  7- timing and diurnal variations

|| Systematic enquiry (review of systems):

1. **General:**
   > well being whether good or poor in size of clothing
   > appetite whether good or poor > energy whether good or poor
   > weight change; whether recorded by > sleep whether good or poor
   measuring weight or perceived by change > mood whether good or poor
2. **Cardiovascular system:**
   > Chest pain; ask SOCRATES
   > breathlessness;
   (a) on lying flat (orthopnea); ask for number of pillows, and what happens if he lay flat.
   (b) At night (PND); ask at which time wakes him up at night
   (c) on minimal exertion; ask about type of exercise; walking to car or bathroom, dish washing...etc or determine distance in meters, stairs etc.
   > Palpitation; ask pt to tap out with his fingers for rate and rhythm, onset & termination (abrupt/gradual), precipitating factors (e.g. coffee, exercise, emotional stress), frequency and duration of episodes, whether they’re exacerbated or relieved by exercise

3. **Respiratory system**
   > SOB (exercise tolerance)
   > cough; ask about its sound, dry/productive, timing (daytime/nocturnal), associated features, exacerbating & relieving factors
   > wheeze; on inspiration or expiration, persistent or not
   > sputum production; ask about its type (serous/mucous), amount, color (purulent/rusty), timing, smell, solid material.
   > hemoptysis; ask about its volume and nature, duration and frequency
   > chest pain due to inspiration or coughing

4. **Gastrointestinal system:**
   > Mouth;
   oral ulcers (painful/painless, recurrent/not), dental hygiene or recent dental procedure
   > difficulty swallowing (dysphagia); determine if for solids or liquids, and occurring at which level (ask the pt to point!)
   > Painful swallowing (odynophagia)
   Make sure that the patient means either odynophagia or dysphagia as they may mix between them! Ask: Is it pain that stop you from swallowing or you just can't swallow??
   > Nausea & vomiting;
   describe vomitus in terms of color, amount, content (intact or digested food), projectile or not
   > hematemesis
   > indigestion (عسر هضم)
   > heartburn
   > Abdominal pain; ask SOCRATES
   > change in bowel habits; increased or decreased frequency of passing stool.
   *Mention normal stool habit.*
   > Change in color of stool; pale, dark, tarry black, fresh blood
   > change in stool consistency.
5. **urinary system**
   - pain passing urine (dysuria);
   - state if at beginning or end or throughout urination
   - urgency & frequency (at night; nocturia)
   - hematuria
   - incontinence (stress/ urge)
   - libido; state if impaired
   - multiple sexual partners (unprotected intercourse)

6. **Genital system:**
   
   [always begin with apologizing about the following questions but emphasize the importance of asking such question in reaching the specific diagnosis, usually patients won't mind answering these questions if you had a good approach.]

   > for men ‘if appropriate!!’
   
   Prostatic symptoms; hesitancy, poor stream or flow (Is the urine stream weak that it spoils your clothes?), terminal dribbling, urethral discharge, erectile difficulties.

   > For women
   
   last menstrual period (consider pregnancy), timing & regularity of period, abnormal bleeding, vaginal discharge, contraception, if appropriate ask about pain during intercourse (dyspareunion)

7. **Endocrine system:**
   
   > Heat or cold intolerance
   > Change in sweating
   > excessive thirst (polydipsia)

8. **Musculoskeletal system:**
   
   > Joint pain
   > stiffness
   > joint swelling
   > restricted mobility (limited range of motion in a particular joint)
   > falls (explain why the fall occurred, did it cause any medical problems/disabilities etc.)

9. **Nervous system:**
   
   > Headache
   > dizziness; vertigo (الدُنيا يَتَلِفَ فِي كَلِب؟) or light-headedness (شعرت نفخ غير منتظم)
   > faints (loss of consciousness) (اغماة)
   > fits (seizures, abnormal contractions)
   > altered sensation; like tingling, pins and needles ...
   > weakness
   > visual disturbances; like double vision, loss of color vision ...
   > hearing problems; like tinnitus ...
   > memory & concentration change

10. **Others for bleeding diathesis;**
    
    > bleeding or bruising
    > skin rash
### Past Hx:

- **Medical:**
  - Chronic illnesses (death; Diabetes, Epilepsy, Asthma, Thyroid, Hypertension) and obstructive sleep apnea, or others as anemia and dyslipidemia ...etc
  - Previous hospital admissions; when, where, why and length of stay
  - History of blood transfusion; when, where, why, frequency and complications
- **Surgical:**
  - When, where, why, complications and anesthesia type and complications
- **Obstetrical (for females):**
  - Last menstrual period, age of menarche and menopause, number of pregnancies & complications, type of delivery & complications, any abortion & if a defined cause were given and family planning method.

### Drug Hx:

- Ask about prescribed drugs, OTC and alternative remedies (herbs ...etc)
- For each medication know name (generic/scientific), dose, dosage regimen, duration, indication and if any side effects were encountered upon use
- Assess patient compliance; by asking the pt to describe how and when they take their medications, their names, and indication of usage.
  **Give them permission to admit that they don’t take all their remedies by saying ‘that must be difficult to remember’**
- Ask about allergy, and clarify what the pt exactly means by it; is it simple rash or anaphylactic shock?

### Family Hx:

- Start questioning by ‘are there any illnesses that run in your family’
- Document illness or age of death in first degree relatives (parents, sibling, children)
- If there is a suspicion of an inherited disease go back for three generations & obtain details of racial origin, consanguinity or adoption
- Inquire if any family member suffers similar complaints as the pt.
  - **Draw a pedigree chart**
Social Hx:
Understand your patient’s personal constraints and support. Patients may ask why these questions are being asked, so you have to explain how every question is related to the patient’s case/complain.

- **Lifestyle:**
  exercise, diet, marriage, homing (owned/rented, living at which floor & if living with others), hobbies, pets

- **Occupational Hx:**
  current & previous occupation, exposure to hazards, unemployment (reason & duration), attitude to job

- **Travel Hx:**
  when, where, observations after return, type of accommodation, activities undertaken

- **Sexual Hx (Only when relevant):**
  casual relationship; regular sexual partner (male/female), irregular (how many in the past year, whether male/female)

- **Tobacco & hubble-bubble (water pipe):**
  ever smoked; how long, what type, how much (use pack years = (no. of cigarettes smoked per day* years ) / 20)... classify as current smoker vs. x-smoker
  ask non-smoker about exposure to smoke at work or home (passive smoking)

- **Alcohol:**
  amount and type of drink, daily/weekly pattern of drinking, usual place of drinking, alone or accompanied, purpose, amount of money spent on alcohol, attitude to alcohol (CAGE; cut down, annoyed, guilty, eye opener)
  state whether drinks or doesn’t drink alcohol [**don’t say not alcoholic**]
  calculate units drunk per week;
  1 unit = 25 ml of 40 % alcohol = 10 ml of ethanol
  X % = X units of alcohol / L

- **Hx of vaccination**
  ask if fully underwent national vaccination program at school. For travelers, ask about boosters taken before travel. For health care workers, ask about hepatitis B vaccine and influenza vaccine.

- **Religion**

- **Drug abuse**

- **Insurance system** *** very important to ask
History Taking Technique
(for medicine and surgery rounds)

1. **Prerequisite:**
   Introduce yourself, ask for permission, and ensure conversation is private.

2. Take Patient profile.

3. Ask about **chief complaint and its duration**.

4. Define complaint and establish the cause using a mind-built list of **differential diagnosis**.

5. Inquire about the presence of **previous similar complaints**, if present compare to the current one.

6. Establish **risk factors**.

[[Any disease can be inquired about using the aforementioned steps. So, in your medicine and surgery rounds that will come try to build your studying of history taking using those step, you will find it very helpful and easier to remember enshallah]]

At the end of the dossier you will find a **History taking form**, my suggestion is to use it for a month so as to memorize it then to leave it and start taking history by your own
Section 2
Physical Examination
The Settings of the Physical Examination and General Rules

Settings at each station:

- Greeting (السلام عليكم و رحمة الله و بركاته)
- Introduce yourself (اسمي ........ طالب طب سنة ....)
- Address patient by name, ‘also if possible by date of birth and file number’
- Ask for permission and be specific (ممكن افحص بطنك، صدرك، ....)
- Wash your hands with water and soap or ask for sterillium
- Examination room should be;
  1. Private
     Ask for chaperone if to examine female patients, tactfully ask all relatives to leave the place.
     Parents should always be present when you examine children.
  2. Warm
  3. Well lit (prefer sunlight)
     Comment by saying (There is adequate privacy, warmth and illumination)
- Exposure;
  o Seek permission before exposure and be specific.
  o Expose the specified area only and cover the rest of the pt’s body with a blanket to ensure the pt doesn’t become cold!!
  o Re-cover the pt’s body before commenting on the examination
- Position of the pt
- Position of the examiner
- Thank pt when you finish examination (شكرًا جزيلا ... جزاك الله خيرا)
Don’t speak in English with your pt, unless he can understand English

How to assess consciousness and orientation (in time, place, and person)
[This is a simplified examination, as you go further in your neurology study Inshallah you would be given detailed examination of consciousness and orientation under cognition tests]

Conscious >> Spontaneous eye opening
Oriented in time >> ﻓﻲ ﻛﻲ ﻧﺤﻦ ﻟﻠﻠﺠﻞ ﻣﻦ ﻟﻠﻠﺠﻞ؟
Oriented in place >> ﺑﺄن ﺑﺄن ﺑﺄن؟
Oriented in person >> ﻣﻦ ﺑﺄن؟ او ﺑﺄن ﺑﺄن ﺑﺄن ﺑﺄن؟

Rules of inspection:
• Don’t touch the pt
• Look from all angles to all sites (i.e. rotate your head around the pt’s body)

Rules of palpation:
• Ask for permission
• Ask for any site of pain and leave its examination to the end; if you provoke additional pain, pt will refuse completion of examination.
• Warm your hands very well by rubbing them to each other.
• Maintain eye-to-eye contact throughout palpation **Students often miss this point!

Rules of percussion:
– Make sure to percuss using the correct maneuver
  I.e. use the tip (not pad) of right middle finger to tap the dorsal surface of left middle phalanx of middle finger, swinging your hand at the wrist joint with elbow held still
– Assess symmetry: whenever you percuss a point, percuss the point opposite to it on the other side of the midline i.e. in a zigzag pattern.

Rules of auscultation:
– Warm head of stethoscope before putting it on the pt’s body
– Assess symmetry: whenever you auscultate a point, auscultate the point opposite to it on the other side of the midline i.e. in a zigzag pattern.
Examination of System Vs Organ Vs examination for a disease:

- Examination of a system;
  when you are asked to examine a specific system (as for example gastrointestinal system), first fulfill the settings, then do first impression and go through all parts of the specified system to be examined

- Examination of an organ;
  here you examine a specified organ (as for example the abdomen), first fulfill the settings, then go directly to examine the specified organ without going through first impression, nor vitals, nor hands nor face
  # in the settings of an OSCE examination, you may be even asked to do part of an organ examination only (as for example to auscultate the abdomen)

- Examination for a disease;
  if you were asked to examine a patient for a specified disease (as for example jaundice), you need to look for signs of this disease all over the patient’s body taking in consideration any system affected by the disease, plus looking for clues of possible causative conditions (as in this example signs of chronic liver disease, liver failure, hemolytic anemia and obstructive causes)

Whenever you are asked to examine a paired part in the body, compare it to the other side

Ex. If you were asked to examine a limb in one side, compare it to the other side limb.
If you were asked to examine right eye, compare to the left eye
If you were asked to examine right breast, compare to the left breast … etc

[I.e. for symmetry vs. asymmetry]

Make it a story, and build your own MINDMAP to memorize the examination sequence and details. Don’t try to memories the examination in a similar way as a robot does, not making connections between points. Be smart by doing categorization and nested lists.
The general examination

| First impressions |

[When u see a pt, u first look at his face, smile at him and shake his hand, then look to general body demeanor, clothing and skin complexion... pull a chair to sit on beside the pt and try to take a deep breath smelling him for any recognizable odor]

− Describe the pt body position when you first saw him

   Ex) the pt was sitting in a chair, lying flat on his bed, sitting at the edge of his bed, standing, leaning forward...etc

− Connections

   Ex) connected to IV fluid line, has a cannula in his right hand, connected to a Foley’s catheter, on an oxygen mask ...etc

− Handshake;
  describe whether the hands upon handshaking were hot/cold, dry/sweaty, large and fleshy, delayed relaxation of grip, deformed hands/ fingers...

− Facial expression and general demeanor
  mention whether the pt maintain eye-to-eye contact or not, anxious, apathetic, startled, agitated, lugubrious, comfortable, breathless, in pain, cachectic, obese...etc

− Clothing

   Ex) dirty, baggy, tattoos, MedicAlert bracelet, necklace highlights...etc

− Unusual skin complexion

   Ex) cyanosed, pale, yellowish, orangish, whitish albino...etc

− Body odors

   Ex) mousy, fishy, sweet, fetid, tobacco, alcohol, marijuana, halitosis...etc

− Spot diagnoses of a specific disease

[[This skill –first impression- will improve by time, so be patient and DO PRACTICE!]]
Assess this pt VITAL SIGNS

1. Pulse
   - For 1 min, from radial artery by 3 fingers against radius bone
   - Don’t focus too much on the watch while counting; so as not to miss count
   - Record in bpm (beat per minutes)

2. Respiratory rate (RR)
   - Take for 1 min; record as breaths/min (1 breath = inspiration + expiration)
   - Ask pt to put his palm hand above his chest; for ease of examination
   - Act as if you’re taking the pulse, so that the pt doesn’t get anxious affecting the rate of breathing

3. Blood pressure (BP)
   - From brachial artery; bladder of the sphygmomanometer cuff over brachial artery, pump of the sphygmomanometer on radial side (thumb side)
   - Measure blood pressure bilateral, in supine and standing positions
   - If you can’t take standing take it sitting with legs hanging out of examination couch
   - Record in mmHg, which arm were used, in which body position (supine/ standing)

4. Temperature (Temp)
   - Use a thermometer; oral, axillary, or rectal
   - For oral; put under tongue, ask pt to close on it by lips, leave for at least 3 min
   - Record in degree Celsius (°C)

5. Body mass index (BMI)
   - Weigh pt and take his height
   - Record in kg/m\(^2\)
### Examine this pt’s HANDS

[[Examine hands bilateral (right and left) unless specified in an exam situation]]

1. **Settings**
   - Greet your patient, introduce yourself then ask for permission to examine his hands.
   - Wash your hands.
   - Ensure adequate privacy, warmth and illumination of the room.
   - Tactfully expose patient’s hands up to the elbow, remove any jewelry.
   - Put a cushion under the pt’s hands and then stand on the right side of the pt.

2. **inspection**

#### Look for dorsal then palmer aspects of the hand then between fingers

<table>
<thead>
<tr>
<th>At the dorsum, look for:</th>
<th>Comment on:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Swelling</td>
<td>1. swelling</td>
</tr>
<tr>
<td>2. Scars</td>
<td>2. scar</td>
</tr>
<tr>
<td>3. Polydactylism</td>
<td>3. polydactylism</td>
</tr>
<tr>
<td>4. Flexed hand deformity</td>
<td>4. arachnodactylly</td>
</tr>
<tr>
<td>5. Arachnodactylly</td>
<td>5. flexed hand deformity</td>
</tr>
<tr>
<td>6. Tobacco (tar) staining</td>
<td>6. Dupuytren’s contracture</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>At the palm, look for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Swelling</td>
</tr>
<tr>
<td>2. Scar</td>
</tr>
<tr>
<td>3. Flexor surface of the wrist and forearm for venipuncture marks</td>
</tr>
<tr>
<td>4. Single palmer crease</td>
</tr>
<tr>
<td>5. Palmer creases pigmentation</td>
</tr>
<tr>
<td>6. Dupuytren’s contracture</td>
</tr>
<tr>
<td>7. Palmar erythema</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ask pt to abduct fingers and look in between for fungal spores</th>
</tr>
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<tbody>
<tr>
<td>Skin normally hair is only present on the dorsum of the hand and the proximal phalanx</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Skin</strong></th>
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</thead>
<tbody>
<tr>
<td>Comment on:</td>
</tr>
<tr>
<td>1. Hair</td>
</tr>
<tr>
<td>2. Callosities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Nails</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment on:</td>
</tr>
<tr>
<td>1. cyanosis</td>
</tr>
<tr>
<td>2. koilonychia</td>
</tr>
<tr>
<td>3. leukonychia</td>
</tr>
<tr>
<td>4. Beaus’ lines</td>
</tr>
<tr>
<td>5. splinter hemorrhages</td>
</tr>
<tr>
<td>6. onycholysis</td>
</tr>
<tr>
<td>7. dilated capillaries in the proximal nail fold</td>
</tr>
<tr>
<td>8. Finger clubbing;</td>
</tr>
</tbody>
</table>
| 3. palpation | Soft tissues  
*Wasting of both thenar and hypothenar eminencies present as flat palm.  
*Muscle wasting of intrinsic muscles of the hand present as dorsal guttering. | Comment on:  
Muscle wasting of thenar, hypothenar muscles, and intrinsic muscles of the hand |
|---|---|---|
| General rules of palpation:  
Ask for permission to put your hands on the pt.  
Ask for any area of pain & examine it last  
Warm your hands up & maintain eye-to-eye contact throughout examination | Comment on:  
1) Tenderness, Masses, skin texture  
2) temperature  
3) tendons  
4) joints |
| Assess temperature  
Using the dorsum of your hands; as your palm is mostly sweaty and hot so will not give you a good perception of examined hand temperature.  
Always compare both hands and different levels of the same hand | |
| Tendons  
Flexor and extensor tendons (as mentioned in MSS examination of the hand) | |
| Joints  
MCPJs, PIPs, DIPs (as mentioned in MSS examination of the hand) | |
| 4. maneuvers | Tremor or any abnormal movements | Comment on:  
1) Fine tremor  
2) Flapping tremor  
3) Resting tremor |
| **Fine tremor; arms extended, hands extended and pronated (you may put a sheet of paper above the dorsum of hand observe for shaking of the paper) you may not use the paper if the hands are obviously shaking** | |
| **Flapping (coarse/ asterixis); hands extended and pronated at wrist, ask pt to dorsiflex hands and maintain, look for abnormal movements # you can also look for asterixis by asking the pt to squeeze your index and middle fingers and maintain this for 30-60 s. pt with a flapping tremor can’t maintain this posture** | |
| **Others; like resting tremor (pill rolling of Parkinson)...etc** | |
### Examine this pt’s TONGUE

1. **Settings**
   - Greet your patient, introduce yourself then ask for permission to examine his tongue.
   - Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
   - Tactfully ask patient to open his mouth for you to see his tongue, use a pen-light torch for better view, and then stand opposite to the patient from front.

2. **Inspection**
   - Ask the pt to open his mouth, look to his tongue while inside, then ask the pt to put out his tongue, move it right and left, and to touch his palate with the tip of his tongue.
   - Tongue fasciculation is examined while the tongue is inside the mouth.
   - Comment on:
     1. Tremor
     2. Fasciculation
     3. Macroglossia
     4. Tongue furring
     5. Geographic tongue
     6. White patches
     7. Glossitis
     8. Central cyanosis

3. **Sensory examination**
   - Facial and glossopharyngeal nerves are responsible for taste sensation of the tongue, examine by allowing pt to taste different types of food. It’s of importance that pt can sense difference of food taste rather to exactly name it.
   - Trigeminal nerve is responsible for touch sensation of anterior two-thirds of the tongue; ask the pt to open his mouth, close his eyes, and to make a sound each time he feels a thing touching his tongue. Do it twice at each tongue halves (once left, another right).
   - Comment on: Tongue sensation of touch and taste

4. **Motor examination**
   - Hypoglossal nerve examination; as mentioned in CN XII examination in nervous system.
   - Comment as in motor exam of CN XII
### Examine the LYMPH NODES

1. **Settings**
   - Greet your patient, introduce yourself then ask for permission to examine the specified lymph node area
   - Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
   - Tactfully expose the area of interest and its drainage territory
   - Position of pt and examiner varies from LN to another

2. **Inspection**
   - Look for **visible** lymphadenopathy
   - **Comment:**
     - No/visible enlargement at the site of the lymph nodes of examination

3. **Palpation**
   - **General rules of palpation:**
     - Ask for permission to put your hands on the pt.
     - Ask for any area of pain & examine it last
     - Warm your hands up & maintain eye-to-eye contact throughout palpation
   - **Lymph node:**
     - Palpate one side at a time using the pad of your finger, compare with the nodes on the contralateral side
     - **Assess:** Site, size, consistency, tenderness
     - Determine whether the nodes are fixed to;
       - Surrounding and deep structures; by moving it along X and Y axis
         - If overlying a muscle (ex sternomastoid) put the muscle into action and assess mobility thereafter, if still palpable then it’s not fixed to the muscle.
       - Skin; by pinching a skin fold over it.
   - **Drainage territory**
   - **Comment:**
     - No/a swelling/ wound/ inflamed area has been detected along drainage territory

---

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Cervical LN:

- Pt sitting, using 3 fingers in a rotational movement
- Examiner position and LN group examined; From behind:
  - submental, submandibular, pre-auricular; both sides can be palpated simultaneously.
  - tonsillar, deep cervical nodes in the anterior triangle, supraclavicular, and scalene; palpate each side at a time.
  # Scalene by placing index between the sternomastoid muscle and clavicle, ask pt to tilt head to the same side and press firmly downwards toward the first rib.
- From front:
  - posterior auricular, occipital, deep cervical of posterior triangle; both sides can be palpated simultaneously.

Axillary LN:

- With the patient seated, position yourself in front of him or to his side, and abduct his arm and support it with your ipsilateral hand. Palpate with the finger tips of your contralateral hand. E.g. if the right was to be examined, your right hand will support the patient’s arm and you’ll palpate with your left.
- Apical, medial, anterior, posterior and then lateral groups; Compress the LN of the anterior and posterior groups against the anterior and posterior axillary fold, respectively.

Epitrochlear LN:

- Pt sitting, elbow partially flexed, wrist supported with contralateral hand, use thumb of ipsilateral hand to palpate medial aspect of the elbow

Inguinal LN:

- Pt lying supine
  - Palpate over the horizontal chain (just below and parallel to inguinal ligament) and vertical chain (along the saphenous vein)

Popliteal LN

- Pt lying supine
  - Palpate under the knee in the popliteal fossa
Examine this LUMP (or this SWELLING)

1. Settings
   - Greet your patient, introduce yourself then ask for permission to examine his lump
   - Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
   - Exposure and position depends on the lump location

2. Inspection [4S];
   - Describe Site, Shape, Size and Skin overlying the lump

3. Palpation [TT CS FAP light];
   - General rules of palpation:
     - Ask for permission to put your hands on the pt.
     - Ask for any area of pain & examine it last
     - Warm your hands up & maintain eye-to-eye contact throughout examination
   - 1. Tenderness
   - 2. Temperature; using the dorsum of your hand
   - 3. Consistency; soft/hard
   - 4. Surface and edge; whether surface is smooth/nodular. And whether the edge is; well delineated/ ill defined, regular/irregular, sharp/rounded
   - 5. Fluctuation; in both axis.
     - Remember to fix the lump in place with your middle finger and thumb, while doing the maneuver with your index.
   - 6. Attachment; to overlying skin or underlying tissues
   - 7. Pulsation, thrills or bruits
   - 8. Transillumination; using a torch

4. Examine draining lymph nodes

[[This method is of MD. Sameer jab3ete, I find it more logically synchronous than the one in Macleod’s. You can follow either]]
Measure this pt WEIGHT AND HEIGHT

1. **Settings**
   Greet your patient, introduce yourself then ask for permission to measure his weight and height.
   Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
   Measure the pt weight in his in-door cloths barefooted.

2. **Inspection**
   1. Abnormal stature or body proportions
   2. Abnormal fat distribution. Ex) truncal obesity, back hump...etc
   3. Evidence of malnutrition or specific vitamin deficiencies

3. Measure pt height in cm
4. Measure pt weight in kg
5. Calculate and Record BMI in Kg/m²
6. Measure waist circumference;
   1. Pt standing
   2. Measure at a point equidistant between the costal margin and the iliac crest
   3. Record maximum diameter over any abdominal fat not under it.

7. Calculate waist: hip ratio

**Quick info:**
We measure waist circumference and hip ratio as part of definition for “Metabolic Disease”.

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<table>
<thead>
<tr>
<th>Assess this pt HYDRATION STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Settings</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>2. First impression</strong></th>
<th>Check for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Consciousness</td>
<td></td>
</tr>
<tr>
<td>- Orientation</td>
<td></td>
</tr>
<tr>
<td>- <strong>Sunken eyes</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **Comment on general appearance of the pt with noting:** |
| 1. Consciousness |
| 2. Orientation |
| **3. Presence of sunken eyes** |

<table>
<thead>
<tr>
<th><strong>3. Vital signs</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Pulse in radial artery of both hands while supine then in one hand while standing. &gt;&gt; in dehydration it is elevated (by 30) unless the dehydration is severe then it’s decreased.</td>
<td></td>
</tr>
<tr>
<td>• BP is measured while supine and while standing to check for postural hypotension which indicates vascular volume depletion. &gt;&gt; In dehydration blood pressure is decreased (by 20 systolic or 10 diastolic).</td>
<td></td>
</tr>
<tr>
<td>• Respiratory rate is increased in dehydration.</td>
<td></td>
</tr>
<tr>
<td>• Temp &gt;&gt; not measured</td>
<td></td>
</tr>
<tr>
<td>• BMI not calculated but weight loss is useful in determining the amount of fluid lost if usual weight is known (1 L fluid loss = 1 kg weight loss)</td>
<td></td>
</tr>
</tbody>
</table>

| **Comment on:** |
| 1. Pulse & postural tachycardia |
| 2. BP & Postural hypotension |
| 3. RR |
| **4. Weight loss if usual weight known** |

| **4. Hands** | We palpate for temperature and determine if they were dry/ sweaty. |

| **Comment if hot/cool and dry/sweaty.** |

| **5. Face** | Inspect for sunken eyes |

| **Comment on:** |
| 1. Appearance of the eyes |
| 2. Presence/ absence of dry mucous membranes in the mouth. |
6. **Neck**

Check skin turgor by gently pinching a fold of skin at the manubrium of sternum and holding it for a few seconds then letting it go. If normal it will return to its original state promptly, while in dehydration it’s going to take longer time.

!! This area is free of subcutaneous tissue, hence being used.

<table>
<thead>
<tr>
<th>JVP examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;&gt; JVP is low in dehydration.</td>
</tr>
</tbody>
</table>

| Comment on JVP |

| Examine axilla for sweating and dryness. |

| Comment whether the axilla is dry or sweaty. |

7. **Edema**

Examine for sacral edema (in bedridden patients) and ankle edema (in mobilized patients); by applying firm pressure with your thumb for 15 seconds or more. The pressure you apply should be enough to turn your pink nail-bed white.

| Comment if there is sacral or ankle edema |

Comment if there is loss of skin turgor or not.
# Examination of the thyroid gland function

<table>
<thead>
<tr>
<th>1. settings</th>
<th>Greet your patient, introduce yourself then ask for permission to examine his neck wash your hands. Ensure adequate privacy, warmth and illumination of the room. Expose neck and upper chest. Position the patient sitting upright on a chair and ask for a glass of water. Stand on the Rt side of pt for general assessment then move behind him (posterior approach) to examine thyroid gland, but ensure to maintain eye contact as possible.</th>
</tr>
</thead>
</table>
| 2. first impression | **Assess consciousness and orientation; coma (acute hypothyroidism), loss of consciousness (severe hypothyroidism)**  
Describe appearance and general demeanor (hyperactive/restless or slow, fat/thin, appropriateness of clothing to weather).  
Describe facial expression (apathy/startled) & abnormal ticks.  
Hand shake (temp and sweat; cold &dry in hypothyroidism, sweaty &warm in hyperthyroidism.)  
Ask the patient to speak and cough. |
| 3. Vitals | Pulse; tachycardia and atrial fibrillation (hyperthyroidism), bradycardia and first degree heart block (hypothyroidism).  
*Test for collapsing pulse (for Graves).*  
Measure blood pressure, wide pulse pressure (hyperthyroidism)  
BMI; obese (hypothyroidism), cachexia (hyperthyroidism)  
Comment on: 1. Pulse 2. RR 3. BP 4. Temperature 5. BMI |
| 4. Hands | Inspect both dorsal and palmar aspects.  
Test for fine tremors.  
Test for clubbing (thyroid acropachy).  
Palpate for temp and sweating.  
Comment on: 1. Muscle wasting which is evident in thenars due to carpal tunnel syndrome in hypothyroidism 2. Temp and sweat. |
## 5. Face

**Inspect for:**
- Texture of skin (dry-coarse in hypothyroidism and greasy-sweaty in hyperthyroidism)
- Hair loss (occurs in both) or eyebrow thinning (outer 1/3 in hypothyroidism).

**Assess for eyes manifestations:**
1. Proptosis by looking at the seated pt from behind and above.
2. Exophthalmos: inferior limbus appears larger than the superior limbus in the eye, measured using exophthalmometer.
3. Lid retraction: superior limbus is visible.
4. Lid lag (ophthalmoplegia) by asking pt to follow your finger as you move it quickly in a downward fashion from a point above the eye.
5. Chemosis which is redness of the eye globe.
6. Periorbital edema
7. Corneal damage (ulcers)
   **[1-7 signs of hyperthyroidism]**
8. Bilateral ptosis (severe hypo)
9. Periorbital myxedema
10. Large tongue
    **[8-10 signs of hypothyroidism]**

**Comment on:**
1. Texture of skin.
2. Hair loss & eye brows
3. Proptosis
4. Exophthalmos
5. Lid retraction.
6. Lid lag (ophthalmoplegia).
7. Chemosis
8. Periorbital edema
9. Corneal damage
10. Ptosis
11. Periorbital myxedema.
12. Macroglossia
6. Neck

**<<Examine thyroid gland>>**

### Inspection [neck hyperextended]
- Ask pt to swallow water and then look from lateral side of the neck for any moving bulging mass
- With the pt’s jaw slightly open and ask him to protrude his tongue to note for thyroglossal duct cyst which moves on tongue protrusion (thyroid and goiters don’t move with tongue protrusion.)
- Use flash light to look at the back of the mouth for lingual goiter.
- Do Pemberton’s maneuver; ask the pt to abduct both his hands above his head to check for retrosternal extension of the thyroid goiter; if present, it would compress the SVC causing engorgement of the neck veins, a plethoric face, elevated JVP and sometimes even fainting (positive Pemberton’ sign)

### Comment on :
1. Wounds/ Scars (thyroidectomy scars are cosmetic and difficult to detect) 
2. Swellings, nodules or cysts.
3. Redness
4. Any mass that moves with swallowing or protrusion of the tongue.
5. Presence of lingual goiter.
6. Positive or negative Pemberton’ sign.

### Palpation [neck slightly flexed]:
- **General rules of palpation:**
  - Ask for permission
  - ask for any area of pain & examine it last
  - warm your hands up & maintain eye-to-eye contact throughout examination
  - Rest your hands gently on each side of the lower aspect of the neck between the larynx/trachea and sternomastoid. You should be standing behind the pt. don’t use both hands in palpation; use one to push towards the contralateral side and the other to palpate in circular fashion over the thyroid lobe.
  - While palpating, ask the pt to swallow and comment if any movements occur with swallowing.
  - Palpate suprasternal notch; if there is retrosternal goiter the suprasternal notch will not be palpable.
  - Palpate cervical lymph nodes.

### Comment on :
1. If thyroid is palpable or not (palpable in 25% of males); if palpable comment on :
   1. Size and surface (symmetry, smooth or not, nodularity)
   2. Consistency (hard or soft)
   3. Tenderness.
   4. Mobility (Movement with swallowing)
2. Hotness of overlying skin
3. Thrills
4. Non/ Palpable suprasternal notch
5. Cervical Lymphadenopathy
<table>
<thead>
<tr>
<th>7. limbs</th>
<th>Percuss directly on the manubrium of sternum.</th>
<th>Normally resonant note, dull if goiter reached upper mediastinum.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Auscultate with diaphragm for bruits over both thyroid lobes which is heard in hyperthyroidism.</td>
<td>Comment if bruits are heard.</td>
</tr>
</tbody>
</table>
|  | Upper limbs for proximal myopathy; To examine, ask patient to abduct arms to 90 degrees and completely flex his elbows. Ask him to maintain this stature while you apply a downward force against his resistance. (I like to call it chicken position 😊) | Comment on;  
1. proximal myopathy  
2. pretibial myxedema  
3. non-pitting edema (hypothyroidism)  
4. proximal myopathy; gower sign |
|  | Lower limbs for;  
1. pretibial myxedema (non-thyrotoxic graves’ disease); which is associated with skin changes of abnormal color, obvious creases and ulceration  
2. non-pitting edema (hypothyroidism)  
3. proximal myopathy; gower sign | Examine tendon reflexes which are exaggerated in hyperthyroidism. In hypothyroidism delayed relaxation is observed. |
# Cardiovascular system examination

1. **settings**
   - Greet your patient, introduce yourself then ask for permission to examine him.
   - Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
   - Exposure for anterior chest to the umbilicus
   - Position the patient in semi recumbent position (45° to the horizontal plane).
   - Stand at the right side of the pt

2. **First impression**
   - Assess;
     - Consciousness and orientation (CAO×3)
     - Abnormal facial colors
     - Distress or anxiety (restless pt)
     - Hoarseness of voice; suspect ascending aortic aneurysm
     - Horner’s syndrome occurs with carotid aneurysm
   - Comment on:
     1. Consciousness
     2. Orientation
     3. Cyanosis
     4. Jaundice
     5. Pallor
     6. Distress or anxiety
     7. Horsiness of voice
     8. Horner’s syndrome

3. **Vitals**
   - Take temperature, respiratory rate and calculate BMI.
   - [Leave pulse and BP examination to be examined with arterial pulses]
   - Comment on:
     1. RR
     2. Temp
     3. BMI

4. **Hands**
   - Inspect then palpate for temperature.
   - Test all 3 maneuvers for clubbing
   - Test for fine tremors by asking pt to hold hands outstretched.
   - Test for flapping tremor; that occurs in the setting of heart failure due to CO₂ retention.
   - Comment on:
     1. Nails;
        Clubbing, Splinter hemorrhage, Peripheral cyanosis
     2. Tar stain
     3. Skin & tendon xanthomata
     4. Osler’s nodes (painful) & Janeway lesions (painless)
     5. Skin temperature
     6. Fine Tremors
     7. Flapping tremor
5. Pulses

<table>
<thead>
<tr>
<th>Radial artery:</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Found at the flexor surface of wrist, lateral to the tendon of flexor carpi radialis]</td>
</tr>
<tr>
<td>1. Count radial pulse for a whole minute on each arm using the pads of your 3 middle fingers of the same hand as the one examined.</td>
</tr>
<tr>
<td>2. Comment on rate in beats per min (bpm), rhythm (regular/irregular), vessel wall (elastic, gently striking my fingers...etc)</td>
</tr>
<tr>
<td>3. Check for radio-radial asymmetry by palpating both radials simultaneously</td>
</tr>
<tr>
<td>4. Test for radio-femoral delay by palpat ing radial and femoral arteries simultaneously</td>
</tr>
<tr>
<td>5. Test for collapsing pulse by feeling pulse with the palm opposite to your metacarpal heads and slowly raising his arm passively up above his head; <strong>ask pt if he has pain in his shoulder.</strong></td>
</tr>
</tbody>
</table>

#aka Watson's water hammer pulse is the medical sign which describes a pulse that is bounding and forceful, rapidly increasing and subsequently collapsing, as if it were the hitting of a water hammer that was causing the pulse. It indicates aortic regurgitation |
| 6. Test for pulse deficit by auscultation of apex beat, calculate rate and subtract from radial pulse. |

# Large deference indicates atrial fibrillation |

<table>
<thead>
<tr>
<th>Comment on:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rate</td>
</tr>
<tr>
<td>2. Rhythm</td>
</tr>
<tr>
<td>3. Compressibility</td>
</tr>
<tr>
<td>4. Radio-radial asymmetry</td>
</tr>
<tr>
<td>5. Radio-femoral delay</td>
</tr>
<tr>
<td>6. Collapsing pulse</td>
</tr>
<tr>
<td>7. Pulse deficit.</td>
</tr>
<tr>
<td>8. For volume and character you’ve to examine large arteries like brachial or carotid.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brachial artery:</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Found in the cubital fossa, medial to the biceps tendon]</td>
</tr>
<tr>
<td>1. While the patient’s elbow is partially flexed, palpate the brachial artery with your thumb and cup the rest of your fingers around the elbow. Use your right hand to examine the right brachial, and vice versa. The pulse must be counted for 1 minute and on the other arm as well.</td>
</tr>
<tr>
<td>2. <strong>Check for brachio-brachial delay.</strong></td>
</tr>
<tr>
<td>3. Pulsus alternans is a beat-to-beat variation in pulse volume, with regular rhythm. Occurs with left ventricular systolic impairment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment on:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rate</td>
</tr>
<tr>
<td>2. Rhythm</td>
</tr>
<tr>
<td>3. Compressibility</td>
</tr>
<tr>
<td>4. Volume, Pulsus alternans</td>
</tr>
<tr>
<td>5. Character</td>
</tr>
<tr>
<td>6. brachio-brachial delay</td>
</tr>
<tr>
<td>7. Blood pressure</td>
</tr>
<tr>
<td>8. Postural hypotension</td>
</tr>
</tbody>
</table>
4. Measure Blood Pressure;
   >>Ask pt if he smoked, drank coffee or soda, or went up stairs just before examination; all those may artificially raise BP... remember that BP changes momentary
   - Rest Pt for 5 min.
   - if one arm is known to record a higher pressure use it, otherwise use either arms
   - Center of the bladder should be over the brachial artery, use a proper size cuff (that surrounds 2/3 of arm circumflex)
   - The arm should be rested comfortable, elbow supported at the level of the heart and free of tight clothing
   - Take bilateral readings, in both the supine and standing positions (sitting with legs hanging down if the patient couldn’t stand)
   - Palpate the brachial pulse as you inflate the cuff. The pressure at which the pulse becomes impalpable is a rough estimate of systolic pressure
   - Inflate cuff 30 mmHg above this value
   - Listen to brachial artery with the diaphragm; decrease pressure of cuff by 2-3 mmHg/s

   >>The systolic pressure is the value at which you start hearing a tapping sound
   >>Diastolic pressure is the pressure at which the sounds completely disappear. In elderly a muffled sounds persists, in which the point of muffling is the best guide to diastolic pressure

   # Postural hypotension is a drop of >20 mmHg systolic or >10 mmHg diastolic on standing, the pt must have been standing longer than 2 mins for it to be pathological

5. Measure BP in one arm while pt holds deep inspiration to test for pulsus paradoxus, a decrease in SBP > 15 mmHg is pathological
<table>
<thead>
<tr>
<th>Carotid artery:</th>
<th>Comment:</th>
</tr>
</thead>
</table>
| [Felt between the larynx and the anterior border of sternomastoid below the angle of the mandible] | 1. Rate  
2. Rhythm  
3. Compressibility  
4. Volume  
5. Character  

1. Measure carotid pulse on both sides using your **contralateral thumb** of the side examined.  
   # Never assess both carotids simultaneously; as it may cause those with carotid sinus hypersensitivity to faint.  
2. Listen for carotid bruits using bell while pt holds his breath over the carotid bifurcation at level of superior border of the thyroid cartilage.

---

**Examine lower limb pulses if asked to examine pulses alone**

<table>
<thead>
<tr>
<th>Femoral artery:</th>
<th>Comment if palpable or not.</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Felt below the mid-inguinal point, half way between the anterior superior iliac spine and symphysis pubis; lateral to the femoral vein and medial to the femoral nerve. Use your middle and index fingers]</td>
<td></td>
</tr>
</tbody>
</table>
| 1. Check for radio-femoral delay  
2. Listen for bruit | |

<table>
<thead>
<tr>
<th>Popliteal artery:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[Deep in the popliteal fossa, thumbs pushing against tibial tuberosity, finger tips pushing deep behind knee]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Posterior tibial artery:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[2 cm below and posterior to medial malleolus, against calcaneus ]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dorsalis pedis artery:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[Lateral to tendon of extensor hallucis longus, against navicular bone]</td>
<td></td>
</tr>
</tbody>
</table>
### 6. Face

**General;** look for pallor of the face, malar flush

**Eyes;** look for

1. Signs of hyperlipidemia; corneal arcus, xanthelasma.
2. Sign of anemia; conjunctival pallor
3. Signs of infective endocarditis; petechial hemorrhages in the conjunctiva, Roth spots (using ophthalmoscope - just mention)
4. Diabetic and hypertensive retinopathy (using ophthalmoscope - just mention)
5. Sign of jaundice; yellowish discoloration of sclera

**Mouth;** look for central cyanosis (lips and tongue), dental caries, angular stomatitis, glossitis

**Comment on:**

1. Pallor
2. Malar flush
3. Corneal arcus
4. Periorbital xanthelasma
5. Conjunctival pallor
6. Petechial hemorrhages in the conjunctiva
7. Yellowish discoloration of sclera
8. Retinopathy & Roth spots
9. Central cyanosis
10. Dental caries.
11. Angular stomatitis
12. Glossitis

### 7. Neck

**inspection**

**Comment on:**

1. Visible masses
2. Visible veins
3. Scars

Do thyroid examination including only inspection for extraocular manifestations (proptosis, lid lag...) only since other aspects of the examination are covered in the general examination of the hands, face...then palpate.

**Comment on thyroid examination.**
**JVP examination:**

Pt semi-recumbent (45°) put a pillow below his head to relax neck muscles, ask pt to slightly turn his head to the Lt side while you stand to his right.

**Inspection** (using a torch and look from a lateral angle):

- Visible pulses.
- Identify external jugular vein, to avoid it. Use internal jugular vein to calculate JVP
- Ask pt to hold his breath at deep inspiration, which decreases the JVP
  #Kussmaul’s sign: if the venous wave increased with inspiration instead of decreasing.
- JVP decreases if the patient sits up (it may even disappear), and increases if he lies down.

**Palpation:**

- Try to palpate the venous pulse. venous pulse is impalpable
- With neck obliteration, venous pulse disappears
- Ask if anything hurts the pt in the abdominal area prior to abdomino-jugular reflex test; apply pressure on the abdomen over the liver for 10s.

**Measure:**

- Place a ruler vertically at the sternal angle. Place any straight object horizontally to the ground at the highest point of the jugular venous wave. Record this height and add 5cm to it to obtain the length of JVP in cm. It’s normally less than 9cm total.

**Auscultation**

- For Venous hum using diaphragm.
  They are heard throughout the cardiac cycle and may be confused with heart murmurs, but the hum is abolished with neck obliteration. The phenomenon is completely harmless

---

**Comment:**

**By inspection** 2 pulses were visible an outward single peaked arterial pulse and an inward double waved venous pulse. The venous pulse decreases on inspiration and disappears on sitting upright

**By palpation** the venous pulse is not palpable, disappears with neck obliteration and increases with abdomino-jugular reflex.

**Measured** as (normally <9cm)

**No venous hum.**
### 8. Precordium

<table>
<thead>
<tr>
<th>Inspection</th>
<th>Palpation:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start from foot of the bed then move to the Rt side of the pt.</strong>&lt;br&gt;Make sure to lean forward looking at the axilla of left side of the pt&lt;br&gt;# use the light of your torch to look for visible pulsations.</td>
<td><strong>General rules of palpation:</strong>&lt;br&gt;Ask for permission&lt;br&gt;ask for any area of pain &amp; examine it last&lt;br&gt;warm your hands up &amp; maintain eye-to-eye contact throughout exam&lt;br&gt;1. assess for tenderness&lt;br&gt;2. Locate the apex beat. At first use your entire palm infra-mammary then try to locate it using 2 fingers, if not palpable then tilt pt to the left side.&lt;br&gt;Try to localize it counting the ribs from second costal cartilage at level of sternal angle.&lt;br&gt;&gt;Abnormalities of apical beat:&lt;br&gt;1. Generalized diffused; LV dilatation&lt;br&gt;2. Tapping apical beat; mitral stenosis&lt;br&gt;3. Double apical impulse; HOCM (hypertrophic obstructive cardiomyopathies)&lt;br&gt;4. Apical heaves; LV hypertrophy&lt;br&gt;&gt;Location could be displace in ventricular dilatation or dextrocardia&lt;br&gt;3. Palpate for left and right ventricular heaves, using your palm, at the apex of the heart and left sternal margin, respectively. The patient must hold his breath at expiration after a deep inspiration.&lt;br&gt;4. Palpate for thrills using the pulps of your fingers at apex and both sides of sternum; Aortic stenosis (thrills on apex, lower sternum and neck)&lt;br&gt;VSD (thrills on Rt and Lt sides of sternum).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment at foot of bed:</th>
<th>Comment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Deformities; pectus excavatum, pectus carinatum&lt;br&gt;2. Body Hair distribution&lt;br&gt;Comment at Rt side of the pt:</td>
<td>1. tenderness&lt;br&gt;2. Apex beat&lt;br&gt;normally is gently tapping&lt;br&gt;(with no heave, not diffused, no double apical impulse, no palpable S1 “not tapping”) localized at the Lt 5th intercostal space on mid-clavicular line&lt;br&gt;3. Presence of heaves&lt;br&gt;4. Presence of thrills.</td>
</tr>
</tbody>
</table>
Auscultation:

1. use the diaphragm then the bell in 4 areas:
   1. At the apex
   2. Lower left parasternal area (Lt 4th intercostal)
   3. Left upper parasternal area (2nd or 3rd intercostals)
   4. Rt upper parasternal area.

[[palpate the carotid while auscultation to time any murmurs]]

# The bell can identify low-pitched sounds; characteristically S3, S4, murmur of mitral stenosis, and carotid bruits.

2. Listen at the aortic area for **S2 splitting** while the patient holds his breath on inspiration and for **reverse splitting** while he holds on expiration.

3. Listen for murmurs radiation using the bell over the carotids with pt holding his breath.

4. To accentuate the mid-diastolic and presystolic murmurs of mitral stenosis, roll the patient to his left and listen over the left mid-axillary line along the level of apex beat

5. Test for aortic regurgitation murmur by asking the pt to sit up, lean forward and hold his breath in full expiration. Listen using diaphragm over upper Lt costal edge.(3rd Lt intercostal)

6. Auscultate the bases of the lungs posteriorly while the pt is sitting up for respiratory crackles.

7. Test for sacral edema while the pt is sitting upright as well by pressing over sacral area using the tips of your fingers or the side of your hand.

Comment on:

1. (quiet,normal,loud )S1
2. (quiet,normal,loud)S2
3. Splitting of S2
   “could or couldn’t hear, as its always present 😊”
4. Added sounds
5. Murmurs; describe location, timing, duration, radiation, character and pitch
6. Crackles at bases of lung
7. Sacral edema.
9. Lower limb
[[Note exposure of both limbs up to the umbilicus, for cultural concerns up to the mid-thigh]]

**Inspection:**
Look to all leg aspects (anterior, posterior and lateral, you’ve to kneel down for better view of the leg. Make sure to check heels and in between toes)

>> ulcers:
- Arterial; distal points
- Venous; gaiter areas
- Neurotrophic; pressure points

>> Buerger’s test:
While the pt is supine, ask about back or hip pain then from the foot of the bed raise the pt’s leg to 45° gradually and hold for 2-3 minutes. Note if it becomes pale at a lower angle then ask pt to sit up and hang his leg out of the bed.
The test aims to assess Buerger’s angle, or the angle at which the leg becomes pale. In a normal patient, the leg must not become pale even if angles as high as 90 are reached. In an ischemic leg, pallor and possibly venous guttering become evident at the lower angle of 20-30 (known as Buerger’s critical angle). Reactive hyperemia is also notable on dependency.

**Palpation:**
- Check for temperature bilaterally using the dorsum of your hand in 3 locations
  [Don’t forget calf muscle]
- Superficial palpation and squeeze muscle bulk on posterior aspect of the thigh; for tenderness, palpable masses, coarse skin, and tenseness calf muscle.
- Test for capillary refill by compressing a toe nail, color should be restored maximally in 2 secs
- Do neurological examination for power and sense.
- Pulses;
  1. Popliteal pulse.
  3. Dorsalis pedis pulse.
- Check for edema of the leg by pressing using your thumb at the shin of the tibia. Check ankle

**Comment on:**
Signs of chronic LL ischemia:
1. Color usually white, with peripheral cyanosis
2. Skin texture (shiny and dry or not)
3. Hair loss (specially distal)
4. Hypertrophic nails
5. Decreased muscle bulk
6. Any ulcers in toes and heels.
7. Buerger’s test

Signs of chronic venous insufficiency:
8. Visible veins
9. Scars
10. Obvious swelling
11. Redness or hyperpigmentation
12. Ulcers in gaiter’s areas
13. Thickened, eczematous skin
edema by pressing above medial malleolus for 15s with your thumb, you have to determine level of the edema >> if edema was found, measure JVP

- Measure circumference of both legs at the same point (10 cm below tibial tuberosity in the line from tibial tuberosity to medial malleolous) note which leg is dominant because enlargement of the dominant leg of up to 2 cm is normal while enlargement of the non-dominant one is always abnormal and indicates swelling.

- Trendelenburg test;
  - Ask pt to sit on the edge of the examination couch
  - Elevate leg as far as comfortable to the pt [to milk the blood in it!]
  - with the pt’s leg still elevated, press with your thumb or a tourniquet over the saphenofemoral junction (2-3 cm below and 2-3 cm lateral to pubic tubercle)
  - ask pt to stand while you maintain pressure over the saphenofemoral junction
  - If saphenofemoral junction regurgitation is present, the pt’s varicose veins will not fill until your digital pressure is removed. If they do fill before you release the pressure, venous regurgitation through the perforators is indicated.

### Auscultation:

Over femoral artery for bruit

<table>
<thead>
<tr>
<th>Comment on:</th>
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<tbody>
<tr>
<td>Femoral bruit</td>
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Look for scars and visible pulsations

<table>
<thead>
<tr>
<th>Comment on :</th>
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<tbody>
<tr>
<td>1. Scars</td>
</tr>
<tr>
<td>2. visible pulsations</td>
</tr>
<tr>
<td>3. If Aorta palpable, with bruit</td>
</tr>
<tr>
<td>4. If liver is Palpable or not and the liver span.</td>
</tr>
<tr>
<td>5. If spleen is palpable or not.</td>
</tr>
<tr>
<td>6. Presence of shifting dullness or transmitted thrills.</td>
</tr>
<tr>
<td>7. Renal bruit</td>
</tr>
</tbody>
</table>

Palpate for palpable aorta above umbilicus, hepatomegaly and splenomegaly.

Test for ascites with transmitted thrills and shifting dullness

Listen for aortic bruits above umbilicus and renal bruit 2cm above and lateral to umbilicus.

(for abdominal examination, the pt must be lying supine and you sitting to his Rt)
Respiratory System Examination

1. **Settings**
   Greet your patient, introduce yourself then ask for permission to examine him. Wash your hands. Ensure adequate privacy, warmth and illumination of the room. Exposure for anterior chest to the umbilicus, for the posterior chest expose the back to the iliac crest.
   Position the patient
   - In semi recombiant position (45° to the horizontal), hands apart >> anterior chest examination
   - Sitting upright, scapula apart (arms crossed) >> posterior chest examination
   Stand at Rt side of the pt; examination of chest starts at the foot of the bed before you move to the Rt side of the pt.

2. **First impression**
   Consciousness; in CO2 retention pt is drowsy while if hypoxic he would be agitated.
   Pt may not be able to lay flat if he has orthopnea, so you need to mention that.
   Ask pt to cough, and then take a deep breath with opened mouth; to comment on stridor.
   Look for signs of Horner’s syndrome (ptosis, miosis, anhydrosis)

3. **Vitals**
   Measure:
   temperature, respiratory rate, BP and pulse on one hand.
   Examine for pulsus paradoxus by measuring systolic BP in deep inspiration and normal breathing

<table>
<thead>
<tr>
<th>Comment on :</th>
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<tbody>
<tr>
<td>Look &gt;&gt;</td>
</tr>
<tr>
<td>1. Consciousness &amp; Orientation</td>
</tr>
<tr>
<td>2. Position of pt</td>
</tr>
<tr>
<td>3. Connected to ventilator or not.</td>
</tr>
<tr>
<td>4. In distress/ breathlessness/ in- pain</td>
</tr>
<tr>
<td>5. <strong>Use of accessory muscles for breathing</strong></td>
</tr>
<tr>
<td>6. Cyanosis</td>
</tr>
<tr>
<td>7. Horner’s syndrome</td>
</tr>
<tr>
<td>Smell &gt;&gt;</td>
</tr>
<tr>
<td>8. Breath smell (smoke/ alcohol)</td>
</tr>
<tr>
<td>Listen &gt;&gt;</td>
</tr>
<tr>
<td>9. Depth or any abnormal breathing patterns or audible sounds with breathing (wheeze/stridor/ hoarseness).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment on :</th>
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</thead>
<tbody>
<tr>
<td>1. Pulse</td>
</tr>
<tr>
<td>2. BP</td>
</tr>
<tr>
<td>&amp; Pulsus paradoxus.</td>
</tr>
<tr>
<td>3. Temp.</td>
</tr>
<tr>
<td>4. RR</td>
</tr>
<tr>
<td>5. BMI</td>
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</tbody>
</table>
### 4. Hands

First inspect then test for:
- Test for fine tremors by asking pt to outstretch his hands.
- Test for flapping tremors by asking pt to outstretch his hands and hyperextend the wrist and maintain this position for a few seconds.
- Palpate for temp.
- Clubbing all 3 maneuvers.
- Palpate for tenderness at the wrists, indicating hypertrophic pulmonary osteoarthropathy.

Comment on:
- On palmer aspect:
  1. Temp.
  2. Muscle wasting
- On dorsal aspect:
  3. Nail abnormalities
  4. Yellow nail syndrome
  5. Cyanosis
  6. Clubbing
  7. Wrist tenderness
  8. Tar stain.
  9. Plethoric hand
  10. Tremors (fine/ coarse)

### 5. Face

Look inside the mouth for cyanosis and at the eye for conjunctival pallor.

Comment on:
- 1. Central cyanosis
- 2. Dental hygiene
- 3. Conjunctival pallor.

### 6. Neck

Inspection

Comment on:
- 1. Dilated veins
- 2. Masses

Palpate for lymph nodes; Cervical, scalene

Comment if palpable or not and if palpable comment on size, consistency, tenderness, and fixation.

Examine for JVP elevation (page 43)

Comment on JVP examination

### 7. Anterior and lateral chest

Areas to test, on each side, for TVF, percussion and auscultation:

1. Apex of the lung (fingers pointing posteriorly) in supraclavicular area.
2. 3 intercostal spaces starting from the 2nd, 4th, (5th or 6th) **3 cm away from midline.**
3. And 3 intercostal areas on the lateral chest in the axilla

>> Whenever you examine any of the above locations, examine the point opposite to it on the other side before moving on, so as to compare findings.

>> *Position the pt in a semi-recombinant position, hands by side*
**Inspection:**

Start from foot of the bed, while standing there ask the pt to take a deep breath through his mouth, note chest expansion and pattern of breathing.

From Rt side of the pt make sure to check axillary area by asking the patient to slightly abduct his arms for you to have a look on his axilla.

Ask the pt to cough and then take a deep breath to clarify any audible sounds of breathing (stridor).

Comment on the nipples if being in-lined, or one is deviated from the other, or the presence of accessory nipple along milk line.

**Comment from the foot of BED on:**

1. **Breathing.**
   Abdomino-thoracic/thoraco-abdominal, tachypnic/Kussmaul/Cheyne-Stokes

2. **Expansion;** comment if the chest moves with respiration or not only (don’t mention symmetry at this step)

3. **Deformities;** you can say something similar to “The chest is symmetrical elliptical in cross section, no pectus excavatum, no pectus carinatum, no kyphosis, no scoliosis, no barrel chest”

From right side of the pt comment on:

1. Accessory muscle use.
2. Scars
3. Visible veins
4. Visible masses
5. Skin marks or spots
6. Hair distribution
7. Nipples
8. Audible sounds of breathing (stridor, wheeze, hoarseness).

**Palpation:**

**General rules of palpation:**

Ask for permission
ask for any area of pain & examine it last
warm your hands up & maintain eye-to-eye contact throughout examination

1. **Superficial palpation:**
   Move your hand across the chest wall with minimal pressure. It’s important not to raise your hands from the chest wall and to cover the lateral chest in axillary areas as well as lung apex.

**Comments:**

1. Tenderness, subcutaneous/superficial nodules and subcutaneous emphysema.

2. Mediastinal deviation;
   >Trachea location, cricosternal distance and tracheal tug.
   Ex. “Trachea centrally located cricosternal distance 4 cm or 3 fingers and no tracheal tug.”

   >Location of apex beat.
   Ex. “Apex beat in left 5th ICS in
comment on; tenderness, subcutaneous/ superficial nodules, subcutaneous emphysema [emphysema feels like a bubble sheet]

2. **Mediastinal deviation:**
   **Upper:** by locating trachea.
   - Warn pt that you’re going to touch his neck, place your middle finger on trachea and the index and ring fingers on the heads of clavicles around.
     It’s normally central, or slightly deviated to the right
   - Palpate with your middle 3 fingers vertically the trachea to the first prominence which is the cricoids cartilage to assess cricosternal distance.
   - While finger pulps span the cricosternal distance test for tracheal tug by asking the pt to take a deep breath through the mouth and note the descent of the trachea
   **Lower:** by locating apex beat.

3. **Chest expansion:** grab the lower part of the thorax with both of your hands so that your thumbs almost meet centrally and your fingers extend to encircle the sides of the thorax. Ask the patient to take a deep breath through the mouth and then note the distance between your thumbs. If your hands are small gently pinch a skin fold between your fingers and ask the pt to take a deep breath through the mouth and assess distance generated by chest expansion between the thumbs. It’s important not to compress the chest actively using our hands.
4. **TVF:** gently rest your hand on one of the locations stated above and ask the patient to say 44 in Arabic (or 99 in English). Repeat on the other side and for the other locations mentioned. Each side should have 9 points examined in total. Start on the normal side if any one side was known to be abnormal.

**Percussion:**

Tap in all locations mentioned above, you’re allowed 2 taps. Again, whenever you percuss one point, percuss the point opposite to it on the other side before moving on. One additional location to percuss is the **clavicle,** on which you percuss directly.

In percussion the fingers are placed horizontally on the chest in-line with the intercostal spaces, except at the lung apices, where they are oriented vertically so that the tips of the fingers are directed posteriorly rather than horizontally.

Then percuss for the upper edge of the liver in midthoracic line (3 cm away from midline) starting from Rt 2nd intercostal while pt holds expiration after deep inspiration through mouth. A dull note indicates that you are percussing over the liver.

Comment: if any difference in percussion note was noted
If normal, comment similarly to the following: “symmetrical bilateral resonant percussion note all over the chest.”

And comment on the location of the liver dullness; normally “upper edge of liver dullness in Rt fifth intercostals, at MCL.”

**Auscultation**

we always use the diaphragm, each location compared to other side in a zigzag pattern, avoid listening at the midline, stay 3 cm away:

Comment on :
1. Breathing sounds (remember there is vesicular breathing and bronchial breathing)
   Normally “symmetrical bilateral vesicular breathing sound, good air entry bilaterally.”
1. **Breathing:** instruct the pt to take a deep breath through the mouth each time we place the stethoscope on the chest.
2. **Vocal resonance:** instruct the pt to say 44 in Arabic each time you place the stethoscope on the chest.
3. **Aegophony:** instruct the pt to say “E” in English (check his pronunciation before you start this test) each time you place the stethoscope on the chest.
4. **Whispering pectoriloquy:** instruct the pt to whisper (1,2,3) to himself each time you place the stethoscope on his chest. Before beginning this test, listen to the patient whisper without wearing your stethoscope to make sure he’s using an adequate volume of voice.

## Comment on presence of wheezes and crackles and pleural friction rubs.

**Normally “NO wheeze, NO crackles, NO pleural friction rubs, No clicks.”**

2. Vocal resonance
   *Normally “symmetrical bilateral vocal resonance”*
3. In Aegophony the E is heard A in areas with pathology
   **Normally “No aegophony”**
4. Whispering pectoriloquy is normally not heard except in pathological areas
   **Normally “No whispering pectoriloquy.”**

### For examination of the posterior chest we assess TVF, percuss and auscultate in the following locations:

1. Lung apices
2. 2 locations medial to scapula; above level of the spine and opposite medial border
   - 2 locations below the scapula
     (note that the more downward we go the more laterally we try to go)
3. 3 locations in the axillary area for examination of the lateral chest.

>> Whenever you examine any of the above locations, examine the point opposite to it on the other side before moving on, so as to compare your findings

>> *Position the pt sitting upright with hands crossed anteriorly to pull away the scapulas from the midline.*
**Inspection:**

From Rt side of the pt while standing there ask the pt to take a deep breath through the mouth and make sure to check axillary area by asking the patient to move his arms away from his sides.

Ask the pt to cough and take a deep breath from mouth to test for any audible sounds of breathing (stridor)

**Palpation** is the same as anterior chest but don’t perform mediastinal shifts

Palpate for tenderness over the spine

**From foot of BED** Comment on:

1. Expansion; Symmetry of Movement with respiration.
2. Deformities
   Ex of what you can say in normal cases “Symmetrical elliptical in cross section, no deformities, and chest moves with respiration.”

From right side of the pt comment on:

3. Scars
4. **Hair distribution**
5. Visible veins
6. Visible masses
7. Skin marks or spots
8. Audible sounds of breathing.

**Comments:**

1. Tenderness, subcutaneous/ superficial nodules and subcutaneous emphysema.
2. Chest expansion symmetry and distance.
   Ex. “Symmetrical bilateral chest expansion with thumbs 5 cm apart.”
3. TVF comment if any differences were noted between sides.
   Ex. “Symmetrical bilateral TVF all over the chest.”
<table>
<thead>
<tr>
<th>Percuss each location. Remember, whenever you percuss one point, percuss the point opposite to it on the opposite side.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instead of liver dullness check diaphragmatic excursion. While the patient holds at inspiration, percuss downwards starting from the lower border of the scapula until a dull note is heard. After asking the patient’s permission, draw a line at the point of dullness. Now with the patient holding at expiration, percuss downwards starting from the mark until a dull note is heard again. Draw another line at this point, and measure the distance between the 2 lines. Repeat for the other side.</td>
</tr>
<tr>
<td>Comment if any difference in percussion was noted normally “symmetrical bilateral resonant percussion note all over the chest.”</td>
</tr>
<tr>
<td>comment on distance of diaphragmatic excursion on each side normally 5-8 cm (reduced in paralysis of the diaphragm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Auscultation is the same maneuvers as anterior chest but in the locations mentioned for posterior chest exam</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>Comment on :</td>
</tr>
</tbody>
</table>

1. Breathing sounds normally “symmetrical bilateral vesicular breathing sound, good air entry bilaterally. NO wheeze, NO crackles, NO pleural friction rubs, No click.”

2. Vocal resonance normally “symmetrical bilateral vocal resonance”

3. Aegophony normally “NO aegophony”

4. whispering pectoriloquy normally “NO whispering pectoriloquy”
Gastrointestinal & Renal Systems Examination

1. **Settings**
   Greet your patient, introduce yourself then ask for permission to examine him.
   Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
   Exposure ideally is from the nipples to the knees but for cultural constrains exposure from the xyphoid process to the symphysis pubis.
   Position: lying in flat position with head rested on one pillow (15°-20° above horizontal)
   To relax the abdominal muscles so as to ease examination, ask pt to put hands by side, flex hip joint 45°, and flex knee joint 90°.
   Stand at the Rt side of the bed; for abdominal examination start while standing at the foot of the bed then SITTING (**students often forget this!) at the Rt side of the pt.

2. **First impression**
   From the Rt side of the pt
   Comment on :
   1. Consciousness
   2. Orientation
   3. Position.
   4. In pain or not
   5. Pallor
   6. Jaundice
   7. Any specific odor or smells (fetor hepaticas)
   8. Obvious muscle wasting

3. **Vitals**
   Measure BP bilateral, in supine and standing positions
   Measure waist circumference
   Comment on :
   1. Pulse
   2. RR
   3. BP
   4. Temp.
   5. BMI, distribution of weight (truncal/ generalized), waist circumference

4. **Hands**
   - leukonychia, koilonychias, palmar erythema (chronic liver disease, normal in preg.)
   - finger clubbing (liver cirrhosis, IBS, malabsorption, celiac disease)
   - asterixis (flapping tremor: liver failure, also in cardiac, respiratory & renal failure)
   - Dupuytren’s contracture (alcoholism, liver disease).
   Comment:
   On palmer aspect;
   1. Temperature
   2. Muscle wasting
   3. Palmar erythema
   4. Dupuytren’s contracture on dorsal aspect;
   5. Koilonychia, Leukonychia, or any other nail abnormalities.
   6. Loss of lunula
| 5. Face | 7. Clubbing  
8. Arms; Look for needle marks, tattoo, and Axillary hair  
9. Flapping tremors |
| --- | --- |
| Look in the eyes, ask pt to look up and down while you retract the eyelids to have a better view of the conjunctiva.  
Look inside mouth.  
Inspect for Parotid swelling | Comment:  
In the eye;  
1. Conjunctival pallor  
2. yellowish sclera  
3. Kayser-Fleischer rings  
In the ears;  
4. tophi  
In the mouth;  
5. Caries & loss of teeth  
6. cyanosis  
7. Glossitis  
8. Angular stomatitis  
9. Mouth ulcers  
10. Ulcers on the tongue.  
Salivary glands;  
11. Parotid swelling. |
| 6. neck | 8. anterior chest |
| Examine the thyroid gland. | Palpate for;  
○ supraclavicular lymph nodes (Virchow is the left one if palpable then positive Troisier’s sign)  
○ axillary lymph nodes while sitting up  
○ Inguinal lymph nodes while supine. | Comment on the thyroid gland.  
Comment if any lymph nodes were palpable and describe palpable ones.  
Comment on :  
1. Spider nevi  
2. Gynaecomastia in males  
3. Breast atrophy in females  
4. Body hair distribution & paucity of axillary hair |
| 8. Anterior chest |  |
9. Abdomen

**Inspection**
(1-4) from foot of the bed
(5-12) from the Rt side of the pt
(13) ask the pt to cough
(14) Test for divarication of rectus abdominis muscle by asking the pt to raise his head and try to sit up, without actually sitting up all the way through. You should be supporting his shoulder.

**Comment on the foot of the bed:**
1. symmetry
2. movement with respiration
3. shape of abdomen (scaphoid / distended/ flat/ protuberant/ localized bulge/ flank fullness)
4. Site & shape of umbilicus.

Ex. “By inspection from the foot of the bed, the abdomen is symmetrical, flat and thoracoabdominal movement with respiration. Umbilicus is inverted, centrally located midway between xiphisternum and symphysis pubis.”

**Comment on right side of the pt:**
5. Scars & stomas
6. Hair distribution
7. Lesions or scratch marks
8. Skin coloration & Bruises
9. Visible masses
10. Striae
11. Visible pulsations or peristalsis
12. Visible dilated veins or caput medusa
13. Visible cough impulse and intact hernial orifices [describe reaction of pt to cough. i.e. lie still in bed or rolled on bed]
Palpation
(ask for a chair, u must be sitting)

General rules of palpation:
Ask for permission
ask for any area of pain & examine it last
warm your hands up & maintain eye-to-eye
contact throughout examination

1. **Superficial palpation** by passing your hand
on all 9 regions of the abdomen with very
minimal pressure.

2. **Deep palpation** using palms and fingers with
semicircular fashion on all 9 regions. If
abdomen is tense due to guarding or
peritonitis, ask the pt to flex his knees
bilateral or distract him by asking him to
count from 100 down to 0.

3. **Special organ palpation**
   **Liver:**
Start from RIF. Press using the side of your index
with fingers directed diagonally toward the
umbilicus then ask the pt to take deep breath
through his mouth. While the pt is in expiration
move your hand upwards in the same position
for no more than 1 inch and instruct the pt to
take another deep breath through the mouth
every time you move your hand all the way up
to the costal margin, sense liver edge with your
index & middle fingers

Now for percussion of the liver start from 2nd
intercostal space in midclavicular line while the
pt holds expiration for upper edge of liver
dullness, mark it. Then percuss from RIF in MCL
up to liver dullness or costal edge. Make marks
on the body after taking permission then
measure liver span, normally 6-12 cm

<table>
<thead>
<tr>
<th>Comment on :</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Superficial palpation:</strong></td>
</tr>
<tr>
<td>1. Superficial masses</td>
</tr>
<tr>
<td>2. Superficial tenderness</td>
</tr>
</tbody>
</table>
| 3. muscle tone of abdominal wall (rigid or not)
ex) “soft lax abdomen with no
superficial tenderness or masses” |
| **Deep palpation:** |
| 1. Deep tenderness |
| 2. Deep masses |
| **Special organ palpation:** |
| 1. Liver edge if palpable or not
and the liver span and
murphy’s sign. |
| 2. Spleen if palpable or not and
don’t comment on its
percussion unless abnormal. |
| 3. Comment if kidneys palpable
or not. And if costal angle
tenderness was found. |

## Never use the terms splenomegaly or hepatomegaly

| 4. Sacral edema |
| 5. Pulsatile abdominal aorta |
**Gall bladder:**

Do murphy’s sign; using your left hand, lay index on the pt’s right costal margin, press with your thumb on the gall bladder fundus (opposite 9th rib) then ask the pt to take a deep breath using his mouth. A positive test is indicated by a sudden cessation of breathing.

**Spleen:**

Do as in liver palpation but start from RIF then move diagonally towards the spleen in the left subcostal area and try to press your hand below subcostal margin. Then ask the pt to flex his knees and roll to his Rt side. Place your left hand on the patient’s back on the area opposite to the left hypochondrium and gently apply pressure towards the patient’s anterior. Now palpate the spleen with your right hand. percuss while the pt is in that position starting from the umbilicus all the way to the lateral axillary area between ribs 9,10,11.

**Kidneys:**

Place your Rt hand superiorly in the flank area lateral to lateral rectus muscle and your left in the loin. **Ask the pt to take a deep breath** through the mouth. First palpate bimanually then test for ballottement. Repeat for the other kidney using same positions for your hands. Check for costal angle tenderness by asking the pt to sit up and gently palpate the costovertebral angle for tenderness. If not tender, gently percuss the angle with a closed fist and ask if were painful.
Asses sacral edema

**Aortic pulsation**
Press down deeply in the midline above the umbilicus; it might be palpable in most individuals. A pulsatile mass greater than 3 cm suggests AAA (abdominal aortic aneurism)

**Percussion:**
General percussion over all 9 regions.

Percuss the midline from Xiphisternum to suprapubic area for bladder dullness.

[exclude pregnancy in females]

Ascites tests:
1. **Shifting dullness:**
   percuss in midline for most tympanic area (usually supraumbilical) then percuss laterally to the left side until the furthest area of dullness is reached, maintain your finger at that position, roll pt to his Rt side, wait 10 s, then percuss the same site again. Positive test if dullness changed to tympanic again.

2. **Transmitted thrills:**
   place the pt’s hand vertically in the midline of the abdomen. Rest your hand on one side of the patient’s abdomen and gently tap on the other side using your other hand. Feeling a thrill after tapping indicates massive (tense) ascitis.

[normal peritoneal fluid volume is 50-100 ml, positive for shifting dullness if > 1.5-2 L, positive for transmitted thrills if > 5-6 L]
**Auscultate** 7 areas all using the diaphragm:

1. For bowel sound on the right side of the umbilicus or RIF over ileocecal valve and count for one minute. You cannot conclude an absence of bowel sounds unless you listen for 3 min.
2. For aortic bruits in the midline in epigastric area.
3. For renal bruit 2 cm above and 2 cm lateral to the umbilicus on both sides.
4. For liver friction rubs and liver bruits on the Rt lower costal area.
5. For spleen friction rubs on the Lt Lower costal area.
6. If dilated veins were found listen over them for venous hum.

**succession splash ;**

First tell the pt what you are going to do, ask him about the last time he had a meal or a drink (normally absent 4 hours after the last meal). Shake the pt’s pelvis while your ear is near epigastric area to listen for a splash.

**Comment on:**

1. (Active, hypoactive, hyperactive) bowel sounds and their rate. Describe them as gurgling which is normal, or tinkling which is pathological.
3. Presence of renal bruits
4. Presence of liver friction rubs and bruits.
5. Presence of spleen friction rubs.
6. Venous hum.

**Comment if succession splash is present or not.**

10. **finalizing**

As part of the abdominal examination you should say that you want to:

1. palpate the hernial orifices at rest and when the pt coughs
2. feel the femoral pulses
3. examine the Genitalia
4. Examine the Back.
5. Do Digital rectal examination (DRE).
6. Examine lower limbs for; clubbing, edema, hair loss, pyoderma gangrenosum and erythema nodosum.

As part of GI system examination you should say that you want to perform urine analysis to the patient
Musculoskeletal system

[[Even if were asked to examine one side of the body, do maneuvers only for the one to be examined and comment on the need to repeat the examination on the other side for comparison]], this is according to the rule of two; **COMPARE ONE LIMB WITH THE OPPOSITE SIDE**.

For any abnormality specify the site (right or left, medial or lateral, dorsal or palmar), the specific joint involved, and look for multiplicity and symmetry.

**Examination of the hand & wrist:**

<table>
<thead>
<tr>
<th>Settings</th>
<th>Look</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greet your patient, introduce yourself then ask for permission to examine him.</td>
<td>([Look to the palmar then dorsal aspect of the hand, ask pt to abduct fingers to look in-between, ask pt to make a fist looking to hill-valley-hill-valley aspect, ask to flex fingers pointing toward wrist])</td>
</tr>
<tr>
<td>Wash your hands. Ensure adequate privacy, warmth and illumination of the room.</td>
<td>Look for color changes like erythema (redness) suggesting acute inflammation, bruising, scars, and palmar erythema</td>
</tr>
<tr>
<td>Position the Pt seated upright facing you with both arms exposed, hands rested on a pillow.</td>
<td>Obvious swelling of;</td>
</tr>
<tr>
<td>Ask for any site of pain so as to avoid touching or moving it.</td>
<td>- MCPJ, ask the pt to make a fist and comment on loss of interdigital indentation on the dorsum of the hand i.e. loss of hill-valley-hill-valley appearance.</td>
</tr>
<tr>
<td></td>
<td>- IPJs with a spindling appearance</td>
</tr>
<tr>
<td></td>
<td>Deformity;</td>
</tr>
<tr>
<td></td>
<td>- Arachnodactyly (long and thin fingers), ulnar deviation at MCPJ, duputren’s contracture (fixed flexion), displacement at the wrist joint.</td>
</tr>
<tr>
<td></td>
<td>- rotational deformity by asking the pt to flex fingers together pointing to scaphoid tubercle</td>
</tr>
<tr>
<td></td>
<td>- Ask pt to show you lateral side of his fingers; look for mallet, boutonniere, swan neck deformities, and Z-thumb.</td>
</tr>
<tr>
<td></td>
<td>Others;</td>
</tr>
<tr>
<td></td>
<td>- muscle wasting; thenar, hypothenar, small muscles of the hand</td>
</tr>
<tr>
<td></td>
<td>- nail changes specially psoriasis, onycholysis and vasculitis at the nail folds</td>
</tr>
</tbody>
</table>

Comment on:

1. color changes
2. swelling at MCPJ and IPJ
3. deformities
4. muscle wasting
5. nail changes

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Feel

1. Strike dorsum of the pt with your dorsum to assess temperature. compare bilaterally, focus on joint areas & on swellings if they exist
2. Muscle bulk of thenar and hypothenar eminences
3. Feel for consistency of any detected swelling
4. Squeeze with your thumb and index each IPJ separately to detect sponginess
5. Squeeze with your thumb and index across all MCPJ together to detect sponginess, ask pt to move his fingers while you maintain this position to detect for crepitation
6. Palpate the flexor tendon sheath for each finger separately with your thumb and index for swelling or tenderness.
   **If you find swelling assess triggering by asking the pt to fully extend a previously flexed finger

Comment on:
1. temperature
2. muscle bulk
3. consistency of swelling (hard/soft)
4. sponginess, crepitation or tenderness at joints
5. Flexor sheath tenderness or swelling, and triggering**

Move

[active then passive if pt was unable to move actively]

1. At fingers: ask pt to make a fist then extend his fingers fully
2. At wrist: flexion, extension, adduction and abduction
   - Extension by Prayer’s sign; palms together, and extend wrist fully, with elbow of both hands at same level
   - Flexion by Reverse prayer’s sign; dorsum opposing each other, flex wrist fully, elbow of both hands at same level.
   - Adduction by ulnar deviation and abduction by radial deviation
3. To test grip, ask pt to squeeze your index and middle fingers.
4. Passively move all joints (wrist, MCPJs, IPs) separately, with fixation of other joints to detect triggering.

Comment on:
1. Range of motion of hand joints and wrist joint
2. Grip strength
3. Triggering or locking
**Thumb movements:**
Around IPJ:
- Flexion and extension

Around MCPJ:
- At the level of the palm;
  - flexion; to the ulnar side
  - extension; to the radial side
- Vertical on the level of the palm;
  - adduction; downwards touching the hand side
  - abduction; upwards towards the ceiling
- Opposition; by touching the tip of little finger with the tip of the thumb making a circle

**Muscles and tendons:**
1. Flexor digitorum profundus; hold the PIPs still, then ask pt to move DIPs
2. Flexor digitorum superficialis; hold other fingers fully extended and then ask pt to flex one finger at a time
3. Extensor digitorum; ask pt to extend fingers with the wrist in the neutral position with applying resistance. Support pt hand at the wrist
4. Flexor and extensor pollicis longus; ask pt to flex and extend his thumb while you hold his MCPJ
5. Ask pt to extend thumb at MCPJ like a hitch-hiker against resistance

Comment:
- Intact (name muscle) tendon
### Nerves (motor and sensory function)

1. **Median nerve:**
   - Abduction of the thumb against resistance
   - Opposition of the thumb, try to open the formed circle with your index (OK sign)
   - Test for carpal tunnel syndrome (CTS);
     a. Tinel’s sign; by percussion with tip of your index over median nerve close to wrist. Ask pt for any shooting tingling sensation elicited upon percussion
     b. Phalen’s sign; ask pt to do reverse prayer’s sign, ask whether he felt any pain elicited
     c. Thenar muscle wasting
   - Test for sensation over the lateral 3 and half fingers on palmer aspect with the nails on dorsal aspect, plus sensation over thenar muscles.

2. **Ulnar nerve:**
   - Palmar interossei; put a sheet of paper with the fingers fully extended between index and middle fingers, ask pt to hold still as you try to pull the sheet
   - Dorsal interossei; ask pt to abduct index and little fingers against resistance
   - Adductor pollicis; ask pt to grip a card btw palm and adducted thumb; ask him to hold the card in this position while u try to pull it. If he held it with thumb flexion this is called (forment’s sign)
   - Test sensations over palmer aspect of medial one and a half finger, medial third of palm and dorsum, and over hypothenar eminence.

3. **Radial nerve:**
   - Ask pt to flex elbow to 90° and pronate the wrist
   - Ask pt to extend fingers, thumb then wrist against resistance
   - Test sensation over lateral 2/3 of the dorsum

**Comment:**
Intact (name of nerve) nerve motor and sensory functions
# Examination of the Elbow:

- **setting**
  
  Greet your patient, introduce yourself then ask for permission to examine him. Wash your hands. Ensure adequate privacy, warmth and illumination of the room. Pt seated upright facing the examiner with both arms exposed. Ask for pain at the elbow, so as to avoid touching or moving it.

- **Look**
  
  - While elbow fully extended inspect the joint from anterior and posterior aspects.
  - Look from anterior with full extension for carrying angle; normally valgus angle of 11°-13°
  - Look from side for fixed flexion deformity

  comment on :
  
  1. Redness
  2. Swellings
  3. Scars
  4. bruises
  5. Rheumatoid nodules or gouty tophi or psoriatic plaques
  6. Muscle atrophy
  7. Deformity
  8. Carrying angle

- **Feel**
  
  - Feel bony prominences at the elbow:
    1. Medial epicondyle (origin of flexors)
    2. Lateral epicondyle (origin of extensors)
    3. Olecranon
  - Check for symmetry of the dorsal triangle formed by the bony prominences of the joint.
  - Feel for temperature bilateral

  Comment on :
  
  1. Tenderness over bony prominences
  2. Symmetry of bony triangle, say; bony prominences aligned in full extension
  3. Nodules or Swellings; describe soft, firm, or spongy.
  4. temperature

- **Move**
  
  [active then move passively if active is impaired]
  
  Demonstrate for the pt:
  
  - Flexion :touch the shoulder
  - Extension: straighten the arm
  - For supination and pronation ask the pt to *hold his elbow in 90 degrees* flexion adjacent to the trunk and then to supinate and pronate.

  Comment on :
  
  1. Extension and Flexion active range of movement (normally 0-145°)
  2. Supination active range of movement (normally 0-90°)
  3. Pronation active range of movement (normally 0-85°)

- **Special tests**
  
  - Two tests both while elbow is 90° flexed adjacent to the trunk.
  1. Tennis elbow (lateral epicondyle, arm pronated, ask to extend *wrist* against resistance)
  2. Golfer’s elbow (medial epicondyle, arm supinated, ask to flex *wrist* against resistance)
  - Test for elbow crepitation while passive flexion.

  Comment :
  
  1. Negative or positive tennis elbow and golfer’s elbow tests.
  2. Presence or absence of the crepitus.
## Examination of the Shoulder:

<table>
<thead>
<tr>
<th><strong>settings</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greet your patient, introduce yourself then ask for permission to examine him. Wash your hands. Ensure adequate privacy, warmth and illumination of the room. Pt seated upright facing the examiner with both arms exposed down to waist Ask for pain at the shoulder, so as to avoid touching or moving it.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Look</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspect from:</td>
</tr>
<tr>
<td>- Front</td>
</tr>
<tr>
<td>- Behind</td>
</tr>
<tr>
<td>- Axilla</td>
</tr>
<tr>
<td>- Stand above the seated patient and look down on the shoulder</td>
</tr>
</tbody>
</table>

>>Swelling and redness are not very reliable since the joint is deep and those may not be obvious even if there is inflammation.|

Test for winging of the scapula by asking the pt to stand at a little more than an arm-distance, then to push the wall using his hands while you watch him from behind

<table>
<thead>
<tr>
<th><strong>Feel</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Palpate along a path that starts from:</td>
</tr>
<tr>
<td>- Sternoclavicular joint</td>
</tr>
<tr>
<td>- To Clavicle</td>
</tr>
<tr>
<td>- To Acromioclavicular joint</td>
</tr>
<tr>
<td>- To Scapular spine</td>
</tr>
</tbody>
</table>

Then anterior below the lateral end of the clavicle palpate:
- Cricoids; this might be uncomfortable for the pt so warn him.

Then palpate for:
- Glenohumeral head
- Bicipital tendon in bicipital groove on anterior upper aspect of the arm, do internal rotation at shoulder 15° = turn the groove from anteriolateral to anterior position.
- Supraspinatus tendon by extending the shoulder and palpate anterior
- Muscle for tenderness.

>>Note that temp and swellings are not palpated for since the shoulder joint is deep.|

<table>
<thead>
<tr>
<th><strong>Comment on:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Symmetry and contour of the shoulders for deformity</td>
</tr>
<tr>
<td>2. Position of scapula (elevated, depressed or winged or no abnormality)</td>
</tr>
<tr>
<td>3. Swelling, redness.</td>
</tr>
<tr>
<td>4. Scars, bruises</td>
</tr>
<tr>
<td>5. Muscle wasting</td>
</tr>
<tr>
<td>6. Winging of the scapula</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Comment on:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tenderness</td>
</tr>
<tr>
<td>2. Swelling</td>
</tr>
<tr>
<td>3. masses</td>
</tr>
</tbody>
</table>
**Move**

*(active if impaired do passive)*

First for rough assessment, stand behind the pt and ask him to:

- Put hands behind head (abduction, flexion, external rotation)
- Put hands behind back (adduction, extension, internal rotation)

Demonstrate for the pt, while putting your hand on the patient’s shoulder to feel for crepitus:

- Flexion
- Extension
- Abduction
- Elevation, hold the lower pole of scapula between your thumb & index
- For external and internal rotation either arm 90 flexed at elbow and adjacent to trunk or 90 flexion at elbow and 90 abduction at shoulder, in mid prone position
- Circumduction.

**Comment on:**

1. range of motion around the shoulder joint
   - NL;
   - Flexion (180)
   - Extension (60-70)
   - Abduction (180)
   - Adduction (60-70)
   - Internal rotation (120)
   - External rotation (60-70)
   - and symmetrical

2. crepitation

---

**Special tests**

**For bicipital tendonitis 2 tests:**

1. Ask the pt to flex the fully extended elbow with a supinated hand against resistance. Feel the tendon simultaneously at elbow and the shoulder.
2. The patient’s elbow is flexed 90° while their forearm is fully pronated. The examiner holds their arm at the wrist. Ask the patient to supinate his arm against resistance.

**Comment:**

1. Intact (muscle name) functions
2. Tenderness over a muscle tendon
3. Pain on movement

**Teres minor and infraspinatus:**

The pt is asked to hold his hand in 30° flexion against his anterior trunk side, with his palm facing inward pointing to the trunk. Ask the patient to try moving his arm away from the body against resistance (external rotation!).
### Subscapularis (lift-off test):

The patient is asked to hold his hand behind his back at waist level with $90^\circ$ flexion at elbow and the palm facing out. Ask the patient to move his arm away from his body without applying resistance (internal rotation!).

### Supraspinatus:

1. Ask the pt to abduct his arm from $0^\circ$ against resistance.
2. Empty bottle test: is performed while the patient elevates the arm to $90^\circ$ at the shoulder and the arm should be in the scapular plane (scapular plane is a plane between the sagittal plane and the frontal plane). The examiner then exerts downward pressure at the patient's elbow or wrist against the patient's resistance. This maneuver isolates the supraspinatus tendon. Pain indicates a positive test, and weakness may indicate a tear.

3. Painful arc test (impingement): passively abduct the arm fully, and then ask the patient to lower it down from that position slowly. If there is tendonitis then pain occurs at $60^\circ$-$120^\circ$ of passive abduction, if there is a tear of tendons then arm will fall down during active adduction.

For **deltoid**:

Ask the pt to abduct his arm from $30^\circ$ against resistance.
**Examination of the Cervical Spine:**

<table>
<thead>
<tr>
<th><strong>Settings</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greet your patient, introduce yourself then ask for permission to examine him. Wash your hands. Ensure adequate privacy, warmth and illumination of the room. Pt seated upright on a chair facing the examiner with neck and upper thorax exposed. Ask for any site of pain at the neck to avoid.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Look</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Face the patient, to observe any abnormal posture of the head or neck. Then turn around the patient to look for;</td>
</tr>
<tr>
<td>1. deformities (loss/increased lordosis, torticollis, lateral flexion)</td>
</tr>
<tr>
<td>2. skin over the spine; colour, scars, rash, and hair patches</td>
</tr>
<tr>
<td>3. swelling over the back of the neck</td>
</tr>
<tr>
<td>4. muscle wasting in the neck</td>
</tr>
<tr>
<td><strong>Comment on:</strong></td>
</tr>
<tr>
<td>1. Head &amp; Neck posture</td>
</tr>
<tr>
<td>2. Neck deformity</td>
</tr>
<tr>
<td>3. Skin colour, scars, rash, hair patches</td>
</tr>
<tr>
<td>4. Swelling</td>
</tr>
<tr>
<td>5. Muscle wasting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Feel</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Palpate;</td>
</tr>
<tr>
<td>1. Midline spinous processes from occiput to T1</td>
</tr>
<tr>
<td>2. Paraspinal soft tissue</td>
</tr>
<tr>
<td>3. Supraclavicular fossa; for cervical rib</td>
</tr>
<tr>
<td>4. Anterior neck structures (thyroid gland)</td>
</tr>
<tr>
<td>5. Cervical lymph nodes</td>
</tr>
<tr>
<td><strong>Comment on:</strong></td>
</tr>
<tr>
<td>1. Tenderness</td>
</tr>
<tr>
<td>2. Thyroid gland</td>
</tr>
<tr>
<td>3. Cervical lymph nodes enlargement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Move</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>[active, then passive if active is restricted]</td>
</tr>
<tr>
<td>1. Flexion; ask pt to put his chin on his chest (NL 80°)</td>
</tr>
<tr>
<td>2. Extension; ask pt to look at the ceiling as far back as possible (NL 50°)</td>
</tr>
<tr>
<td>3. Lateral flexion; ask the pt to put his ear on to his shoulder on right then on left sides (NL 45°)</td>
</tr>
<tr>
<td>4. Rotation; ask the pt to look over his right then left shoulder (NL 80°)</td>
</tr>
<tr>
<td><strong>Comment on:</strong></td>
</tr>
<tr>
<td>1. Range of active motion</td>
</tr>
<tr>
<td>2. Resistance by pain or stiffness at the end of passive motion</td>
</tr>
<tr>
<td>3. Shooting paraesthesia or pain on neck movements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Special tests</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurological assessment of the upper and lower limbs</td>
</tr>
</tbody>
</table>
Examination of the Thoracic Spine:

**Settings**
- Greet your patient, introduce yourself then ask for permission to examine him.
- Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
- Pt standing upright facing the examiner with his neck, chest, and back exposed.
- Ask for any site of pain at the back to avoid.

**Look**
- Inspect the patient posture from front, side and back while the patient is **standing**; comment if any abnormal posture or deformity was detected.
- Inspect the skin overlying the thoracic spines; in terms of colour, scars, hairy patch, swelling, mass (lipoma may overlay congenital abnormality)
- Look for muscle wasting of the back.

**Feel**
- Palpate spine of the thoracic vertebrae noting any prominent spinous process
- Palpate paraspinal soft tissue for tenderness

**Move**
- While the patient is **sitting** at the edge of a couch, ask him to cross his arms and then twist around both ways, right then left, maintaining forward gaze to test for rotation at the level of the thoracic vertebrae.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Look</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Feel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Move</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
### Examination of the Lumbar Spine:

<table>
<thead>
<tr>
<th>Settings</th>
<th>Greet your patient, introduce yourself then ask for permission to examine him. Wash your hands. Ensure adequate privacy, warmth and illumination of the room. Pt standing upright facing the examiner with his neck, chest, and back exposed. Ask for any site of pain at the back to avoid.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look</td>
<td>Inspect from front, side, and back for abnormal body posture or deformity. Look for skin colour, scars, hairy patches, mass, muscle wasting.</td>
</tr>
<tr>
<td>Feel</td>
<td>Palpate midline spinous processes noting any abnormal alignment of the spine. Palpate paraspinal soft tissue for any focal area of tenderness. After warning the pt, gently percuss the lumbar spine with a closed fist. Ask the pt if he felt any shooting pain or paraesthesia that radiated down the legs upon percussion.</td>
</tr>
</tbody>
</table>
| Move | [**active movement**]  
- Flexion: ask the pt to touch his toes with the tip of his fingers, while keeping the legs straight.  
The lumbar spine must turn kyphotic.  
- Extension: ask the pt to lean back as far possible  
  (خليلي جسمك مستقيم واحني ظهرك للخلف قدر استطاعتك)  
  NL 10°-20°  
- Lateral flexion: ask the pt to slide his hand down his leg while keeping the leg straight  
  (مشي ايديك على جانب جسمك بدون ما ترفعها)  
- Rotation: ask the pt to twist around both ways  
  Comment on range of motion |
| Special tests | **Schober's test:**  
- Request a permission from the pt to draw 3 lines on his back.  
- Identify dimples of venus (at level of posterior superior iliac spine), at its level make a midline mark  
- Mark a line 5 cm below and another 10 cm above the aforementioned line  
- Ask the pt to bend forward as far as he can, measure the distance between the lowest and upper lines  
  (NL > 20 cm, reduced in Ankylosing Spondylitis)  
  Comment on restriction of forward flexion of the lumbar spine. |
### Root Compression Tests:

1. **Straight leg raise test:**
   - [test L4, L5, S1 nerves root]
   - With the pt lying supine, passively flex the hip keeping the knee straight.
   - Stop if any limitation of motion by stiffness or pain occurred.
   - Measure the angle formed between the leg & the horizon. (NL 80°-90°)

   >> Bragard’s test:
   - while the pt’s leg is left up, lower it down slightly then dorsiflex the foot to confirm nerve root tension.
   >> root tension shall be relieved by flexion at the knee

2. **Tibial nerve stretch test:**
   - [test L4-5, S1-3]
   - Flex the hip to 90°, and extend the knee.
   - Press over hamstring tendons once and over popliteal fossa another. Note if pain occurred
   >> Positive test is pain when pressing across popliteal fossa.
   >> Pressure over center of popliteal fossa bears on the posterior tibial nerve which is bowstringing across it, causing pain locally or radiating to the back.

3. **Femoral nerve stretch test:**
   - [test L2-4]
   - With the pt prone, flex the knee backwards.
   >> positive test is pain felt in the thigh
   >> If pain didn’t occur, you might extend the hip as well.

4. **Flip test:**
   - Ask the pt to sit on the end of the couch with the hips and knees flexed to 90°
   - Examine the knee reflex
   - Extend the knee, as if to examine the ankle reflex.
   The pt with a prolapsed disc will not bear the tension on the nerve and will lie back to relieve it.

### Comment on:
1. Straight leg raise test angle
2. Bragard’s test
3. Relieve by knee flexion

### Comment Positive/negative tibial nerve stretch test

### Comment Positive/negative Femoral nerve stretch test

### Comment Positive/negative flip test
## Examination of the Hip joint:

### Settings
- Greet your patient, introduce yourself then ask for permission to examine him.
- Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
- Pt exposed from toes up to iliac crests.
- Ask for any site of pain at the hip to avoid.

### Look
- Assess the gait by asking the pt to walk a straight path head and forth; normally smooth, symmetrical, ergonomically economical, with each leg 50% out of phase with the other (fancy ha! 😊)
- while the pt is standing inspect from:
  - Front: stance straight or not, deformity, pelvic tilt, shoulder levels with ground, pelvic muscle wasting.
  - Sides: lumbar lordosis. (increased or decreased)
  - Behind: spinal deformity and gluteal atrophy
  - Around the hips: scars, sinuses, dressings, or any other skin changes.

[[Compare limbs bilaterally!!]]

### Feel
- Palpate greater trochanter, lesser trochanter, and ischial tuberosity.
- Note any tenderness suggesting bursitis or muscle strains.

### Move
- **Flexion:**
  - While the pt is supine facing up. Move the leg of the pt with your Rt hand to flex the hip and the knee. place Lt hand below the pt back on lumbar spine; to detect masking of movement with lumbar spine flexion

- **Adduction and abduction:**
  - Stabilize the pelvis with your Lt hand placed on the opposite iliac crest, then move the leg with your Rt hand laterally and then medially crossing to opposite leg.

Comment on:
1. gait
2. Stance
3. Shoulders parallel to the ground and symmetrically placed over pelvis or not
4. Pelvic tilt present or not
5. Deformity
6. Muscle wasting
7. Presence of stoop or increase in lumbar lordosis
8. Spine straight or there is deformity (ex. scoliosis)
9. Gluteal atrophy
10. Scars, sinuses or any skin changes.

Comment on range of passive hip flexion [NL 0-120°]

Comment on range of passive hip abduction [NL 45°] and adduction [NL 25°]
You can assess both limbs together from the foot of the bed, by adducting and abducting at the level of the hip bilaterally.

**External and internal rotation:**
Roll the extended leg over the couch OR with the knee flexed at 90° move foot medially for external rotation and laterally for internal rotation.

**Extension:**
While the pt is facing downwards (prone), stabilize the pelvis with your Lt hand, then assess hip extension bilaterally.

**Shortening:**
While the pt is supine facing upwards and legs maximally stretched measure each limb from umbilicus to medial malleolus (apparent length) and from anterior superior iliac spine ASIS to medial malleolus (true length)

>> confirm leg length discrepancy by Block test:
ask the pt to stand with bare feet on the ground, raise the shorter leg using a series of blocks until the pelvis is leveled. Assess by palpating both ASIS.

**Thomas test:**
With your left hand placed below the pt’s back, passively flex both legs (hips & knees) with your Rt hand as far as possible. Then ask the pt to extend the tested hip actively while you hold non-tested hip flexed. Incomplete extension of the tested leg indicated fixed flexion deformity.

[make sure the pt didn’t undergone hip replacement before performing this test!!!]

**Trendelenberg’s sign.**
Ask the pt to stand on one leg for 30 s, pt trunk will lean to the affected side and contralateral pelvis will drop.
Examination of the knee joint:

**settings**
Greet your patient, introduce yourself then ask for permission to examine him.
Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
Pt exposed from toes up to iliac crests.
Ask for any site of pain at or close to the knee to avoid.

**look**

- First assess the gait by asking the pt to walk a straight path head and forth.
- Inspection while the pt is standing from:
  - anterior; posture & deformities (genu valgus or varus), patellar hollow, muscle wasting, housemaide’s knee the sides; Baker’s cyst and posterior.
  >> For patellar hollow; ask the pt to pull the muscles actively around his knee

- Ask the pt to lie in supine position; look for Scars, sinuses, redness, rash, and flexion deformity.

**Feel**

Temperature on both medial and lateral aspects of the knee bilaterally.

Palpate while knee in flexed position:
  1. Joint lines (depression between femur and tibia on sides of patella
  2. Condyles of tibia
  3. Epicondyles of femur
  4. Patella
  5. Tibial tuberosity

With the knee extended, palpate patellar & quadriceps tendons.
For bursitis, the knee should be extended and relaxed. Feel suprapatellar pouch above patella for sponginess.

Comment on:
1. Gait
2. Deformity
3. Patellar hollow
4. Muscle wasting
5. Housemaide’s knee
6. Baker’s cyst
7. Scars, sinuses, redness, rash
8. flexion deformity
9. lower limb length discrepancy**

Comment on presence or absence of temperature difference.

Comment on;
1. Tenderness.
2. Sponginess.
For effusion first inspect for the obliteration of the parapatellar grooves then do;
- Mild effusion >> Ripple test
  milk above patella 5 cm then milk medial side = accumulation of fluid on lateral side of the knee. and then push laterally and view a bulge medially.
- Moderate effusion >> Patellar tap
  ## absent in massive effusion
- Massive effusion >> Fluctuation
  hold patella in between your hands, press upwards once and wait, press downwards once and wait.

<table>
<thead>
<tr>
<th>Move</th>
<th>Comment;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Obliteration of parapatellar grooves.</td>
</tr>
<tr>
<td></td>
<td>2. Positive or negative ripple test, fluctuation and patellar tap.</td>
</tr>
</tbody>
</table>

**Actively**:
- Ask the pt to flex his knees as far as he can and then to extend it fully, while you place your palm over his knee joint to feel any crepitation.
- Ask the pt to rise his lower limb at the hip keeping the knee extended to check for extension and flexion deformity.
  If the pt was unable to rise his limb unless with a flexed knee, passively extend the leg;
  If can be extended passively then it’s an extensor lag, if not then it’s a flexion deformity which is due to a mechanical obstruction.

**Passively**;
- Passively flex the knee
- For extension raise both legs together and observe laterally for hyperextension (genu recurvatum > 10°).

<table>
<thead>
<tr>
<th>Comment on;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of active movement of extension and flexion [NL 140°, symmetrical] and presence of crepitation.</td>
</tr>
<tr>
<td>And comment on presence or absence of extensor lag or flexion deformity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comment on;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of Passive movement and presence of hyperextension of the knee.</td>
</tr>
</tbody>
</table>
### Special tests

<table>
<thead>
<tr>
<th>Tests of knee stability:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Collateral ligaments stability:</strong></td>
<td></td>
</tr>
<tr>
<td>apply first while leg fully extended 0° then at 30° flexion of the knee (to omit effect of cruciate ligaments and capsule), put pt’s knee between your elbow and side, feel with your thumbs the joint lines</td>
<td></td>
</tr>
<tr>
<td>o Medial collateral ligament&gt;&gt; valgus stress</td>
<td></td>
</tr>
<tr>
<td>o Lateral collateral ligament&gt;&gt; varus stress</td>
<td></td>
</tr>
<tr>
<td>&gt;&gt; major opening of the joint lines indicate a tear</td>
<td></td>
</tr>
<tr>
<td><strong>2. Cruciate ligaments stability:</strong></td>
<td></td>
</tr>
<tr>
<td>Put legs of the pt flexed together then inspect from the side for posterior sag sign. warn the pt that you are going to sit on his foot, perform:</td>
<td></td>
</tr>
<tr>
<td>– Anterior drawer test &gt;&gt; for anterior cruciate lig # false positive if posterior sag is present</td>
<td></td>
</tr>
<tr>
<td>– Posterior drawer test &gt;&gt; for posterior cruciate lig</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mcmurray tests for meniscal tear:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Flex the knee to its full extent.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>2. Hold from pt sole of foot.</strong></td>
<td></td>
</tr>
<tr>
<td><em>Medial</em> meniscus &gt;&gt; <em>external</em> rotation at the hip and <em>varus</em> stress at the knee</td>
<td></td>
</tr>
<tr>
<td><em>Lateral</em> &gt;&gt; <em>internal</em> rotation at the hip and <em>valgus</em> stress at the knee</td>
<td></td>
</tr>
<tr>
<td><strong>3. Extend the knee smoothly. Hear for a click or clunk accompanied by discomfort.</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Patellar apprehension test:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>With the pt’s knee fully extended, push the patella laterally with your thumb, and then flex the knee slowly. If the pt actively resists flexion, this suggest previous patellar dislocation or insatability</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Squat test:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask the pt to squat, keeping the feet and heels flat on the ground. if pt can’t perform this test; this indicates incomplete knee flexion on the affected side which is caused by a tear of the posterior horn of the menisci</td>
<td></td>
</tr>
</tbody>
</table>

Comment if negative or positive valgus and varus stress tests.

Comment from inspection on presence of posterior sag sign and then comment positive or negative anterior and posterior drawer tests.

Comment positive or negative medial and lateral Mcmurray tests

Comment if positive or negative Patellar apprehension test.

Comment if pt was able to perform squat test.
### Examination of the Ankle and the Foot:

**settings**
- Greet your patient, introduce yourself then ask for permission to examine him.
- Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
- Ask pt to remove their socks and shoes
- Ask for any site of pain to avoid it.

**Look**
- Examine soles of the shoes for any abnormal pattern of wear
- Gait; ask pt to move in a straight line, observe for
  - Increase height of stepage, indicating foot drop
  - Ankle movement (dorsi/plantar flexion)
  - Position of the foot as it strikes the ground (supinated/pronated)
  - Hallux rigidus; which is loss of movement at MTPJ
- Ask pt to stand, observe;
  - From behind, heel alignment (valgus/varus)
  - From side; foot arch (flattened “pes planus”/exaggerated “pes cavus”)
  >> if pes planus occurs due to a mobile deformity, it can be restored to normal by asking the pt to stand on tiptoe.
- Look for spaly foot, which is widening at the level of metatarsal heads
- Observe ankle and foot for:
  - Scars, sinuses, swelling, bruising, callosities, edema
  - Deformity
  - Nail changes
- Observe great toe for:
  - Hallux valgus & bunion & rotation over the 2<sup>nd</sup> toe.
  - Marked redness and soft tissue swelling
  - Sausage toe
  - Claw toe
  - Hammer toe

**Feel**
- Palpate bony prominences and gently squeeze the forefoot

**Comment on each mentioned**
- tenderness
- temperature difference
- sponginess
| Move | 1. Ask the pt to flex his foot up, then down, then inside, then outside.  
2. Move the pt’s foot passively to assess range of motion; at ankle: dorsiflexion [NL 15°] & plantar flexion [NL 45°] at subtalar joint (while foot is dorsiflexed); inversion [NL 20°] & eversion [NL 10°]  
>> If range of passive dorsiflexion is restricted, assess the contribution of gastrocnemius by applying dorsiflexion of the ankle once while knee is flexed, another when the knee is extended.  
If the movement is harder while knee is extended, this suggests gastrocnemius contracture. | Comment on range of motion |
| Special tests | **Achilles tendon:**  
Ask the pt to kneel with both knees on a chair, and then palpate gastrocnemius and Achilles tendon | Comment on:  
1. Tenderness  
2. Soft tissue swelling  
3. Gap in the Achilles tendon |
|  | **Thomson’s (simmond’s) test:**  
Ask the pt to kneel with both knees on a chair, and then squeeze the calf just distal to the level of maximum circumference.  
if the Achilles tendon is intact, plantar flexion of the foot will occur | Comment if planter flexion occurred or not. |
Nervous system

Examine conscious level of the patient (glaswa comma scale):

<table>
<thead>
<tr>
<th>BEHAVIOR</th>
<th>RESPONSE</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye opening response</td>
<td>Spontaneously</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>To speech</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>To pain</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>No response</td>
<td>1</td>
</tr>
<tr>
<td>Best verbal response</td>
<td>Oriented to time, place, and person</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Confused</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Inappropriate words</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Incomprehensible sounds</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>No response</td>
<td>1</td>
</tr>
<tr>
<td>Best motor response</td>
<td>Obey commands</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Moves to localized pain</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Flexion withdrawal from pain</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Abnormal flexion (decorticate)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Abnormal extension (decerebrate)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>No response</td>
<td>1</td>
</tr>
</tbody>
</table>

Total score:
- Best response: 15
- Comatose client: 8 or less
- Totally unresponsive: 3

Eye opening:
four-eye guy
Verbal response:
Jackson 5
motor response:
6 wheeled vehicle

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Examination of Stance and Gate:

| Settings | Greet your patient and introduce yourself to him.  
Explain the examination and ask for his consent to carry it out.  
Wash your hands. Ensure adequate privacy, warmth and illumination of the room.  
Ask if the pt is currently experiencing any pain. |
|----------|----------------------------------------------------------------------------------------------------------|
| Stance   | Ask the pt to stand upright with feet close together, eyes open, shoes off, and hands by side.  
Observe for abnormal posture from front and side.  
Perform Romberg’s test;  
ask the pt to stand with closed eyes and observe for body swaying (truncal ataxia).  
**Be ready to support the pt in case he lost his balance.**  
# Positive Romberg’s test indicates posterior column disease. |
| Gait     | Ask the pt to move a measured straight 10 meters path back and forth  
Perform Tandem gait;  
ask the pt to walk the same distance heel to toe in a straight line.  
# Ataxia on a narrow-based gait suggests a cerebellar or vestibular lesion. |
|          |                                                                                                          |
|          | Comment on:  
1. Swaying with opened eyes.  
2. swaying with closed eyes (sensory ataxia) = positive Romberg’s test |
|          |                                                                                                          |
|          | Comment on:  
1. time needed to complete the walk  
2. stride length  
3. arm swing  
4. steadiness during turning  
5. limping  
6. ability to perform tandem gait |

## Forms of gait abnormalities:  
hemiplegic gait >> semi-circular foot motion.  
Bilateral UMNL >> scissor-like gait.  
Cerebellar dysfunction >> broad-based, unsteadiness.  
Parkinson gait >> delayed initiation, short steps, loss of arm swing, festinating gait.  
Proximal myopathy >> waddling gait.  
Huntington’s gait >> bizarre gait “dancing-like”.

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Examination of the Cerebellum (Co-ordination):

| Settings | Greet your patient and introduce yourself to him.  
Explain the examination and ask for his consent to carry it out.  
Wash your hands. Ensure adequate privacy, warmth and illumination of the room.  
Ask if the pt is currently experiencing any pain. |
|----------|-----------------------------------------------------------------|
| General  | Listen to the pt speech when he welcomes you back.  
Comment if the pt has dysarthria, staccato or slurred speech |
| Inspection | Look for resting tremor and intention tremor  
# resting tremor is a sign of Parkinson’s, while intention tremor is a sign of cerebellar disease.  
Comment if resting tremors present or not |
| Tests from up to down | Test for Nystagmus:  
with both eyes opened, ask the pt to hold head still, and follow the tip of your finger. Draw an H shape in front of him.  
observe for Nystagmus on lateral gaze specially  
Comment if horizontal Nystagmus present or not |
|          | Examine the pt speech by asking him to explain to you how he get down to the hospital or say his long name.  
Note any slurring in speech, slowness in rhythm or dysarthria.  
Comment on dysarthria, staccato or slurred speech |
|          | Finger-nose test:  
Place your index finger at about half a meter from the pt’s face. Ask him to touch the tip of his nose then the tip of your finger with the tip of his index. Once he is able to do this, ask him to do it as fast as he can. Ask him to repeat the test with his other hand.  
Dysmetria (past-pointing) and intention tremor at the end of the movement are cerebellar signs.  
Comment on dysmetria and intention tremor |
|          | Rapid alternating movement:  
Ask the pt to clap with alternating the dorsal then palmar surfaces of one hand. Once he is able to do this, ask him to do it as fast as he can.  
Ask him to repeat the test with his other hand.  
Comment on Dysdiadochokinesis |
<table>
<thead>
<tr>
<th><strong>Rebound phenomenon:</strong></th>
<th>Comment on positive rebound phenomenon</th>
</tr>
</thead>
<tbody>
<tr>
<td>ask the pt to stretch his arms out in front and maintain this position, then push the pt’s wrist quickly downwards and observe the returning movement if became pendular.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Heel-to-shin test:</strong></th>
<th>Comment on dysmetria and intention tremor in the lower limbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>lie the pt on a couch. Ask him to run the heel of one leg down the shin of the other, and then to bring the heel back up to the knee and to start again. Ask him to repeat the test with his other leg.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Stance &amp; gait:</strong></th>
<th>Comment on truncal ataxia and ability to perform tandem gait</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask the pt to stand upright with feet close together, eyes open, shoes off, and hands by side. Observe for body swaying from front and side &gt;&gt;&gt; truncal ataxia is a cerebellar sign.</td>
<td></td>
</tr>
<tr>
<td>ask the pt to perform tandem gait by walking a straight path heel to toe &gt;&gt; inability to perform tandem gait is a cerebellar sign</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Finishing</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Examine muscle tone in the upper limbs and lower limbs, comparing both sides.</td>
<td>Comment if normal or reduced muscle tone</td>
</tr>
<tr>
<td>Examine deep tendon reflexes in the upper and lower limbs</td>
<td>Comment if normal or exaggerated reflexes. And if pendular</td>
</tr>
</tbody>
</table>

## If you were asked to list cerebellar signs, simply remember the acronym D₂ANISH₂:

- **Dysdiadochokinesis and Dysmetria**
- **Ataxia**
- **Nystagmus**
- **Intention tremor**
- **Slurred/ staccato speech**
- **Hypotonia and hyporeflexia**
# Examination of the Cranial Nerves:

## Settings

- Greet your patient and introduce yourself to him.
- Explain the examination and ask for his consent to carry it out.
- Wash your hands. Ensure adequate privacy, warmth and illumination of the room.
- Ask if the pt is currently experiencing any pain.

## I (olfactory nerve)

1. Check nasal passages patency; by asking the pt directly to report any feeling of nasal blockage, then close one nostril and ask pt to breathe in while you listen to sound of breathing, and then repeat for the other side.
2. Look for septal deviation
3. Ask the pt to close his eyes, then present to him commonly available odors and ask pt to identify it.
   **test each nasal passage alone

   - anosmia (Absence of the sense of smell): in head injury and basal ganglia disease
   - parosamia (disorder in the sense of smell): in head trauma, past sinusitis, S/E of drugs
   - olfactory hallucination: in Alzheimer’s and focal epilepsy

## II (Optic nerve)

1. Look for pupils symmetry, regularity, and size (NL 3-5 mm in light, 4-9 mm in dark)
2. Examine visual acuity by snellen/logMar chart
3. Examine colour vision by ishihara series
4. Fundoscopy to examine posterior retina by fundoscope
5. Examine visual field:
   - sit directly facing the pt at an eye level about 1 meter away (confrontation), ask pt to fix his eyes on your nose. Examine:
     a. homonymous defect with both eyes open at 2, 4, 8, 10 o’clock
     b. sensory inattention with both eyes open
     c. peripheral visual fields for each eye at a time at 2, 4, 8, 10 o’clock
     d. central visual field for each eye at a time, using red hatpin.
     - Ask pt to identify its colour, then test if can see the same at four quadrants of vision.
     e. Size of blind spot: located 15° to temporal side of point of visual fixation.
6. Pupillary examination; light reflex and accommodation reflex
<table>
<thead>
<tr>
<th>III (oculomotor nerve), IV (Trochlear nerve), VI (Abducens nerve)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Inspect for:</td>
</tr>
<tr>
<td>1. Head &amp; eyelid position:</td>
</tr>
<tr>
<td>head tilt, strabismus, proptosis (exophthalmos) from above and behind, ptosis, lid-lag by asking pt to follow your finger from 45° above horizon</td>
</tr>
<tr>
<td>2. pupils symmetry</td>
</tr>
<tr>
<td>3. periorbital edema, lacrimal apparatus, eye lid margin, conjunctiva, sclera, cornea with dye</td>
</tr>
<tr>
<td>• Test movements of extra-ocular muscles;</td>
</tr>
<tr>
<td>sit in confrontation, move your finger in H motion.</td>
</tr>
<tr>
<td>Look for nystagmus, ask pt to report double vision</td>
</tr>
<tr>
<td>comment: smooth pursuit, no divergence of gaze, no nystagmus</td>
</tr>
<tr>
<td>• Do cover test (for strabismus if present)</td>
</tr>
<tr>
<td>• Do Pupillary examination; light reflex and accommodation reflex</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>V (trigeminal nerve)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Motor:</td>
</tr>
<tr>
<td>1- Inspect for muscle wasting</td>
</tr>
<tr>
<td>2- Ask pt to clench his teeth, then feel for muscle bulk of masseter and temporalis</td>
</tr>
<tr>
<td>3- Ask pt to open his jaw while you apply upward resistance</td>
</tr>
<tr>
<td>• Sensory:</td>
</tr>
<tr>
<td>Ask the pt to close his eyes, test sensations at dermatomes of 3 branches (ophthalmic, maxillary, mandibular) bilaterally of the following sensory modalities;</td>
</tr>
<tr>
<td>1- light touch using cotton wool</td>
</tr>
<tr>
<td>2- pain using neurotip</td>
</tr>
<tr>
<td>examine touch sensation of anterior 2/3 of tongue using orange stick</td>
</tr>
<tr>
<td>• Reflexes:</td>
</tr>
<tr>
<td>1- Corneal reflex.( Afferent: CN 5 ,, Efferent : CN 7)</td>
</tr>
<tr>
<td>2- Jaw reflex ( Afferent : CN 5 ,, Efferent :CN 5 )</td>
</tr>
</tbody>
</table>
### VII (facial nerve)

- **Inspect** for:
  - Facial asymmetry, difference in blinking, involuntary movements, presence of nasolabial folds, deviation of the angle of the mouth
- **Motor**:
  1. Ask pt to look up, inspect for forehead wrinkles
  2. Ask pt to close his eyes tightly against resistance, examine power
  3. Ask pt to blow out his cheeks against resistance, examine power
  4. Ask pt to whistle (or purse his lips)
  5. Ask pt to smile widely (show me your teeth smile :D ), examine deviation of the mouth
- Test **taste** sensation of anterior 2/3 of the tongue by present commonly available food.
- Schirmer's tear test
- Corneal reflex

# Hyperacusis (increased auditory volume in an affected ear) may be produced by damage to the VII cranial nerve as it innervates the stapedius muscle.

### VIII (Vestibulo-cochlear nerve)

**Hearing part (cochlear branch):**

1. Whispered voice test from 15cm away, ask pt to repeat what he hears while closing other ear (mask hearing in contralateral side by pushing tragus)
2. Weber’s test: NL symmetrical at midline
3. Rinne’s test: NL air conduction better than bone conduction ‘positive test’

**Vestibular branch:**

1. Dix-Hallpike maneuver
2. Vestibular reflex that includes caloric reflex and oculocephalic reflex

### IX (glosso-pharyngeal), X (vagus nerve)

1. Examine pt **speech**
   - comment on dysarthria & dysphonia
   - note the quality and sound of the patient's voice. Is it hoarse or nasal?
2. Ask pt to **cough**; comment if bovine
3. Ask pt to say ‘aah’ while you look at the back of his mouth using the light of your torch for deviation of uvula of contraction of pharyngeal muscles
   - # (in the unilateral weakness it will deviate to the normal side)
4. Examine **gag reflex** by water swallow test in a conscious pt
5. Ask pt to puff out to examine for **nasal escape**
<table>
<thead>
<tr>
<th>XI (accessory nerve)</th>
<th>XII (hypoglossal nerve)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Inspect</strong> for:</td>
<td>• <strong>Inspect</strong> for:</td>
</tr>
<tr>
<td>Muscle atrophy, involuntary movements, symmetry of shoulder contour</td>
<td>wasting of the tongue, tremor, fasciculation, involuntary movements</td>
</tr>
<tr>
<td>• <strong>Palpate</strong> muscle bulk</td>
<td>• Ask pt to protrude his tongue. Look for deviation of tip of the mouth</td>
</tr>
<tr>
<td>• Examine <strong>power</strong></td>
<td>Note for deviations of the tongue from midline, a complete lack of ability to</td>
</tr>
<tr>
<td>1- Ask pt to shrug his shoulders while you apply downward pressure to examine trapezius</td>
<td>protrude the tongue or any involuntary movement.</td>
</tr>
<tr>
<td>2- Ask pt to turn his head to one side against resistance to examine sternomastoid (this examine contralateral side)</td>
<td># Tongue will deviate towards the side of a peripheral lesion, and to the opposite side of a central lesion.</td>
</tr>
<tr>
<td>• Ask pt to move his tongue from side to side</td>
<td>• Ask pt to move his tongue from side to side</td>
</tr>
<tr>
<td>• Examine power; press tongue against cheek with resistance</td>
<td>• Examine lingual speech by asking pt to say ‘lah lah lah’</td>
</tr>
<tr>
<td>• Examine swallowing by water swallow test</td>
<td>• Examine swallowing by water swallow test</td>
</tr>
</tbody>
</table>

For examination of **Motor System, Sensory System, Speech, And Signs of Meningeal Irritation** please refer to Macleod’s book.
Section 3 Appendix
**Abbreviations**

- **Pt** = patient
- **Hx** = history
- **Px** = physical examination
- **Dx** = diagnosis
- **DDx** = differential diagnosis
- **y/o** = year old
- **ICU** = intensive care unit
- **CCU** = cardiac care unit
- **OPD** = out-patient department
- **ER** = emergency room
- **PTP** = prior to presentation
- **PTA** = prior to admission
- **CC** = chief complaint
- **HPI** = history of presenting illness
- **ROS** = review of system
- **Wt** = weight
- **PND** = paroxysmal nocturnal dyspnea
- **SOB** = shortness of breath
- **LMP** = last menstrual period
- **OCP** = oral contraceptive
- **NKDA** = no known drug allergy
- **CAOX3** = conscious and oriented in time, place and person
- **LOC** = loss/level of consciousness
- **GAEB** = good air entry bilateral
- **Bx** = biopsy
- **Rx** = treatment regimen
- **MTX** = methotrexate
- **CTX** = chemotherapy
- **RTX** = radiotherapy
- **ttt** = treatment
- △ = diagnosed with, or trimester in pregnancy
- **ABG** = arterial blood gases or air bone gap in ENT
- **e** = electrolytes
- **AAA** = abdominal aortic aneurysm

**Acronyms and Symbols**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARDS</td>
<td>acute respiratory distress syndrome</td>
</tr>
<tr>
<td>COPD</td>
<td>chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>ASA</td>
<td>acetyl salicylic acid (aspirin)</td>
</tr>
<tr>
<td>CXR</td>
<td>chest x-ray</td>
</tr>
<tr>
<td>AXR</td>
<td>abdominal x-ray</td>
</tr>
<tr>
<td>CBC</td>
<td>complete blood count (lab test)</td>
</tr>
<tr>
<td>c/o</td>
<td>complains of</td>
</tr>
<tr>
<td>EUA</td>
<td>examination under anesthesia</td>
</tr>
<tr>
<td>FNA</td>
<td>fine needle aspiration (lab test)</td>
</tr>
<tr>
<td>NGT</td>
<td>nasogastric tube</td>
</tr>
<tr>
<td>NPO</td>
<td>nothing per os</td>
</tr>
<tr>
<td>POD</td>
<td>post operative day</td>
</tr>
<tr>
<td>RTC</td>
<td>return to clinic</td>
</tr>
<tr>
<td>RTA</td>
<td>road traffic accident</td>
</tr>
<tr>
<td>RTA</td>
<td>renal tubular acidosis</td>
</tr>
<tr>
<td>S/P</td>
<td>status post (Ex. s/p hernia repair)</td>
</tr>
<tr>
<td>Lap choly</td>
<td>laparoscopic cholecystectomy</td>
</tr>
<tr>
<td>Op</td>
<td>operation</td>
</tr>
<tr>
<td>DM</td>
<td>diabetes mellitus</td>
</tr>
<tr>
<td>CKD</td>
<td>chronic kidney disease</td>
</tr>
<tr>
<td>lab results</td>
<td>symbol with normal ranges ;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>Normal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na</td>
<td>(135-148)</td>
</tr>
<tr>
<td>BUN</td>
<td>(15-46)</td>
</tr>
<tr>
<td>K</td>
<td>(3.5-5)</td>
</tr>
<tr>
<td>Cr</td>
<td>(0.6-1.4)</td>
</tr>
<tr>
<td>RBS</td>
<td>(70-120)</td>
</tr>
<tr>
<td>WBC</td>
<td>(4-10)</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>(M 16±2, F 14±2)</td>
</tr>
<tr>
<td>Platelets</td>
<td>(140-440)</td>
</tr>
<tr>
<td>Hematocrit</td>
<td>(36-53)</td>
</tr>
</tbody>
</table>
Past years OSCE stations

**Summer 2013**
‘this is the first time when introductory exam get history taking stations!’

Stations of the first day group:
1. take a history from a patient complaining of cough and ask him the questions that help you to differentiate asthma from COPD
2. take a history from patient with MI
3. take a history from patient with jaundice (points mentioned in figure 8.25 page 196 of Macleod’s should be asked)
4. examine the patient’s knee doing only the passive and active movements
5. do inspection and palpation of the abdomen
6. do motor examination of the lower limb

Stations of the second day group:
1. examination of cerebellum
2. inspection and percussion of the abdomen
3. physical examination for knee effusion
4. history of chest pain asking the questions that help you differentiate stable from unstable angina
5. (Oral station) the instructor asked about the signs and symptoms of iron deficiency, low WBCs count and low platelets count.
6. take a history from patient complaining of cough and ask him the questions that help you differentiate asthma from COPD

**Summer 2012**

1. examine stability of the right knee
2. do inspection of the abdomen
3. do percussion and auscultation of the anterior chest
4. do palpation and auscultation of the precordium
5. examine the patient radial pulse
6. examine facial nerve
History application form

II___ Patient profile:

Mr. / Mrs. / Miss ____________________________, ______ years old,

☐ Lady
☐ Gentleman
☐ Single
☐ Married
☐ Divorced
☐ Widow

Living in ____________________________,

Works as ____________________________.

The pt was admitted to ____________________________ via ____________________________, on ____________________________

at ____________________________ History was taken from ____________________________ by ____________________________

________________________________________ on ____________________________ at ____________________________.

II___ chief complaint:

________________________________________

________________________________________

II___ HPI:

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________
## II___ ROS:

### General:
- Well being;
- Appetite;
- Energy;
- Sleep;
- Mood;
- Wt change;

### Cardiovascular system:
- Chest pain
- Breathlessness;
  - on lying flat, relieved by _____ pillows
  - at night around _____ o’clock
  - on minimal exertion like
- Palpitation;
- Claudication; at _____ distance
- Ankle swelling

### Respiratory system:
- SOB
- Cough; dry/productive, sound (_____), timing (_____), associated with _____
- Wheeze on
- Sputum; that is ________ (timing), in _______ color, in ______ amount,
  - with _______ smell, _______ contain solid materials.
- Hemoptysis;
- Chest pain on inspiration or coughing

### Gastrointestinal system:
- Oral ulcers; if painful
- Dental hygiene;
- Dysphagia; to solids or liquids, at _______ level.
- Odynophagia
- Nausea
- Vomiting; the vomitus is _______
- Hematemesis
- Indigestion
- Heartburn
- abdominal pain
- Change in bowel habits. Normally pass feces _______ times a day, this has increased / decreased to _______ a day.
- Hematuria
- change in color of stool;

### Urinary system:
- pain passing urine (dysuria);
- frequency; if at night (nocturia)
- hematuria
- incontinence (stress/ urge)
- libido; normal or changed
- unprotected intercourse (multiple sexual partners)

### Genital system:
- for men:
  - hesitancy
  - poor stream
  - terminal dribbling
  - urethral discharge
  - erectile difficulties
- LMP
- Period is
- Heavy bleeding; state if contain clots
- vaginal discharge
- OCP
- dyspareunia

### For women:
- LMP
- Period is
- Heavy bleeding; state if contain clots
- vaginal discharge
- OCP
- dyspareunia
### Endocrine system:
- □ Heat or cold intolerance
- □ change in sweating
- □ excessive thirst

### Musculoskeletal system:
- □ Joint pain
- □ Stiffness
- □ joint swelling
- □ restricted mobility
- □ falls

### Nervous system:
- □ Headache
- □ Dizziness
- □ Faints
- □ fits
- □ altered sensation
- □ Weakness
- □ visual disturbances
- □ hearing problems
- □ memory & concentration changes

### Others:
- □ bleeding or bruising
- □ Skin rash

### II. Past Hx:
**Medical:**
- chronic illnesses:
  - (D / E / A / T / H), □ OSA,
- previous hospital admissions (when, where, why, length of stay);
- history of blood transfusion (when, where, why, how many, complications);

**Surgical** (when, where, why, complications, anesthesia):

**Obstetrical:**
- LMP ____________, age of menarche ____________, and menopause ____________,
- number of pregnancies ____________ & complications ____________,
- type of delivery ____________ & complications ____________,
- abortion ____________ & cause ____________,
- family planning method ____________.
II ___ Drug Hx:
________________________________________________
________________________________________________
________________________________________________
________________________________________________
________________________________________________

II ___ Social Hx:
Lifestyle:
exercise ______, diet ________,
marriage ______, homing ________,
hobbies ______, pets ________.

Occupational Hx:
previous occupation ________,
unemployment (reason ______, duration ______),
attitude to job ________.

Travel Hx:
_____________________________________ ________,
______________________________________ ________,

Sexual Hx:
☐ regular sexual partner, M/ F
☐ irregular (how many per year _______, M/ F)

Tobacco & water pipe:
☐ smoker; ______ pack years
☐ X-smoker; stopped from ______ years
☐ passive smoking at work or home

Alcohol:
______________________________________
______________________________________
______________________________________

Hx of vaccination
______________________________________
______________________________________

Religion

Drug abuse

Insurance system