CLINICAL SKILLS (CLS H03)

YEAR 1 SEMESTER 1

Broad objective

To enable the learner evaluate patients in a clinical set up

Specific objectives

To enable the learner to;

I. Communicate effectively with patients
II. Take comprehensive history
III. Perform complete physical examination
IV. Relate relevant radiological findings

Module content

1. Communication skills
2. History taking
3. Physical examination
4. Diagnostic investigations

1.Communication skills

In communication skills, we are going to learn;

- ✓ Definition
- ✓ Communication process and observing
- ✓ Choice of words (ways of asking open-ended, closed questions, paraphrasing, summarizing, probing
- ✓ Receiving and giving feed back
- ✓ Expressing feelings (verbal and non-verbal communication

INTRODUCTION

Definition

- Communication comes from latin word "*communis*" which means "common."
- When we are communicating we are trying to establish "commonness" with someone i.e we are trying to share information, an idea or an attitude
- Communication **is a process of understanding and shearing meaning-** involves a series of events
- Communication is a series of experience which involves 5 senses- smell, seeing, hearing, taste, touch
- A skill is an acquired or learnt ability of doing something through training or practice
- A skill is not congenital. No one is born with it. It is developed over time.
- Communication skills are set of skills required for effective communication. It is the ability to use language and express information

Communication process

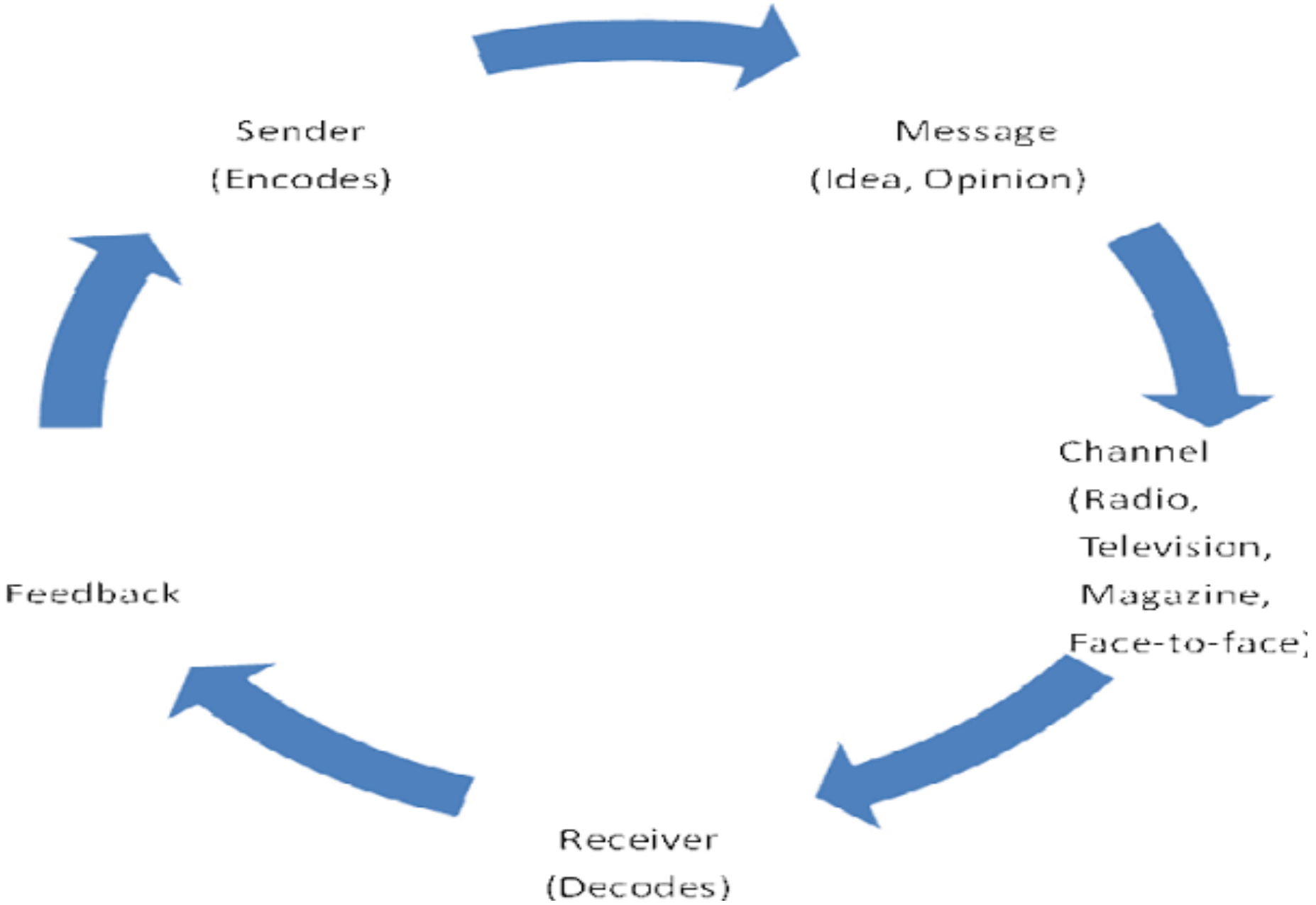
- The process of communication is the steps we take in order to successfully communicate
- It is a cyclic process as it starts with the sender and ends with the receiver
- Components of communication process include

✓ a sender- a person who is the source of information

✓ encoding –translating ideas or concepts into a coded information that will be communicated. It involves using individual sounds to build and write a word

✓ the message- information or content intended to be communicated to the receiver

- ✓channel of communication- the medium or method through which a message is sent to the intended receiver. Basic channels are written (hard copy or digital formats), oral or spoken, electronic and media
- ✓Receiver of the message- a person who receives the message from the sender. The sender perceives, interpretes and decides what to do
- ✓Decoding the message-translating printed words to sounds or reading. It involves interpretaion of information
- ✓Providing feedback- is a response to the message


Sender
(Encodes)
Message
(Idea, Opinion)
Channel
(Radio,
Television,
Magazine,
Face-to-face)
Receiver
(Decodes)
Feedback

Types of communication

- Communication can be categorised by;

1. Number of people involved/levels of communication
   I. **Intrapersonal communication**-communication within one self which involves such activities as reflection, problem solving, planning and solving internal conflicts among others. This is a continous process we engage in but rarely realize we are involved in it
   II. **Interpersonal communication**- involves exchanging meaning between at least two people in a situation that allows mutual opportunities for both speaking and listening. Interpersonal communication can be of two types
      - Dyadic communication- involves two people in communication such as a doctor and a patient, a lecturer and a student
      - Small group communication- involves three to ten people . Such communication includes that which takes place in families and work groups

iii. Public communication: it involves one person communicating to a large group of people

iv. Mass communication: this communication mediated through technological transmission system involving a source and a large number of unseen receivers spread over a wide geographical area. The transmission system might be in form of electronic , audio, audiovisual or visual technologies such as publications in the form of books and newspapers

V. Organizational Communication

— members of a large group (business, church, interest group) interacting with each other and outside world.

v. Group communication

- people interacting for a common purpose.
- Communication is within formal or informal groups or teams.
- It is group interaction that results in decision making, problem solving and discussion within an organization.

2. Communication categorized by channel or medium

- **Verbal communication:** this type of communication relies on oral-auditory signal for communication
- **Graphic communication** : this communication is also known as visual communication. It involves visual representation of ideas, facts and objects other than written communication e.g cartoon, graphs, charts, models, etc

- **Written communication**: this is the use of visual symbols representing language on a surface which is read by the receiver
- **Non-verbal communication**: this is the use of visual or oral auditory signals that do not primarily rely on language or verbalized message for communication to take place. This type of communication is known as paralinguistic communication and would include forms such as gestures, postures, distance, facial expression, rate of speech, voice quality, etc

3. Communication categorized by direction of flow

- **Lateral or horizontal communication**- communicating with people who are at the same rank or level as you e.g classmates
- **Downwards communication**- this is communication with the people who rank below you such as a lecturer communicating to students
- **Internal communication**- communication within an organization. The communication is transmitted between and among people within an organization. For example managers communicating deadline on assignments or employees seeking promotion

- **External communication-** this is transfer of information to and from people outside the company or organization. The goal is to persuade the recipients to respond favorably to company needs. For example a job advertisement advert tries to attract qualified personnel to fill a certain position
- **Cross-cultural communication-** communicating either in writing, verbally or non-verbally with people who are from culture different from your own. This calls for an understanding and respect of cultural differences and being adaptable
- **Gravepine communication-** this refers to an informal communication within an organization where information spread bypasses the formal communication structure. It is based on gossips or rumors and speculations. It spreads in random ways irrespective of authority levels.

Categories of non-verbal communication

Space (proxemics)

- People often refer to their need for " personal space," which is also an important type of nonverbal communication. The amount of distance we need and the amount of space we perceive as belonging to us is influenced by a number of factors including social norms, cultural expectations, situational factors, personality characteristics, and level of familiarities.

- People from diverse cultures may have different normative space expectations. If you are from a large urban area, having people stand close to you may be normal. If you are from a rural area or a culture where people expect more space, someone may be standing “too close” for comfort and not know it.

Haptics (touch)

- Haptics is the study of touch as a form of nonverbal communication. Touch is used in many ways in our daily lives, such as greeting, comfort, affection, task accomplishment, and control, patting somebody at the back to ease pain
- Touch is a form of communication that can be used to initiate, regulate, and maintain relationships. It is a very powerful form of communication that can be used to communicate messages ranging from comfort to power

Paralanguage

- This category covers vocal qualities like loudness or tone of voice. Paralinguistic signals are any aspect of the sound of a voice outside a direct verbal translation of words being spoken. Paralanguage can help reinforce a verbal message, for example father says “awww” to his daughter who has just fallen

Body Movements/ kinesis

- The study of body movements, called kinesics, is key to understanding nonverbal communication. Since your actions will significantly contribute to the effectiveness of your business interactions, let’s examine four distinct ways body movements that complement, repeat, regulate, or replace your verbal messages.
- Body movements can complement the verbal message by reinforcing the main idea. For example, you may be providing an orientation presentation to a customer about a software program. As you say, “Click on this tab,” you may also initiate that action. Your verbal and nonverbal messages reinforce each other. You can also reinforce the message by repeating it. If you first say, “Click on the tab,” and then motion with your hand to the right, indicating that the customer should move the cursor arrow with the mouse to the tab, your repetition can help the listener understand the message.

- In addition to repeating your message, body movements can also regulate conversations.
- Nodding your head to indicate that you are listening may encourage the customer to continue asking questions. Holding your hand up, palm out, may signal them to stop and provide a pause where you can start to answer.
- Body movements also substitute or replace verbal messages

Artifacts

- Artifacts are forms of decorative ornamentation that are chosen to represent self-concept. They can include rings and tattoos, but may also include brand names and logos.
- From clothes to cars, watches, briefcases, purses, and even eyeglasses, what we choose to surround ourselves with communicates something about our sense of self. They may project gender, role or position, class or status, personality, and group membership or affiliation.
- Paying attention to a customer's artifacts can give you a sense of the self they want to communicate, and may allow you to more accurately adapt your message to meet their needs.

Environment

- Environment involves the physical and psychological aspects of the communication context. More than the tables and chairs in an office, environment is an important part of the dynamic communication process.
- The perception of one’s environment influences one’s reaction to it. For example, Google is famous for its work environment, with spaces created for physical activity and even in-house food service around the clock. The expense is no doubt considerable, but Google’s actions speak volumes. The results produced in the environment, designed to facilitate creativity, interaction, and collaboration, are worth the effort

- A large desk in a corner office with windows communicates high status within an organization
- Fast food restaurants are designed to move customers through quickly by using plastic seats that is comfortable for about 10 minutes

Physical characteristics

- We often make judgments about a person’s personality or behavior based on physical characteristics.
- The dressing, the hair, the height, e.tc. Communicate the characteristics of an individual

Advantages of good communication

1. Patient is more satisfied with the service which they receive
2. Patients are more inclined to comply with medical regimes and procedure
3. Good communication increase comprehension and recall of information received
4. Outcomes appear to be not only psychological (e.g feelings and satisfaction) and behavioural (e.g compliance) but somatic, measured by improved health indices and recovery rates
5. Good communications amongst health care team is vital for the effective care of patients

Barriers of communication

- Language barrier
- Physical barriers-noise, faulty machines
- Cultural barriers
- Emotional barriers- emotional maturity, anger, frustrations, etc
- Attitude – some people are introverts or are not very social
- Physiological barriers- certain disorders limit effective communication e.g trembling voice

- Psychological barriers –e.g fear, depression, anxiety
- Perception barriers-different people perceive the same things differently. All the messages must be easy and clear. There should be no room for any diversified interpretational set

Characteristics of effective communication

- The 7 C's of effective communication are

1. Completeness- the receiver gets all the information he needs to process message and take action. A complete message reduces the need for follow-up questions and smoothens the communication process
2. Conciseness - this about keeping the message to the point. This is more about the content of your message rather than its length. Even a short memo can include irrelevant or redundant information. Conciseness helps the receiver focus on what is important speeds up the processing of information caters for improved understanding

3. consideration- effective communication takes into account the receivers background and points of view. If the message is irritating or sounds disrespectful the emotional reaction of the receiver might affect the perception of the message. Also tailoring your message to your clients e.g by using argumentations and examples which are relevant to their experiences-makes it easier for them to process
4. concreteness- a concrete message is specific, tangible and vivid. It is supported by facts and figures for enhanced credibility. It helps your client gain an overview of the broader picture. Concrete mitigates the risk of misunderstanding, fosters trust and encourages constructive criticism

5. Courtesy- courtesy and consideration complement each other in effective communication. Courtesy means respecting the receivers culture, values and beliefs- i.e crafting message that is genuinely polite and unbiased
6. Clearness- the clearer the message the easier to understand. Clear communications build on exact terminology and concrete words to reduce ambiguities and confusion in the communication
7. correctiness- correct grammer should used for increased effectiveness and credibility of your message. Errors might affect the clarity of the message.

Observing

- Observations are descriptions based on phenomena that can be sensed, tasted, seen, smelled or felt
- is an important skill in non-verbal communication
- Is the method or process of observing something or someone in order to gain information
- A good observation will help in identifying normal and abnormal behaviors in a client

- It involves gathering information well selected and with a purpose, with the help of 5 senses: hearing, seeing, smelling, feeling (touch) and tasting
- Observations is subjective i.e based on ones opinion

Why observing is subjective

- You know what you are observing already
- You have a self-image
- You have a certain mood (also moment of the day, own health)
- You have more or less experience with observing
- You have a certain idea or vision

Conditions for good observation

- At regular times and in different manners of observing
- As objective as possible
- As much as possible inconspicuous (as much as possible not to attract attention)
- As accurate as possible

5 w’s in observation

- ✓Questions we should ask ourselves before making observations
- Who will we observe?
- What will we observe?
- Why you will observe?
- When will you observe?
- Which manner you will use to observe?
- ✓Lastly report what you have observed
- ✓While reporting write down the observation
- ✓Get facts without influence from your feelings or prejudices (preconceived opinion that is not based on on reason or actual experience)

Choice of words

Open –ended questions

- These are the ones that keep the conversations going
- They do not exclude any answer category
- They give minimal structure and direction to answers so that the client has the freedom to answer in his/her own way

Why are open-ended important?

- ❑They require a person to pause, think and reflect
- ❑Answers include personal feelings, opinions or ideas about a subject
- ❑The control of conversation switches from the person the question to the person being asked the question. It begins an exchange between health professional and patient. If the control of the conversation stays with you as the health professional you are asking closed-ended questions

- Open-ended questions begin with the following words: why, how, what, describe, tell me about……, or what do you think about ….
- Use open-ended questions as follow-ups for other questions
- The follow-up questions can be asked after open or closed-ended questions

✓ Ask “why”& “how” to follow-up and ask a more thorough answer after asking closed-ended questions

- ✓When the client has finished talking ask an open-ended question that refers to what he/ she has just said or is related to what they just said. This keeps the conversation flowing in an open and engaging way
- Wording is very important when asking open-ended questions especially if you are looking for a certain type of behavior
- ✓Gauge the patients comfort level when asking questions. Be careful when asking questions that are very personal or sensitive or require too much personal information early in the conversation

- ✓ A person who does not want to answer open-ended questions either does not know where you want to take the information or he/she doesn’t want to answer. Explain why you are asking the question, re-phrase the question or save the question for another time
- ✓ Open-ended questions can result in long answers. If you would like to keep them brief or relevant, be specific when asking the question

Examples of open-ended questions

- What has brought you to hospital?
- How are you feeling?
- Why are you limping?

Closed-ended questions

- This are questions that can only be answered by selecting from a limited number of options usually multiple choices, “yes” or “no” or a rating scale
- They allow limited number of responses
- They are easily suggestive/leading
- Examples of closed ended questions are

➢ Are you feeling better today?

➢ Is your limb paining?

➢ Did you get injured?

➢ Have you received any treatment?

summarizing

- Is a brief report of conversation which should be clear
- It is resting point in conversation
- It is a sort of mirror to the main person who is knowing the information
- The clinician now checks whether the client has understood.

Functions of summarizing

- Brings order on conversation- people tend to jump from one subject to other. A summary should distinguish major and minor points of discussion.
- It gives rest-gives the partner breathing space and time to reflect on what has been discussed
- Shows real interest- correct summary gives evidence of active listening
- Stimulates further exploration- hearing again in brief can assist the other person to elaborate more on certain issues

- Check information obtained- summarizing is a means of auditing whether you have really understood the other person. It gives insight to the other person on how his/her information was understood. To enhance effect a good summary should end with a question like “is that right?”
- Discourages talkative people- a short brief summary content can assist to bring the conversation back to relevant problems to be discussed and in case of a group conversation can be create opportunities for less talkative people to contribute

- Give a clear picture of similarities and differences- in a group discussion, a summary can assist in arranging similarities and differences of opinions given
- Brings emotional statement back to the points- when a person is emotionally affected, emotions tend to be more prominent than facts. A summary can assist to separate the emotions from the facts:

❖ “you think that you were not attended well and you feel you didn’t get fair treatment.

❖ I understand that you are angry about it. You have told me so far that……”

3 forms of summarizing

- Repeating-You can repeat what the client has said using his/ her words. It is used as an encouragement
- Summarize the main point. Either at the end of a certain line of enquiry or after the whole conversation or discussion
- paraphrasing- You can also paraphrase (putting information in your own words). Restate what the other person has said. Can be used as a clarification.

Tips of summarizing

- Summarize briefly but completely
- Restrict yourself to the topic
- Don’t judge in summarizing and don’t conclude
- Don’t summarize too much
- Don’t evaluate the client
- Don’t parrot
- Write the summary on what you have agreed with client

paraphrasing

- Is a rewriting of a text or verbalizing spoken words in your own words.
- The purpose of paraphrasing is to clarify and understand what the client has said
- It is also called a reflection content that involve the clients experience and thought
- Example of paraphrasing
- Original test: I am having a disturbing pain on my limb that I can't walk
- Paraphrased test: your limb is paining you a lot/ you are experiencing too much pain from your limb that is impairing your walking

How to paraphrase

- The clinician should pay attention to the what the client has said
- Clinician has to choose the important content of what the client has said
- Re-express the content in clinicians own words
- Don’t repeat word by word what the client has said
- Use appropriate words to paraphrase

probing

- It is a questioning technique of gathering more insight from a patient on something he/ she has said.
- It also clarifies specific details.
- Probing questions make the patient/client think more deeply about the issue or condition at hand
- It helps the person to talk more about their opinions and feelings and promotes critical thinking.
- Probing questing are typically open-ended meaning there is more than one response
- Most probing questions starts with ‘what,’ ‘why,’ or ‘how’
- Example of probing question: what aggravates your pain? When does the pain occur? How did you feel after taking analgesics?

Receiving and giving feedback

- Feedback means communicating with the other person by providing information on how you interpret his/her message

Importance of feedback

- Supports and confirms positive desirable behavior. The other person is encouraged to keep behaving that way
- Can correct negative undesirable behavior . The other person is invited to change behavior
- Clarifies interpersonal relations; i.e it increases understanding between people and is thus assisting in improving their co-operation

Ways of giving feedback

❖ **Verbal and non-verbal**

- "well done" can have the same meaning as raised thumb or a nod of approval.

❖ **Conscious or unconscious**

- A remark like "this is annoying/boring" is consciously made, yawning is mostly done without being aware

❖ **Spontaneous or on request**

- Some people give their opinion initiative while others have to be asked " what do you rhink about it?"

❖Formal or informal

- Applause in is a form of formal feedback because it is part of the show. A pat on the back is informal.

✓Feedback is often not consciously given but it is hidden in all kinds of signals, e.g. facial expressions, signs, intonations. They contribute to the way the other person observes, gives meaning to, and reacts to the feedback.

✓Many people find it difficult to give direct feedback and to make the feedback most effective.

Rules of giving feedback

- Describe concrete behavior- describe the behavior as specifically and objectively as possible so that the other person knows what you are talking about. E.g “you never call when you say you will” is more concrete than “you never keep appointments”
- Tell how you feel about it- apart from describing the facts tell how you feel about the facts and effects on you. E.g. “I don’t like making a phone call to him”

- Give useful feedback- don’t give feedback about behaviour the other person is unable to change
- Do not be exclusively negative- if possible mention both positive and negative elements in your feedback. This will prevent the other person from thinking he/she only does wrong things and it makes the other person to accept feedback
- Make suggestions for improvement- this applies especially to negative feedback. Tell how you think improvements could be achieved

- Be conscise as possible- put the feedback as briefly and concisely as possible. The longer the story the bigger the chance the other person will miss essence.
- Do not wait too long- feedback is more effective when it relates to recent behaviour or connected with concrete occurrence. If feedback is postponed for too long, one or both parties might be unable to recall the situation or the situation might no longer be important to the recepient.

- Be inviting- giving feedback is not the same as venting your aggression. Being inviting means you do not get too emotional ; that you make it clear that this is your opinion and that is very well possible that the other person has a different view. It also means that you ask the other person if she/he can understand your reaction and that you give him/her an opportunity to respond to it.
- Ask for reactions- especially if the other person did not respond to your feedback. Ask him/her whether he/she understood what you meant

- Pay attention to the other person's non-verbal behaviour- this might give you an indication on how you remarks are taken.
- Dose your feedback- give your feedback in suitable amounts, especially, if you know that the other person will get annoyed
- Take the person's resilience into account- you should balance between giving honest opinion and not hurting. You have to adapt your words to the person

- The effect of feedback will depend

❖On the way it is given

❖The extent to which the recipient is open to it

❖The extent to which he/she is prepared to use it

Rules for receiving feedback

- **Listen-** listen with open mind, don't interrupt, don't start arguing or defending yourself immediately. Make it clear to the other person that you take the remarks seriously and that you are prepared to accept feedback

- **Check whether you understand the other person correctly-** summarize the essence of what you have been told to make sure that you have understood correctly.
- **Ask for details-** if the information given is too general or too vague ask for something more concrete. Ask for descriptions of behaviour or examples of situations in which the behaviour occurred.
- **Ask what your behaviour means-** ask the other person what it means to him/her and what he/she thinks about it

- **Ask from others-** ask they see your behaviour the same way
- **Show honestly and how it affects you-** show what the feedback means to you. It might frighthen you, annoy you or you might like hearing it. It is important that the other person hears these remarks.
- **Accepting is not the same as agreeing-** you can accept the other's opinion and next reflect your own point of view.

- **Determine for yourself if you want to change your behaviour-** it is not a must that you change after feedback. It will depend on you. So be clear whether you consider changing or not.

Expressing and exploring feeling

- Feelings can be expressed both in verbal and non-verbal manner.
- Expressing feelings verbally is something most of us find very difficult.
- But even when not expressed verbally, our feelings are often still visible to others in our non-verbal behaviour.
- Examples of situations where we might non-verbally show what we feel:

✓ Getting annoyed with others during a group discussion but not saying anything about it.

✓Disagreeing with decisions taken, without so.

✓Meeting somebody you like, without showing it.

What it takes to express feelings

- Courage- it takes courage to put your feelings into words. People sometimes fear unkind/ negative reactions from sorroundings e.g in some cultures it is considered a sign of weakness when men express their feelings
- Honesty- balance between being dishonest and being blunt. There are people who think honesty is essential and tell others right to the their faces what they think about them. Others are so careful not to hurt others that they never make clear what the situation means to themselves.

Importance of expressing feelings

- Show more of yourself to others- if you keep your feelings hidden, others can see only half you , your rationale side. So it is this half that they can take into account. Conversations tend to gain in depth when important feelings are expressed.
- Reduce misunderstanding- you might control yourself verbally in not translating your feelings into words, but controlling your non-verbal behaviour is very difficult. Without verbalizing, others are forced to interpret your non-verbal behaviour with all possible consequent misunderstanding.

Efficient and clear ways of expressing feelings

- Presentation- use an I- message. Many people put their feelings into words in and indirect manner as they were not exclusively theirs. E.g “ I feel disappointed” is much clearer than “ no one would like something like that”
- Construction- the message always contains 2 elements **how you feel, on what this feeling is based.** E.g “I very disappointed, I studied hard and now still have only grade C”

Exploration of feelings

- Feelings largely determine our behaviour, therefore to understand someone's behaviour you have to acquainted with his/her feelings
- We find it difficult to react to someone's feelings and tend to quickly change the subject. By so doing we miss an opportunity to really gain any deeper contact with the other people. For we ignore the very thing that makes them behave the way they behave.
- In a caring profession, it will be impossible not to include the aspect of exploration when faced with an emotionally loaded situation. The clients experience in these situations will often be information indispensable for making a problem diagnosis

Guidelines on how to explore feelings

- Observe the non-verbal behaviour e.g “you say you are glad yet you are gloomy”
- Give feedback to non-verbal behaviour observed e.g “I can see you are moved by the experience”
- Ask for details-preferably use open-ended questions
- Avoid escaping into facts- have courage to ask for details about feelings
- Know when to stop
- Personalize – use I- message and encourage the other person to do the same

Mistakes frequently made

1. **Unjust reassurance-** reassurance is only correct if it is justified. When not justified, it only discourages talking about feelings because you create the impression that you do not want to hear that the other person feels bad.
2. **Too hasty identification /attributing to another person.** Some people feel such pity for people who have rough time that they start complaining with them even before they know why the other person feels that way. It also cuts off the route to real understanding of the other persons feelings. Both mistakes arise from insufficiently suppressed urge to take the lead into conversation- a tendency which is very common in communication

Active listening

- Active listening is a strenuous activity which involves:

✓ Conscious reception of auditory stimuli

✓ Self awareness of the sender and receiver of the message

✓ Comprehension of the message

✓ Interpretation and correlation of the message and other data

- Good listening encourages talking, coding and decoding of the information

Stimuli

- The ears bear stimuli
- Nerves transmit sensation to the brain
- The brain attends to the stimuli
- The stimuli are assigned meaning
- The stimuli are placed in short term or long term recall and affect how future sounds will be treated.

➢ You hear with your ears but listen with your brain

➢ To distinguish the process of listening we need to distinguish between hearing and listening

➢ Hearing is act of receiving sound. It is not the same as listening.

Core elements of active listening

1. Approach the client in a purposeful and unhurried manner e.g introduction of self, the topic , the role, time available.
2. Remember SOLER

- ✓ **S**it squarely
- ✓ **O**bserve non-verbal communication and maintain posture
- ✓ **L**ean forward towards the client
- ✓ **E**ye contact as much as possible
- ✓ **R**epeat/paraphrase/revise as often as possible

3. Put aside your own needs e.g taking tea, reading magazine etc and focus on client's needs
4. Avoid interruption in the middle of discussion

e.g telephone calls, etc

5. Demonstrate acceptance and understanding of the client
6. Encourage the clients by using verbal and non-verbal indicator e.g mmmm, yes or nodding of the head
7. Clarify or ask for clarification of unclear message e.g when the clients starts crying or in the middle of the discussion

Areas for attention to the health worker

- Observe the clients non-verbal behaviour e. g smiling, restlessness, yawning
- Indicate to the client that you are about to end the discussion for example by summarizing and giving feedback.

Types of listening

Appreciative Listening

- When you listen for appreciation you are listening for enjoyment. Think about the music you listen to. You usually listen to music because you enjoy it.
- The same can be said for appreciative listening when someone is speaking. Some common types of appreciative listening can be found in sermons from places of worship, from a motivational speech by people we respect or hold in high regard, or even from a standup comedian who makes us laugh.

Empathic Listening

- When you listen empathically you are doing so to show mutual concern. During this type of listening you are trying to identify with the speaker by understanding the situation in which he/she is discussing.
- You are stepping into the other's shoes to get a better understanding of what it is he/she is talking about.
- Usually during this type of listening you want to be fully present in the moment or mindfully listening to what the speaker is saying.
- Your goal during this time is to focus on the speaker, not on yourself. You are trying to understand from the speaker's perspective.

Comprehensive Listening

- If you are watching the news, listening to a lecture, or getting directions from someone, you are listening to understand or listening to comprehend the message that is being sent. This process is active.
- In class, you should be focused, possibly taking notes of the speaker's main ideas. Identifying the structure of the speech and evaluating the supports he/she offers as evidence.
- This is one of the more difficult types of listening because it requires you to not only concentrate but to actively participate in the process. The more you practice listening to comprehend, the stronger listener you become.

Critical listening

- Critical listening is listening to evaluate the content of the message. As a critical listener you are listening to all parts of the message, analyzing it, and evaluating what you heard. When engaging in critical listening, you are also critically thinking.
- You are making mental judgments based on what you see, hear, and read. Your goal as a critical listener is to evaluate the message that is being sent and decide for yourself if the information is valid.

Selective listening

- Selective listening is when you focus your attention on some specific information. It involves consciously or unconsciously choosing to listen to what is relevant to you and ignore.
- For example, when you visit a foreign country, you can find yourself surrounded by people who speak a language you don’t understand. Your selective listening will then kick in. You’ll instinctively tune out a lot of the noises around you because you can’t understand them. They are irrelevant to you

- ASSIGNMENT: LOOK FOR MORE TYPES OF LISTENING

Stages of listening process

- The listening process involves four stages: **receiving, understanding, evaluating, and responding**.

Receiving stage

- The first stage of the listening process is the receiving stage, which involves hearing and attending.
- **Hearing**: The physiological process of registering sound waves as they hit the eardrum.
- **Attending**: The process of accurately identifying particular sounds as words.

The Understanding Stage

- Is the second stage
- The understanding stage is the stage during which the listener determines the context and meanings of the words that are heard.
- Determining the context and meaning of each word is essential to understanding a sentence.
- Understanding what we hear is essential to gathering information.
- Asking questions can help a listener better understand a speaker’s message or main point.

The Evaluating Stage

- The evaluating stage is the listening stage during which the listener critically assesses the information they received from the speaker.
- The listener assesses the information they have gathered from the speaker both qualitatively and quantitatively.
- Evaluating allows the listener to form an opinion of what they heard.
- Evaluating is important for a listener in terms of how what she's heard will affect her own ideas, decisions, actions, and/or beliefs.

The Responding Stage

- The responding stage is when the listener provides verbal and/or nonverbal reactions to what she hears.
- The speaker looks for responses from the listener to determine if her message is being understood and/or considered.
- When a listener responds verbally to what she hears, the speaker/listener roles are reversed.
- Based on the listener’s responses, the speaker can choose to either adjust or continue with the delivery of her messa

History taking

it is a process by which information is gained by a health professional by asking specific questions to the **patient** with the aim of obtaining information useful in formulating a diagnosis and providing medical care to the **patient**.

Usual sequence of events

- History
- Examination
- Problem list
- Differential diagnosis

Investigations

Diagnosis confirmed

Treatment

Importance of the history taking

- It identifies:
  - what has happened
  - the personality of the patient
  - how the illness has affected him and his family
  - any specific anxieties
  - the physical and social environment
  - It establishes the physician patient relationship.
  - It often gives the diagnosis
- In order to give right treatment
- To order the right investigations

General procedures

1. **Introduction**

Approaching the patient

- Look the part of a health professional and put the patient at ease.
- Be confident and quietly friendly.
- Greet the patient: ‘Good morning, Mr Smith’.
- Shake the patient’s hand or place your hand on his if he is ill.
- State your name and that you are ;a student doctor helping staff care for patients.
- Make sure the patient is comfortable.
- Explain that you wish to ask the patient questions to find out what happened to him
  - Inform the patient how long you are likely to take and what to expect. For example, after discussing what has happened to the patient, you would like to examine him.

Approaches to history taking

- Ensure consent has been gained
- Maintain privacy and dignity
- Ensure the patient is as comfortable as possible
- Summarize each stage of the history taking process
- Involve the patient in the history taking

2. Biodemographic data/personal profile

This is identification information.

It includes;

- Name
- Sex
- Identification number (In/out patient number)
- Residence/ Address
- Date of admission
- It may also include name of referring physician or referring hospital
- Occupation
- Marital status
- Telephone number/contact
- Source of information

3. Chief complain)

- This is what the patient tells you is wrong, for example: joint pain.
- This is the main reason the patient comes to the hospital

4. History of Presenting Complaint (HPC)

- Gain as much information you can about the specific complaint.
- Sticking with joint pain as an example you should ask:

- **Site:** Where exactly is the pain?
- **Onset:** When did it start, was it constant/ intermittent, gradual/ sudden?
- **Character:** What is the pain like e.g. sharp, burning, tight?
- **Radiation:** Does it radiate/move anywhere?
- **Associations:** Is there anything else associated with the pain, e.g. sweating, vomiting.
- **Time course:** Does it follow any time pattern, how long did it last?
- **Exacerbating / relieving factors:** Does anything make it better or worse?
- **Severity:** How severe is the pain, consider using the 1-10 scale?

- Several acronyms such as ‘SOCRATES’, as in given example and ‘OLDCARDS’ can be used when taking history of presenting illness
- O-onset
- L- location
- D-duration
- C-characteristic (stabbing, sharp, dull)
- A-aggrevating
- R-relieving factors
- T – treatment/timing
- S-severity

5. Past medical/surgical history

- All previous illnesses or operations, whether apparently important or not, must be included. For instance, a casually mentioned attack of influenza or chill may have been a manifestation of an occult infection.
- The importance of a past illness may be gained by finding out how long the patient was in bed or off work.
- Complications of any previous illnesses should be carefully enquired into and, here, leading questions are sometimes necessary.
- General questions °
  - Ask about the following:

    -'Have you had any serious illnesses?'

    – 'Have you had any emotional or nervous problems?'

    – 'Have you had any operations or admissions to hospital?' – 'Have you ever

    – had jaundice, epilepsy, TB, hypertension, rheumatic fever or diabetes?

    – travelled abroad?

    – had allergies?

6. Drug History (DH)

- Find out what medications the patient is taking, including dosage and how often they are taking them, for example: once-a-day, twice-a-day, etc.
- At this point it is a good idea to find out if the patient has any allergies.

7. Family history

- The family history gives clues to possible predisposition to illness (e.g. heart attacks, joint disease) and whether a patient may have reason to be particularly anxious about a certain disease (e.g. mother died of cancer).
- Find out if there are any genetic conditions within the family, for example: e.g hear disease, joint related disease
- Ask the patient about any family diseases relevant to the presenting complaints (e.g. if the patient has presented with chest pain, ask about family history of heart attacks).
- Enquire about the patient's parents and sibling and, if they were deceased below 65, the cause of death
  - If relevant and a pattern has emerged from previous history sketch a short family tree

General questions

- Ask about the following:
  - ‘Are your parents alive?
  - Are they fit and well?
  - What did your parents die from?’
  - ‘Have you any brothers or sisters?
  - Are they fit and well?’
  - ‘Do you have any children?
  - Are they fit and well?’
  - ‘Is there any history of:
    - heart trouble?
    - diabetes?
    - high blood pressure in the family
    - Joint diseases

8. Personal and social history

- One needs to find out what kind of person the patient is, what his home circumstances are and how his illness has affected him and his family.
- Your aim is to understand the patient's illness in the context of his personality and his home environment
- Ask about;

❖ **Alcohol intake**

- Work out the number of units per week

❖ **Tobacco use**

- Quantify the number of pack years (number of packs of 20 cigarettes smoked per day multiplied by the number of years smoking)

❖ **Employment history**

- Particularly relevant with exposure to certain pathogens e.g. asbestos, where you need to ask whether they have *ever* been exposed to any dusts

- **Home situation**
  - House or bungalow
  - Any carers
  - Activities of daily living (ability to wash, dress and cook)
  - Mobility, and immobility aids
  - Social/family support
  - Do they think they're managing?

Further social history maybe required depending on the type of presenting complaint for example:

- Respiratory presenting complaint
  - Ask about pets, dust exposure, asbestos, exposure to the farms, exposure to birds or if there are any hobbies
- Infectious to disease related
  - Ask for a full travel history including all occasions exposure to water, exposure to foreign food, tuberculosis risk factors, HIV risk factors, recent immunisations

- The key parts of social history can be remembered using mnemonic LOLAS DIET

L-life- who does the patient live with?

O-occupation

L-living-activities of daily living

A- Alcohol consumption

S-smoking

Di- Diet

E- Exercise

T-Travel

9 Review of Systems (ROS)

- is a technique used by healthcare providers for eliciting a medical history from a patient
- It helps in **gaining more information which the patient may have not said.**
- The best way to approach the systems review is to start by asking four general questions, and then ask short closed questions from head-to-toe.
- The four general questions are useful to screen for malignancy or chronic infections.

- The four general questions include:
- Weight loss - Have you had any significant weight loss?
- Fever - Have you had any fevers or night sweats?
- Energy - Have you had a reduction in your energy levels?
- Appetite - Has your appetite changed?

- The short, closed questions, from head-to-toe may be as follows:
  - Headaches
  - Visual changes
  - Hearing problems
  - Swallowing problems
  - Chest pain
  - Shortness of breath
  - Abdominal pain
  - Urinary symptoms
  - Bowel symptoms
  - Skin rashes
  - Joint pain

- Gather a short amount of information regarding the other systems in the body that are not covered in your HPC.
- The joint pain is an example of a problem in the the musculoskeletal system so you would focus on the others.
- Run through a full list of symptoms from major systems:
- **Cardiovascular:** chest pain, palpitations, peripheral oedema, paroxysmal nocturnal dyspnoea (PND), orthopnoea

- **Respiratory:** Cough, shortness of breath (and exercise tolerance), haemoptysis, sputum production, wheeze
- **Gastrointestinal:** Abdominal pain, dysphagia, heartburn, vomiting, haematemesis, diarrohea, constipation, rectal bleeding
- **Genitourinary:** Dysuria, discharge, lower urinary tract symptoms
- **Neurological:** Numbness, weakness, tingling, blackouts, visual change
- **Psychiatric:** Depression, anxiety
- **General review:** Weight loss, appetite change, lumps or bumps (nodes), rashes, joint pain

Additional history for children and female patient

- In children an additional history may be taken
- These includes
  - Developmental history- milestones achieved
  - Immunization history- whether the baby received all the vaccines
  - Birth history- birth weight, mode of delivery
- In female patients obstetric history is taken e. g

LMP, EDD, mode of deliveries and babies weight,

Family planning methods the patient is using

Summary of History

- Complete your history by reviewing what the patient has told you. Repeat back the important points so that the patient can correct you if there are any misunderstandings or errors.
- You should also address what the patient thinks is wrong with them and what they are expecting/hoping for from the consultation. A useful acronym for this is **ICE** [I]deas, [C]oncerns and [E]xpectations.

Patient Questions / Feedback

- During or after taking their history, the patient may have questions that they want to ask you. It is very important that you don’t give them any false information.
- As such, unless you are absolutely sure of the answer it is best to say that you will ask your seniors about this or that you will go away and get them more information (e.g. leaflets) about what they are asking.
- These questions aren’t necessarily there to test your knowledge, just that you won’t try and 'blag it'.

LIMITATIONS IN HISTORY TAKING

- Clients psychological state
- Cultural beliefs and barriers
- Mis- communication or wrong interpretations
- Physiological barriers
- Environmental factors
- Reluctance in self disclosure

OVERCOMING LIMITATIONS

- Mannerism and respect
- Introduction
- Respect cultural values and beliefs
- comfortable environment
- casual tone, conversation
- Allow client to ventilate
- listen attentively, give response and feedback
- Consider confidential matters

Physical examination/assessment

DEFINITION

A Physical Assessment is a systemic collection of objective information. It should be conducted in an organized and knowledgeable manner

It is a non- invasive general physical examination of the physical parameters of a client admitted in a care facility by using four elementary methods viz. Inspection, Percussion, Palpation and Auscultation

Purposes

- To understand the physical and mental well being of the clients.
- To detect diseases in its early stage.
- To determine the cause and the extent of the disease.
- To understand any changes in the condition of diseases.
- To determine the nature of the treatment or nursing care needed for the client.
- To safeguard the client and his family by noting the early signs.
- To contribute to the medical research.
- To find out whether the person is medically fit or not for a particular task.

Physical examination equipments

- These include;
- Penlight
- Reflex hammer
- If necessary, otoscope and ophthalmoscope

Instruments And Equipment :

- Stethoscope
- Sphygmomanometer
- Thermometer
- Torch
- Wooden tongue depressors
- Measuring tape
- Note:-
- Exam begins the minute you first see the patient
- Exam continues throughout your patient interaction

Prerequisites:

- Examination environment
- Hand Washing
- Proper light
- Privacy & Confidentiality
- Presence of a chaperon when examining female patients
- Correct position of Doctor & Patient - Ideally examiner should be on right side of patient
- Proper Exposure
- Ensure your hands are warm

Physical examination/Assessment techniques

- There are four cardinal techniques of examination

✓**Inspection**- use of senses of smell, vision and hearing to observe and detect abnormality

✓**Palpation** – use of parts of hand (e.g finger pads, ulnar/palmar surfaces, dorsal surface) to touch and feel for certain characteristics

✓**Percussion**- involves tapping body parts to produce sound waves. Sound waves enables the examiner to assess the underlying structures

✓**Auscultatio**n- listening to sounds produces in parts of body using special instruments such as stethscope, doppler, fetoscope. Some of sounds listened using stethscope are lung sounds, heart sounds, bowel sounds. Doppler and fetoscope can be used to listen to fetal heart rate

Cont…

1.Inspection

It is the systematic visual examination of the client or it is the process of performing deliberate purposeful observations in a systematic manner. It involve observation of the color, shape, size,symetry,position and movements. It also use the sense of smell to detect odor and sense of hearing to detect sounds.

General Inspection:

- Overall appearance of health or illness
- Signs of distress
- Facial Expression and Mood
- Body Size
- Grooming and Personal Hygiene

Cont…

2.Palpation

- It is use of the hands and fingers to gather information through touch. It is the assessment technique which uses sense of touch. It is feeling the body or a part with hands to note the size and position of the organs.
- The hands and fingers are sensitive tools and can assess tempareture,turgor,texture,Moisture,Vibrations,Size,Position, Masses and Fluid.
- The dorsum (Back) surfaces of the hand and fingers are used to measure temperature.
- The palmar (Front) surfaces of the fingers and finger pads are used to assess texture, shape,fluid,size,consistency and pulsation. Vibration is palpated best with the palm of the hand.

Palpation

Cont..

3.Percussion

It is the examination by tapping the fingers on the body to determine the condition of the internal organs by the sounds that are produced. Percussion is the act of striking one object against another to produce sound. The sound waves produced by the striking action over body tissues are known as percussion tones or percussion notes. Percussion is also used to determine if a structure is air filled, fluid filled or solid.

Cont..

The degree to which sound propagates is called Resonance.

Percussion produces characteristic tones Tympanic, Hyper-resonant, Resonant, Dull and Flat.

Hyper Inflated Lung Tissue	–	Hyper resonant
Normal Lung Tissue	–	Resonant
Liver	–	Dull
Bone	–	Flat

Percussion

Cont…

4.Auscultation

It is the process of listening to sounds that are generated within the body. Auscultation is usually done with a Sthethoscope.The heart and blood vessels are auscultated for circulation of blood, the lungs are auscultated for moving air (Breath Sound), The abdomen is auscultated for movement of gastrointestinal contents (Bowel Sounds)

Cont..

Four Characteristics of sound are assessed by auscultation;

- Pitch (Ranging from High to low)
- Loudness (Ranging from Soft to Loud)
- Quality (Gurgling)
- Duration (Short, Medium or Long)

Auscultation

Cont..

5.Manipulation

It is the moving of a part of the body to note its flexibility.

Limitation of movement is discovered by this movement.

Testing of reflexes

The response of the tissues to external stimuli is tested by means of a percussion hammer, safety pin, wisp of cotton or hot and cold water.

Fig. 3 Patrick's Test

Fig. 4 Gaenslen's Test

Fig. 5 Yeoman's Test

General examination

- General Appearance
- Hands and arms
- Skin
- Face
- Eyes
- Mouth
- Neck
- Oedema
- Lymph nodes
- Vital Signs
  - Temperature
  - Pulse
  - Respiration Rate
  - Blood Pressure

General Examination

The examination is carried out in an orderly manner focusing upon one area of the body at a time.

General Appearance

Nourishment : Well Nourished or Under Nourished

Body Built : Thin or Obese

Health : Healthy or Unhealthy

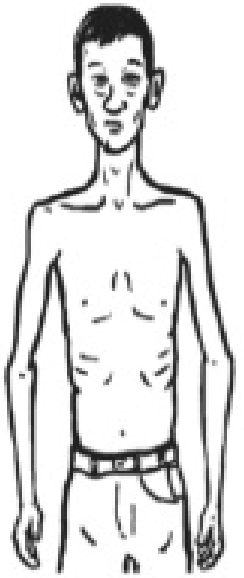
Activity : Active or Dull (tired)

Mental Status

Consciousness: Conscious,Unconsious,Delirious,Talking,Incoherently

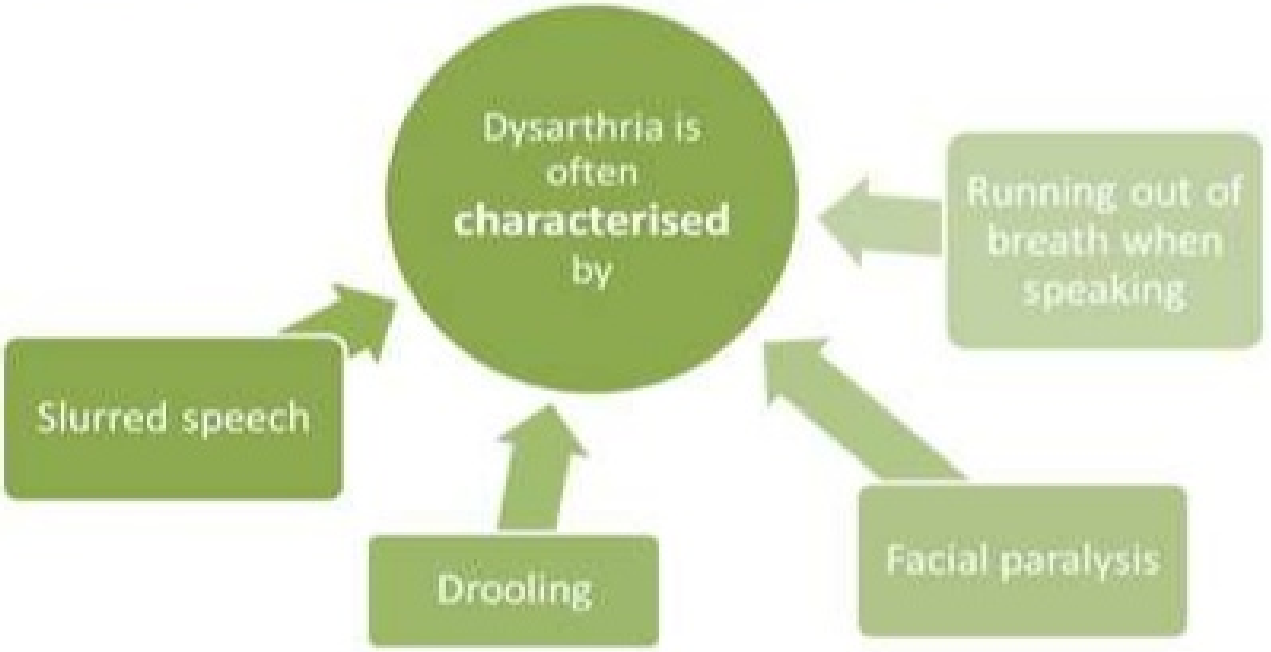
Look : anxious or worried, depressed etc..

Personal Hygiene

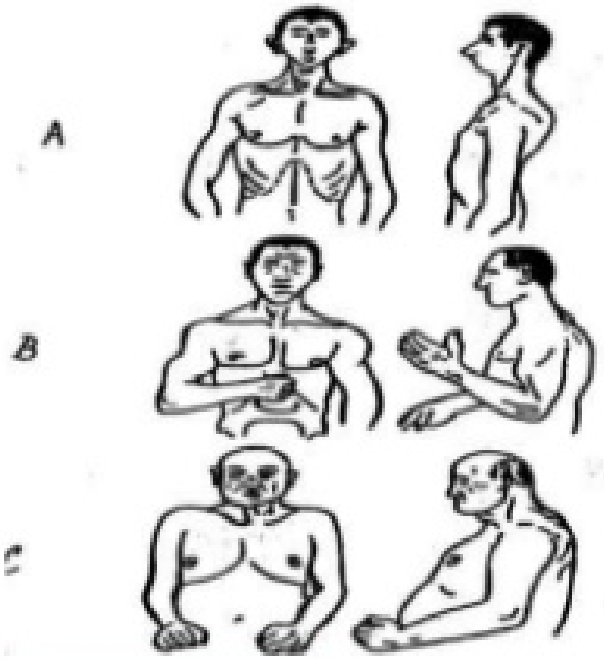


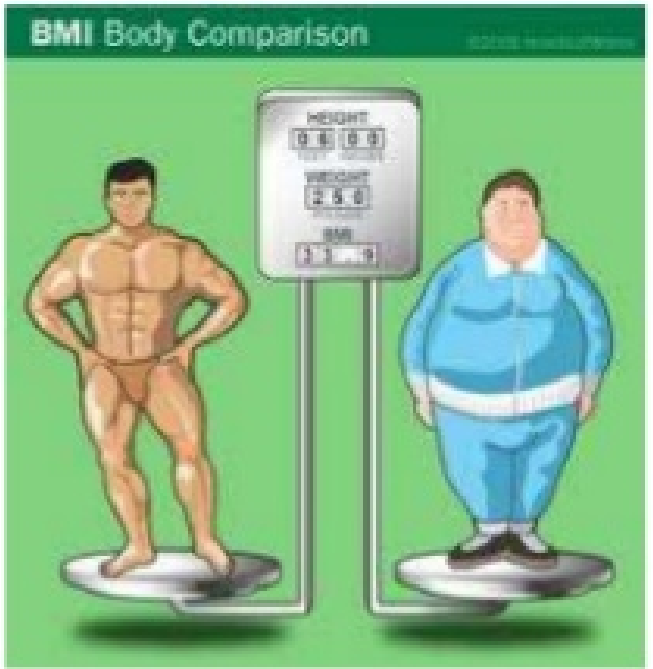
Speech And Language

- Dysphonia - Voice impairment / difficulty in speaking
- Dysarthria - Articulation difficulties due to impairment of speech muscles
- Dysarthrophonia - Dysphonia + Dysarthria CNS causes like motor neuron disorders
- Dysphasia - Impairment of comprehension of spoken / written language.
- Hoarseness - harsh breathy voice



- Body Built



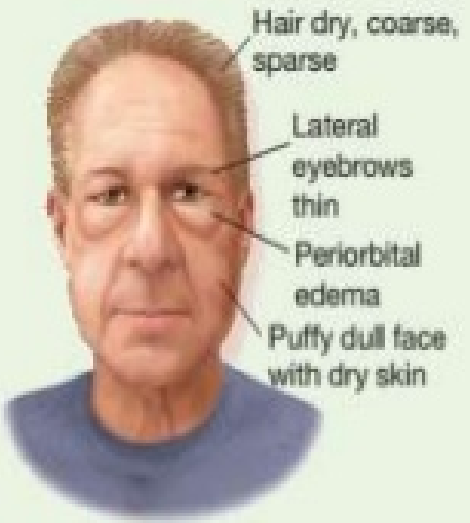


Facial feature/expression/ Mood/Attitude

FACIAL SWELLING

Cushing's Syndrome
The increased adrenal cortisol production of Cushing's syndrome produces a round or "moon" face with red cheeks. Excessive hair growth may be present in the mustache and sideburn areas and on the chin.

Nephrotic Syndrome
The face is edematous and often pale. Swelling usually appears first around the eyes and in the morning. The eyes may become slitlike when edema is severe.



Myxedema
The patient with severe hypothyroidism (*myxedema*) has a dull, puffy facies. The edema, often pronounced around the eyes, does not pit with pressure. The hair and eyebrows are dry, coarse, and thinned. The skin is dry.

Position & Posture

- It refers to patient's body status and the general way of holding the body
- Divided into:
- Active
- Passive
- Compulsive

- Active position

The patient can move his/her body freely, without any restriction

It can be seen in normal adult, patients with mild diseases or at earlier stage of the diseases

- Passive position

The patient can't adjust or move his/her body

It occurs in extremely sick or patients with unconsciousness

Cont….

Posture

Body Curves: Lordosis,Kyphosis,scoliosis

Movement: Any limp.

Height and Weight

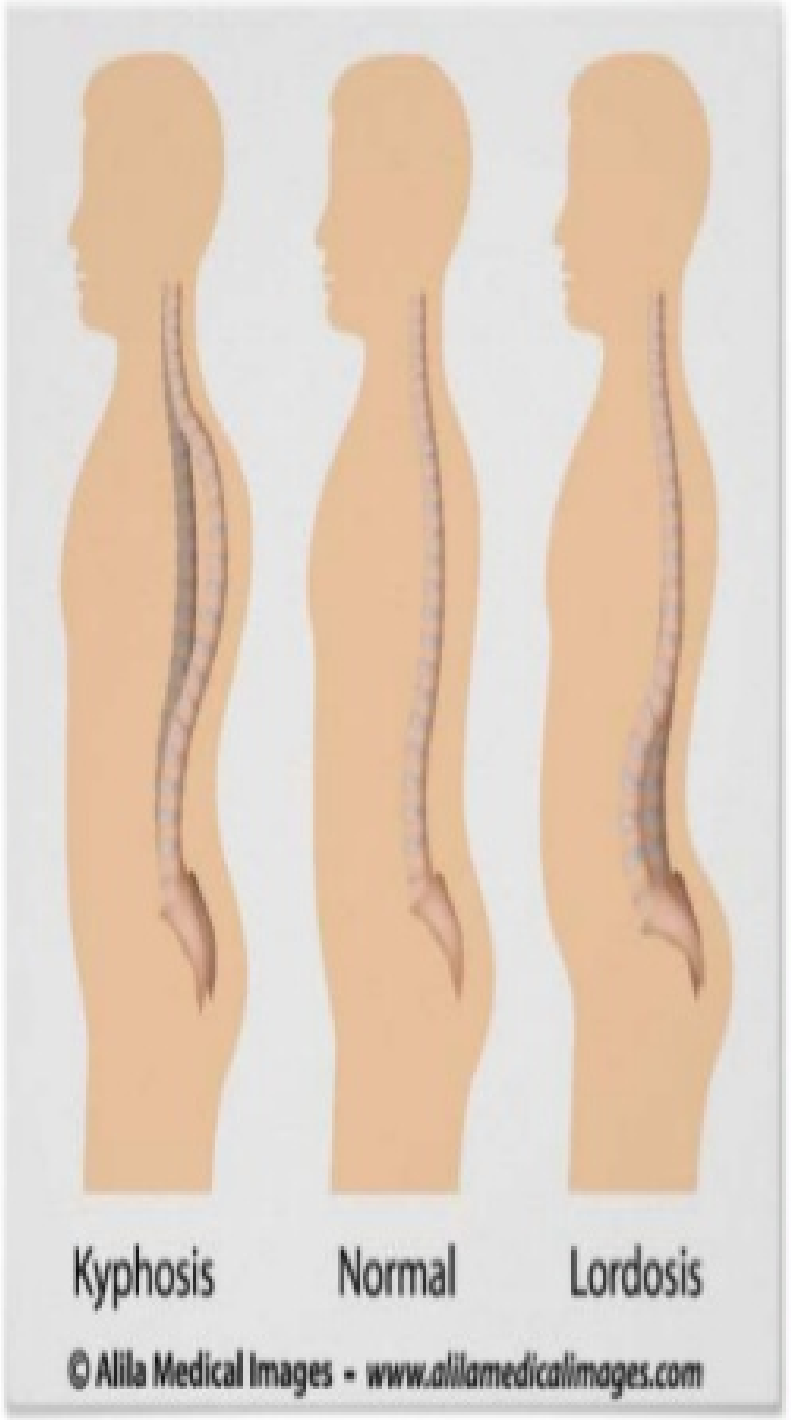
Skin Conditions

Colour : Pallor,Jaundice,Cyanosis,Flushing etc…

Texture : Dryness,Flaking,Wrinkling or Excessive moisture.

Temperature: Warm, Cold and Clammy.

Lesions : Macules,Papules,vesicles,wound etc…


Kyphosis
Normal
Lordosis
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Cont…

Head and Face

Shape of the Skull and Fontanels (newborns)

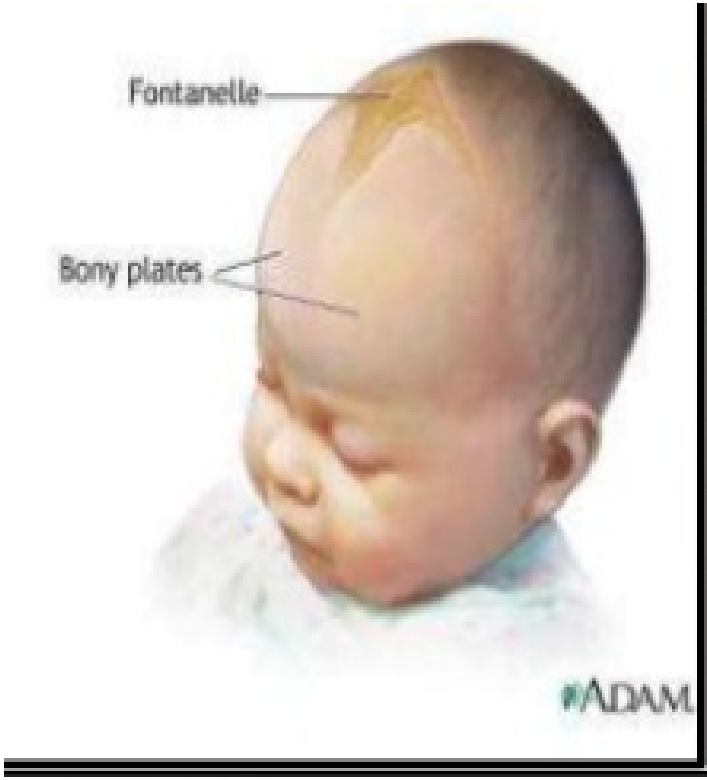
Skull Circumference

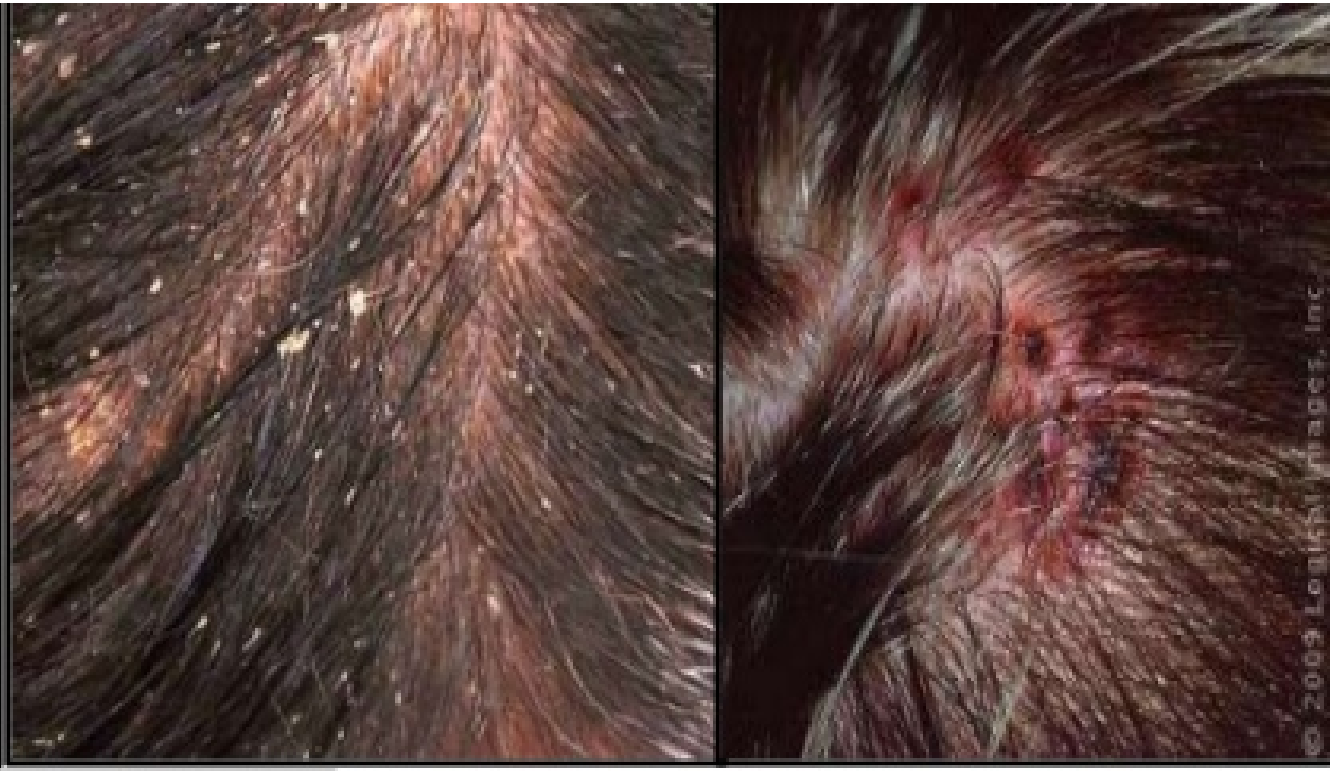
Scalp: Cleanliness, Condition of Hair,dandruff,Pediculi or Infection.

Face: Pale,Flushed,Puffiness,Fatigue,Pain,Fear,Anxiety, Enlargement of Perotid Glands etc…

Head, ear, eye, nose throat

- Head, face, and neck: inspect, palpate head, sinuses, neck, and lymph nodes
- Eyes: pupillary response, extraocular movements, visual acuity with Snellen chart, fundoscopic exam
- Ears: inspect, palpation, otoscopic exam Rinne/Weber
- Nose: inspect
- Throat and mouth: open and say “ahh,” stick out tongue, palpate thyroid gland





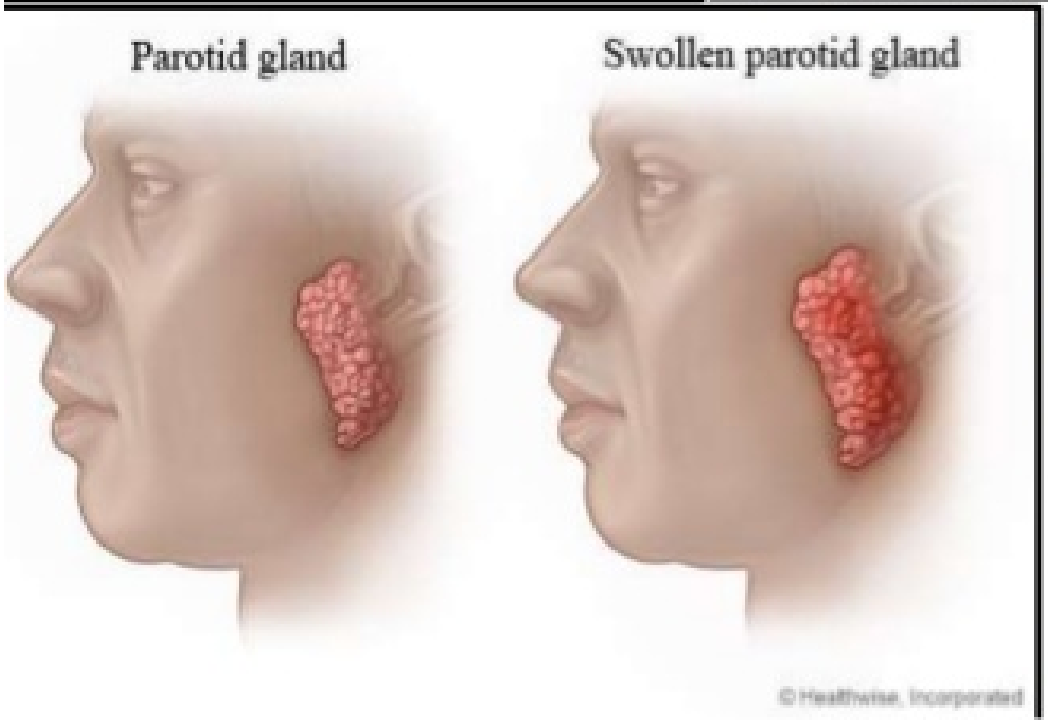


FIGURE 1: Kimura disease: subcutaneous masses in the neck, accompanied by increased volume of salivary glands *Source*: Ackerman AB, Briggs PL. Differential diagnosis in dermatopathology. Vol III. Pennsylvania: Lea & Febiger; 1993. p.62-5.

Cont…

Eyes:

Eye Brows : Normal or Absent

Eye Lashes : Infection, Sty.

Eye Lids : Oedema,Lesions,Ectropion (eversion), Entropion(inversion)

Eyeballs : Sunken or Protruded

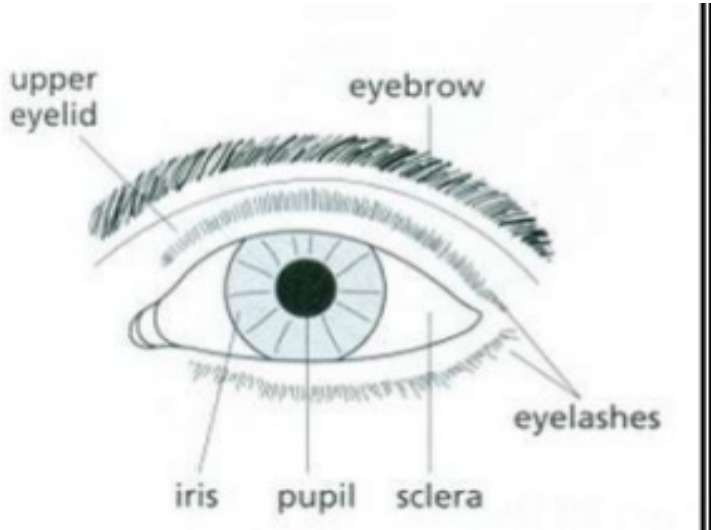
Conjuctive : Pale,Red.Purulent.

Sclera : Jaundiced

Cornea and Iris: Irregularities and abrasions

Pupils : Dilated,Constricted,Reaction to light

Lens : Opaque or Transparent



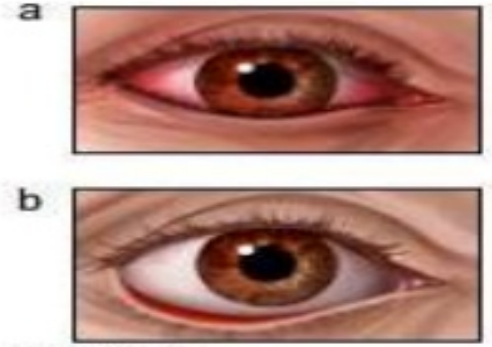
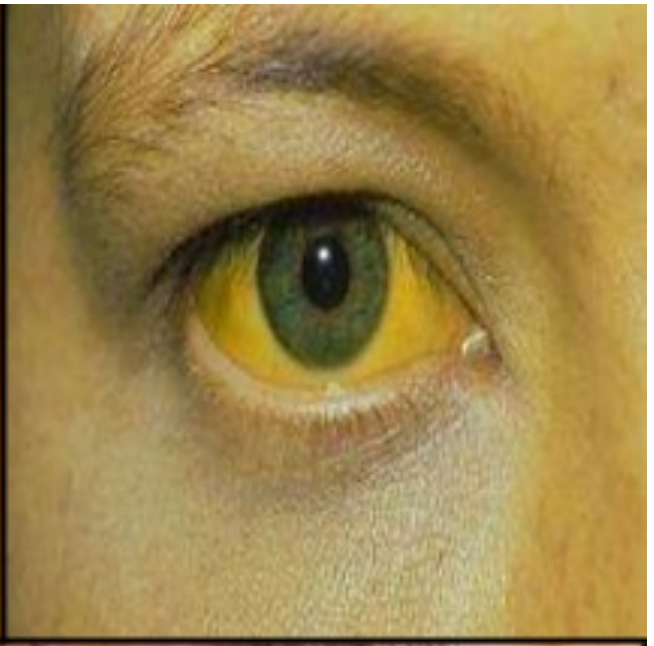
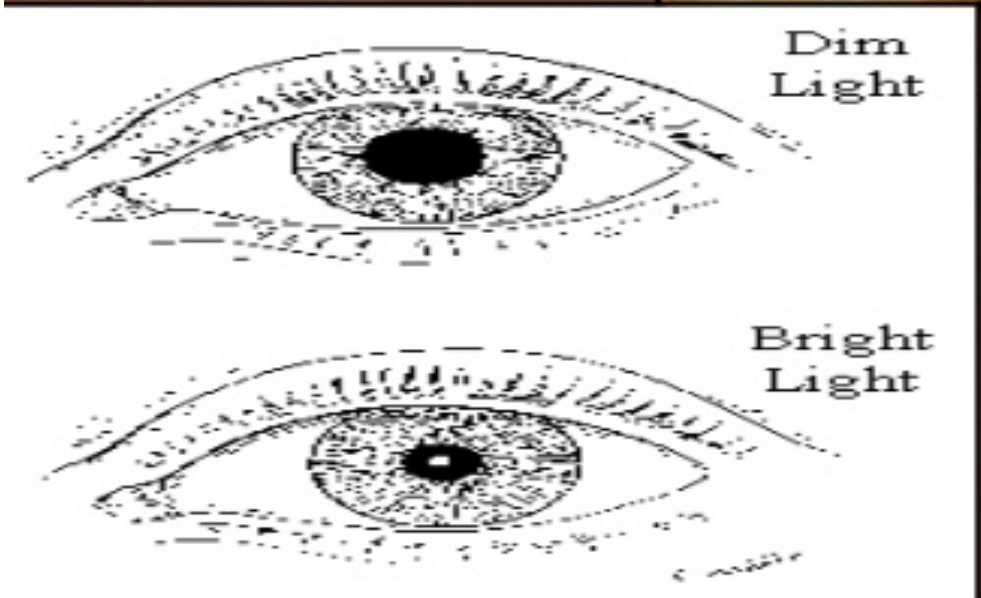


Figure 1

a Entropion – eyelid turned in

b Ectropion – eyelid turned out




Dim
Light
Bright
Light


Conjunctival pallor - anaemia
GEEKYMEDICS.com

Cont….

Fundus : Congestion,Hemorrahagic Spots.

Eye Muscles : Strabismus (Squint)

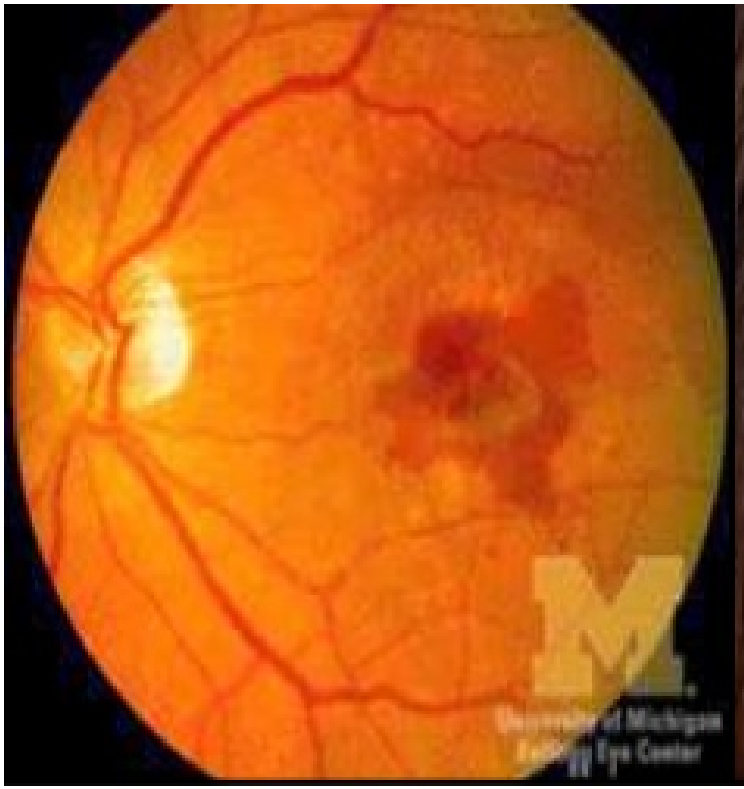
Vision: Normal Myopia (Short Sight),Hyperopia (Long sight)

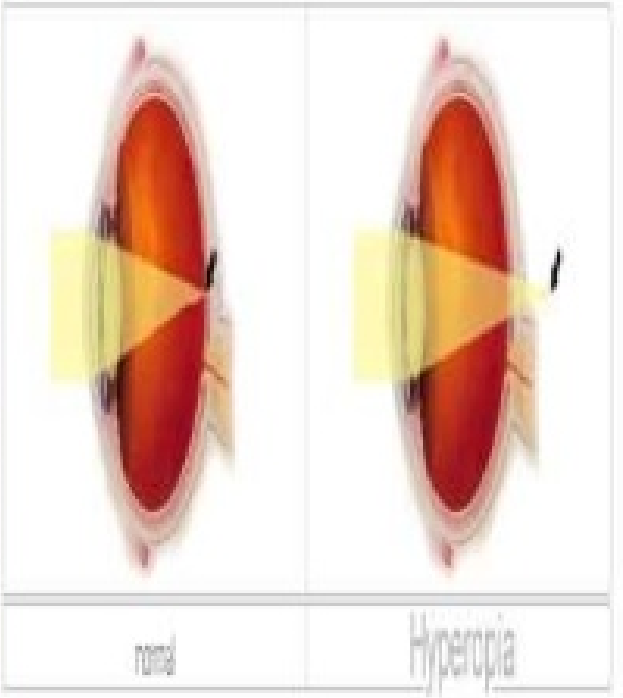
Ears:

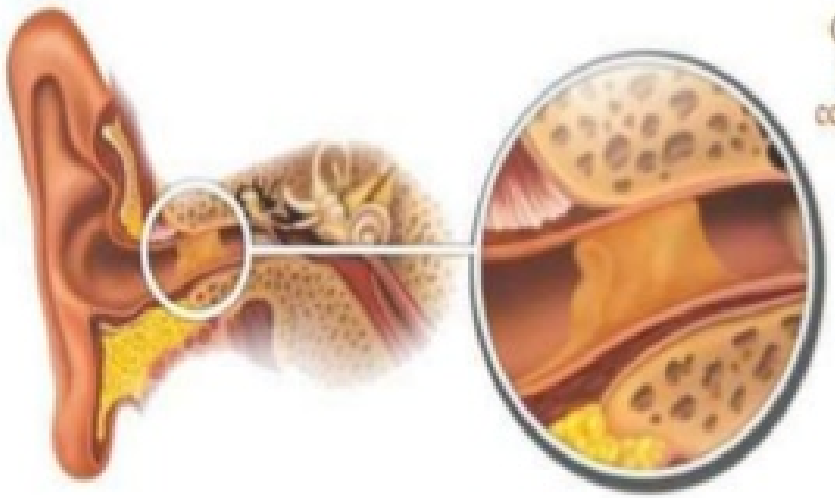
External Ear : Discharges, Cerumen, Obstructing the ear Passage.

Tympanic Membrane: Perforations,Lesions,Bulging.

Hearing : Hearing Aquity







Cerumen acumulado en forma de tapón, en el conducto auditivo externo

Cont..

Nose:

External Nares: Crusts or Discharges

Nostrils: Inflammation of the Mucus Membrane,Septal Deviations.

Mouth and Pharynx:

Lips : Redness,Swelling,Crusts,Cyanosis,stomatitis.

Odour of the mouth : Foul Smelling

Teeth : Discoloration and dental caries

Mucus Membrane : Ulceration and Bleeding, swelling.

Tongue: Pale,Dry,Lesions etc…

Throat and Pharynx : Enlarged Tonsils,Redness,Pus.

Normal Healthy Throat and Airway.

Enlarged Crowded Tonsils.

MOUTH

- Breath (fetor hepaticus)
- Lips
  - Angular stomatitis
  - Cheilitis
  - Ulceration
  - Peutz-Jeghers syndrome
- Gums
  - Gingivitis, bleeding
  - *Candida albicans*
  - Pigmentation
- Tongue
  - Atrophic glossitis
  - Leicoplakia
  - Furring

Atrophic glossitis

Thrush

Cont.....

Neck.

Lymph Nodes: Enlarged,Plapable.

Thyroid Gland : Enlarged

Range of Motion : Flexion, Extension and Rotation.

Chest.

Thorax : Shape, Symmetry of expansion, Posture.

Breath Sound: wheezing,crepitations,pleural rub etc,,

Heart : Size and Location, Cardiac Murmur.

Breasts : Enlarged lymph nodes.

Lymph nodes

- The lymph nodes are distributed all over the body
- The general physical examination can only palpate the superficial lymph notes

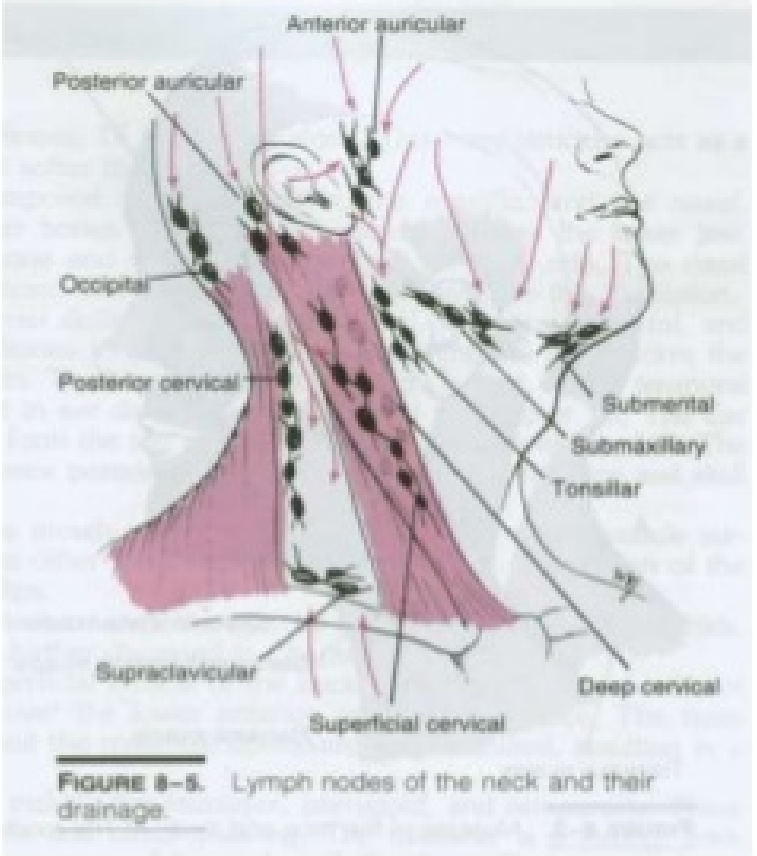
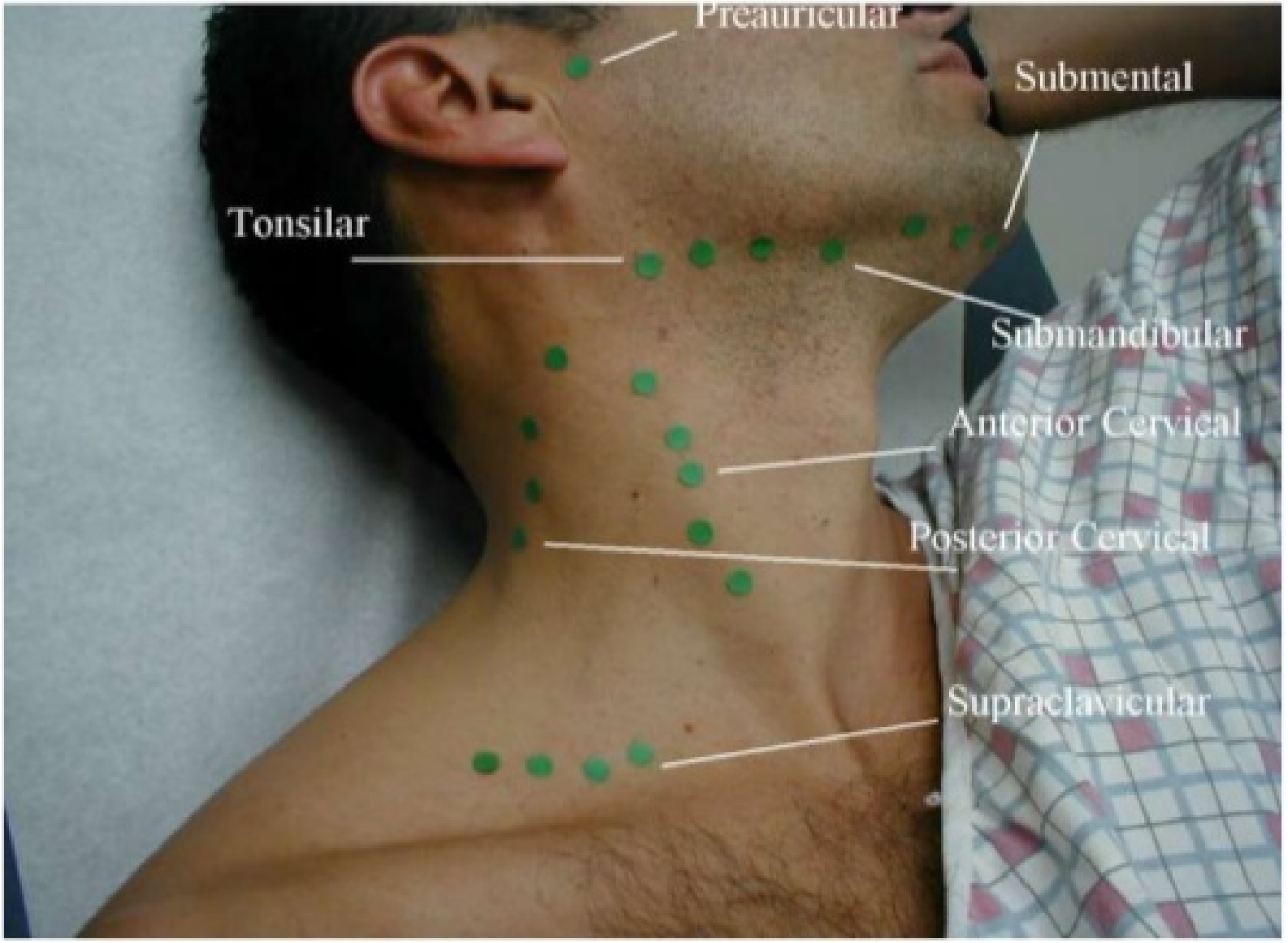


FIGURE 8–5. Lymph nodes of the neck and their drainage.

Palpating Anterior Cervical Lymph Nodes

Lymph nodes of the head and neck



Left Axillary Adenopathy

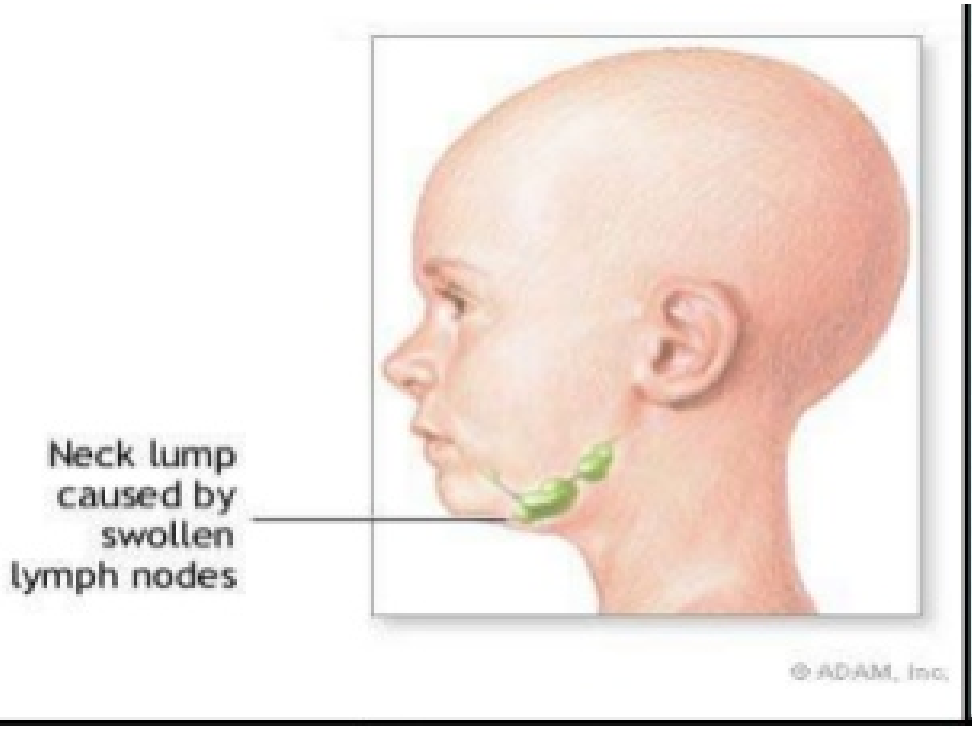
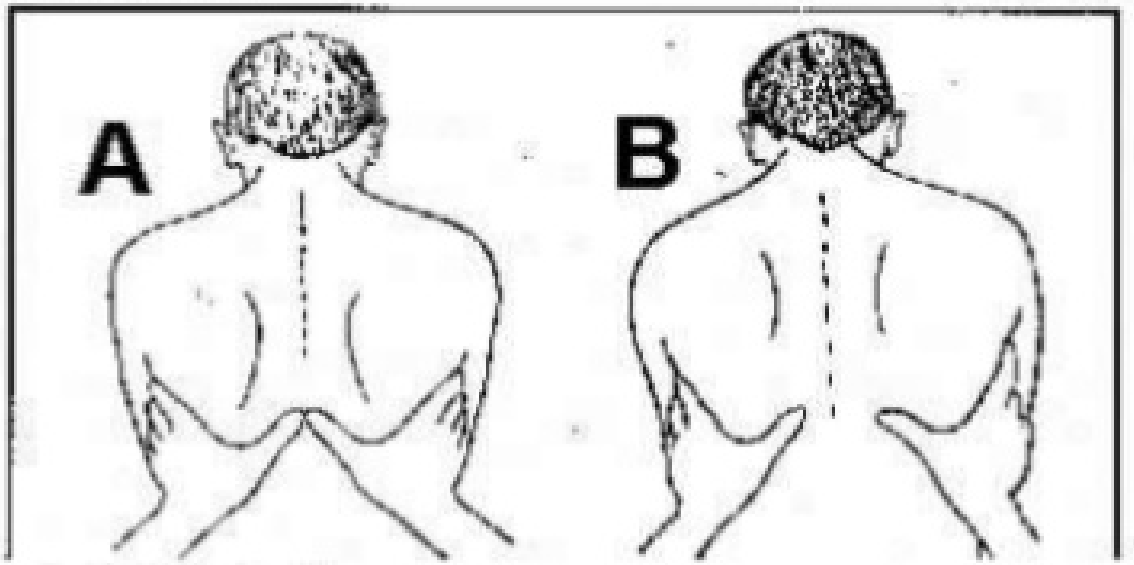

Neck lump caused by swollen lymph nodes
© ADAM, Inc.

Figure 1


A
B
A. Exhalation
B. Maximal Inhalation

Cont…..

Abdomen:

Observation: Skinrashes,scar,hernia,ascites,distension, pregnancy etc..

Auscultation : Bowel sound and FHS

Palpation : Liver margin, Palpable spleen, tenderness at the abdomen

Percussion : Presence of Gas, Fluid or Masses.

Extremities:

Movement of joints,Tremors,Clubbing of fingers, Varicose vein, reflexes etc…

Varicose Vein

Clubbing of Finger

Cont…..

Back:

Spina Bifida, Curves.

Genitals and Rectum:

Inguinal lymph glands : Enlarged, Palpable.

Patency of Urinary meatus and rectum.

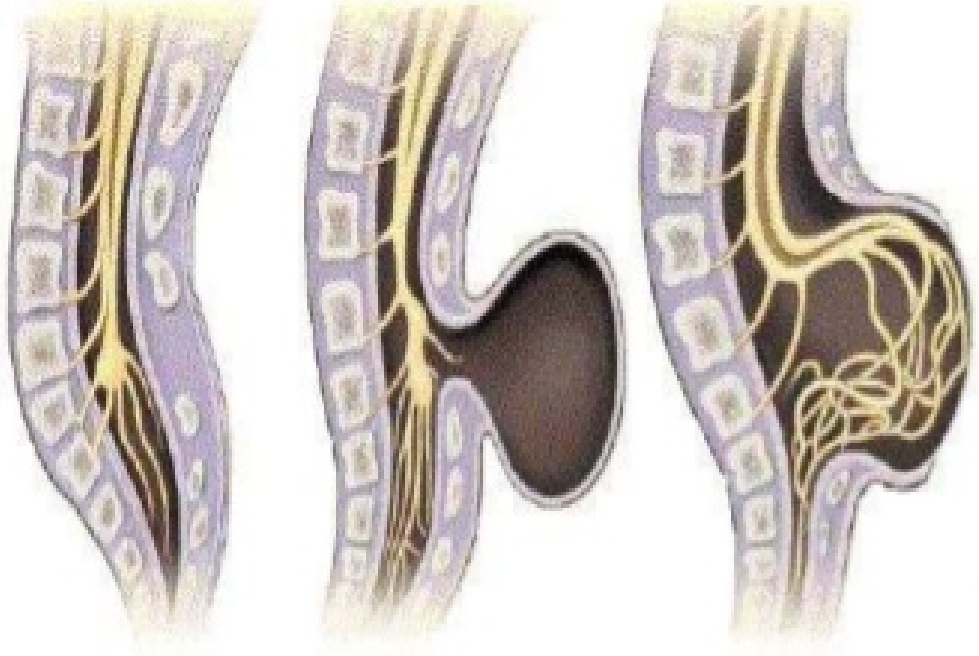
Descent of the testes

Vaginal discharges

Presence of STD

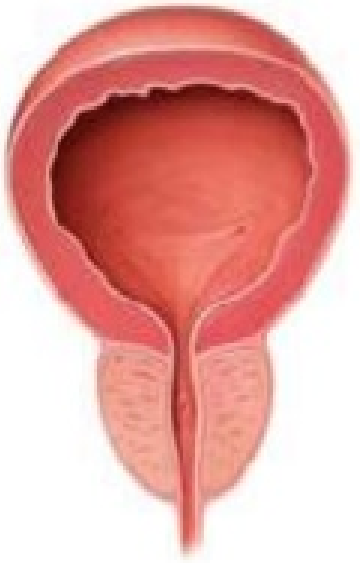
Hemorrhoids

Enlargement of Prostate Gland

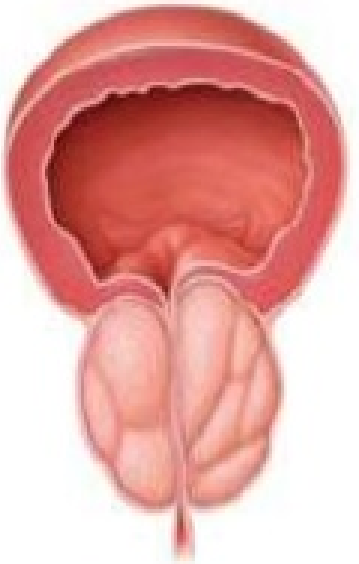


Spina bifida occulta Meningocele Myelomeningocele

Normal Prostate



Enlarged Prostate



Cont…..

Neurological Test:

Coordination Tests

Equilibrium Tests

Reflexes

Test for Sensations

Skin

- The skin is the largest organ of the body
- One of the best indicators of general health
- The examination of the skin is dependent on inspection, but palpation of a skin lesion must also be performed
- The color changes include
  - Pallor
  - Cyanosis
  - Yellow skin (Icterus)
  - Redness
  - Pigmentation
  - Discoloration

Cyanosis

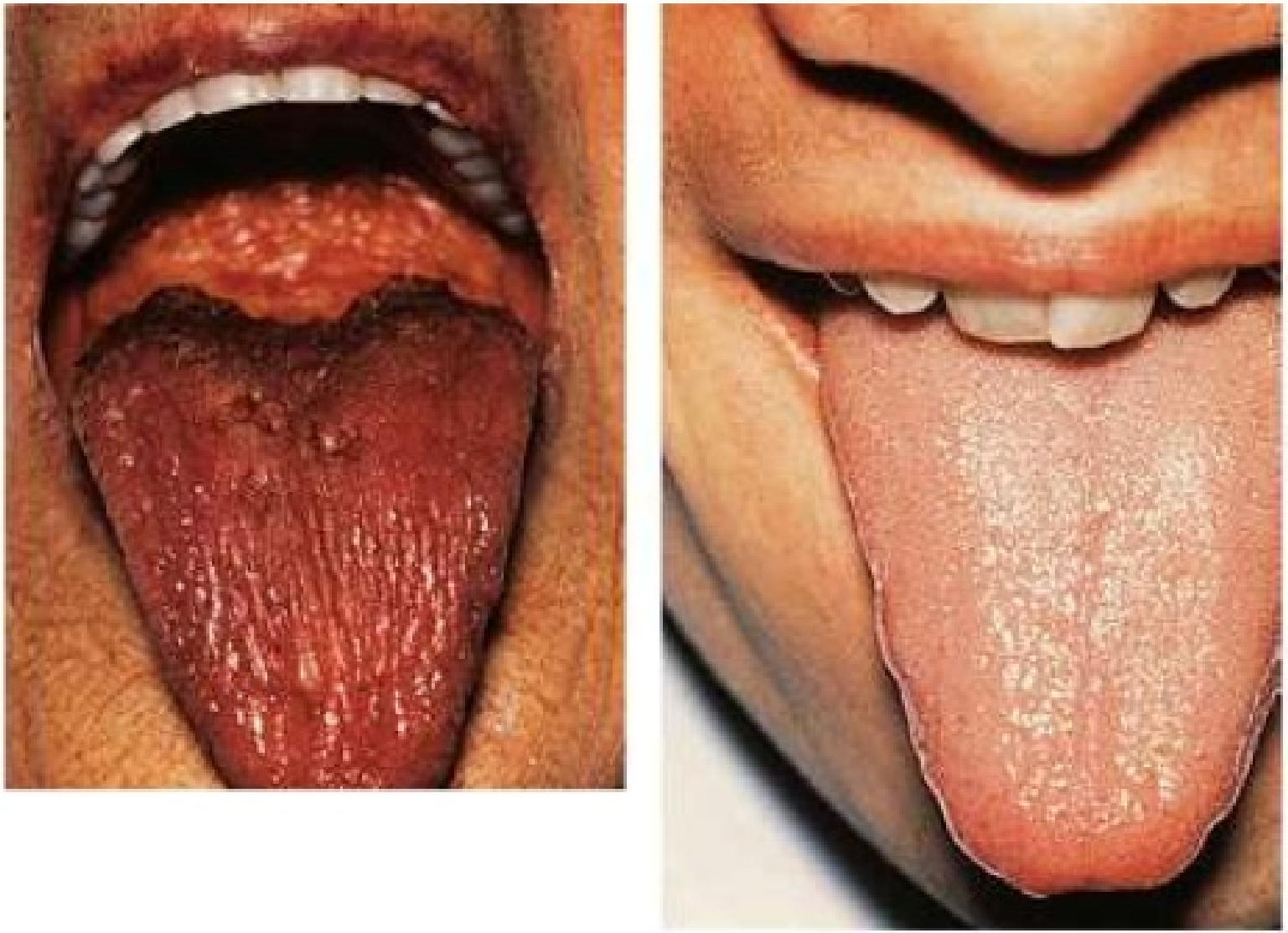


Figure 2.16 Central cyanosis in a patient with severe respiratory disease (left) compared to the tongue of a normal person. (From Forbes and Jackson 2002 Color Atlas and Text of Clinical Medicine, 3rd edn, Mosby, Edinburgh. Reproduced by kind permission.)

Figure 2.17 Peripheral vascular disease. There is pallor, loss of hair and early ulceration on the dorsum of three toes. (From Forbes and Jackson 2002 Color Atlas and Text of Clinical Medicine, 3rd edn, Mosby, Edinburgh. Reproduced by kind permission.)

Discoloration

Vitiligo

- It is a skin condition in which there is loss of pigment from areas of skin resulting in irregular white patches with normal skin texture
- Associated with pernicious anemia, hyperthyroidism, Addison's disease

Discoloration

Leukoplakia

- A precancerous lesion that develops on the tongue or the inside of the cheek as a response to chronic irritation
- Occasionaly, leukoplakia patches develop on the female external genitalia

Rashes

- Skin rashes are frequently one of the manifestation of systemic diseases, and hence, they are important for the diagnosis of some special diseases
- The different rashes may occur in infectious disease, dermentological disease, drug or other allergic materials
- The rashes have some special regular patterns and sharps
- Types of rashes
  - Macule
  - Roseola
  - Papules
  - Maculopapulae
  - Urticaria

Macules

Papules

Vesicles

Edema

- Excessive build up of fluid in the tissues
- Either occurs throughout the body (generalized swelling)

  or limited to a specific part of the body (localized swelling)
- It can be either pitting edema or non-pitting edema
- Mild : facial edema, peripheral edema
- Moderate: generalized edema
- Severe: generalized severe edema

Figure 2.18 Pitting oedema in a patient with cardiac failure. A depression remains in the oedema for several minutes after firm fingertip pressure is applied. (From Forbes and Jackson 2002 Color Atlas and Text of Clinical Medicine, 3rd edn, Mosby, Edinburgh. Reproduced by kind permission.)

2. Vital signs

1. Pulse
2. Blood pressure
3. Respiratory rate
4. Temperature

PULSE

The pulse is an index of the heart's rate and rhythm. Pulse provides valuable data about person's cardiovascular status.

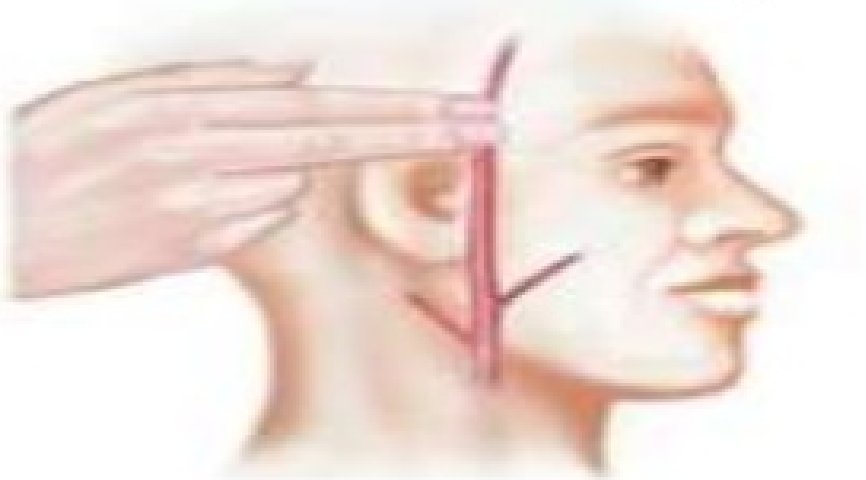
DEFINITIONS-

"The pulse is a wave of blood created by contraction of the left ventricle of the heart."

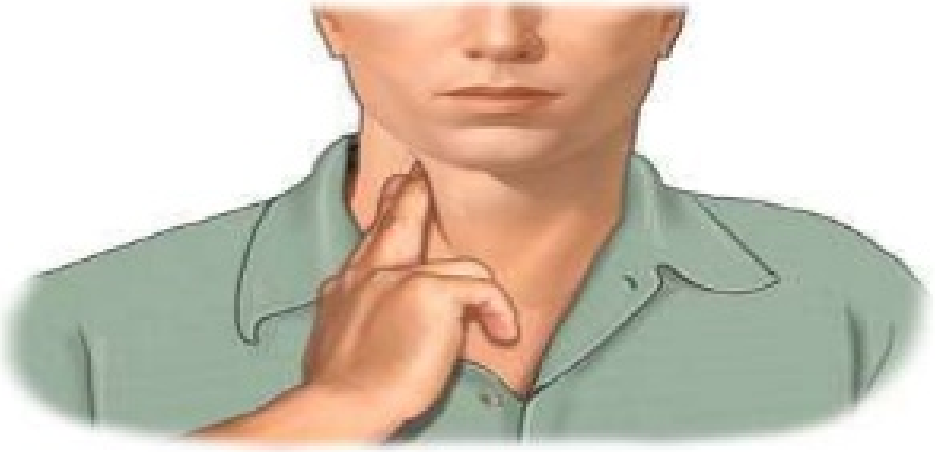
Sites of monitoring pulse-

There are 9 sites where pulse can be commonly taken. These are-

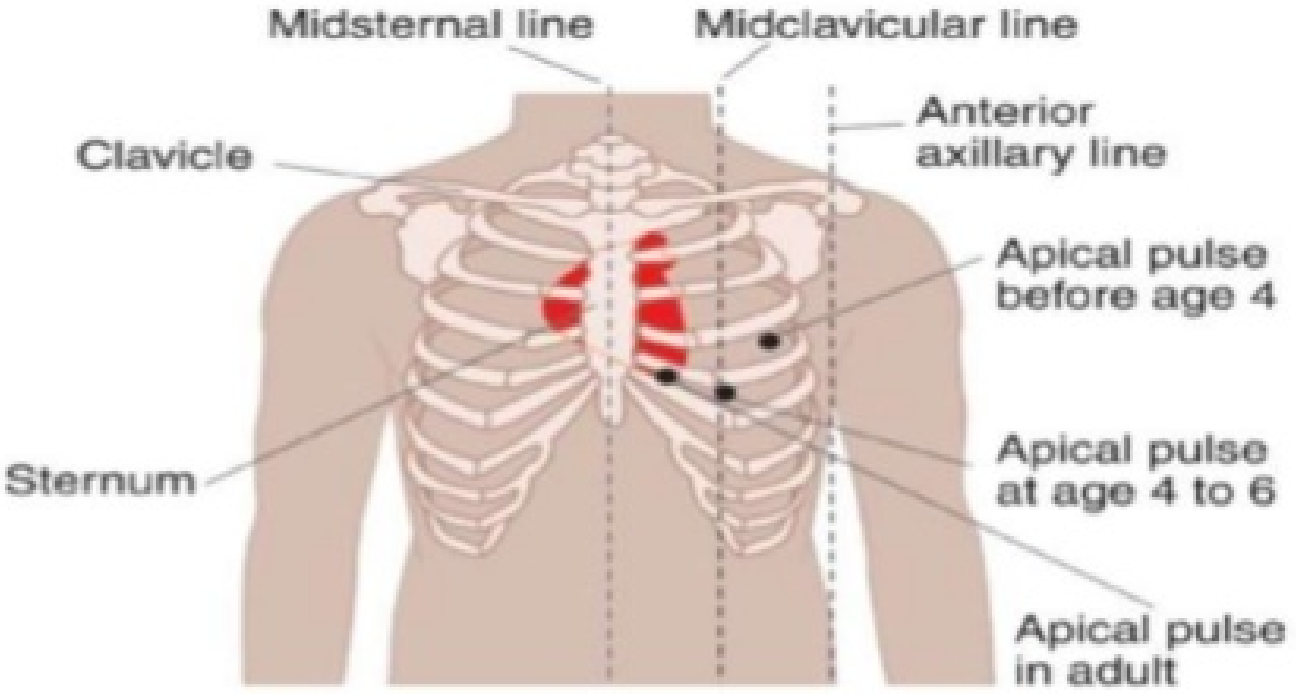
1. Temporal-



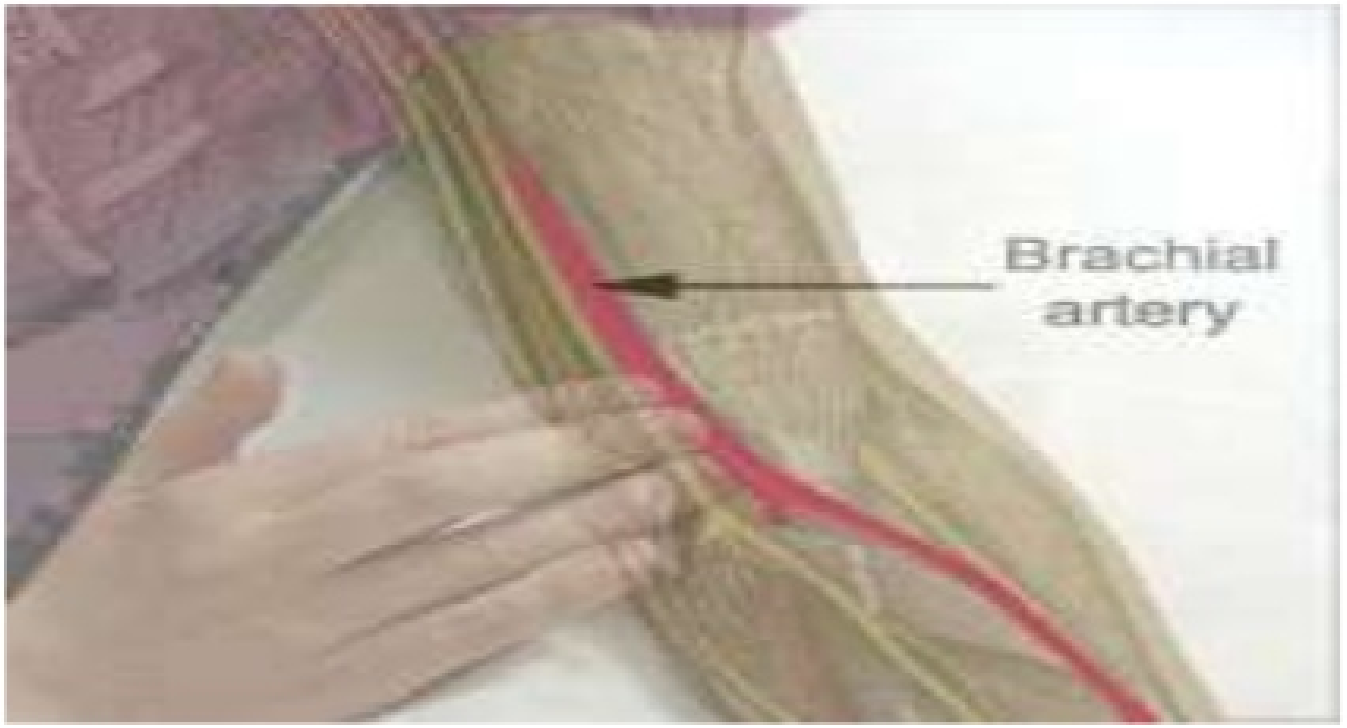
2. Carotid-



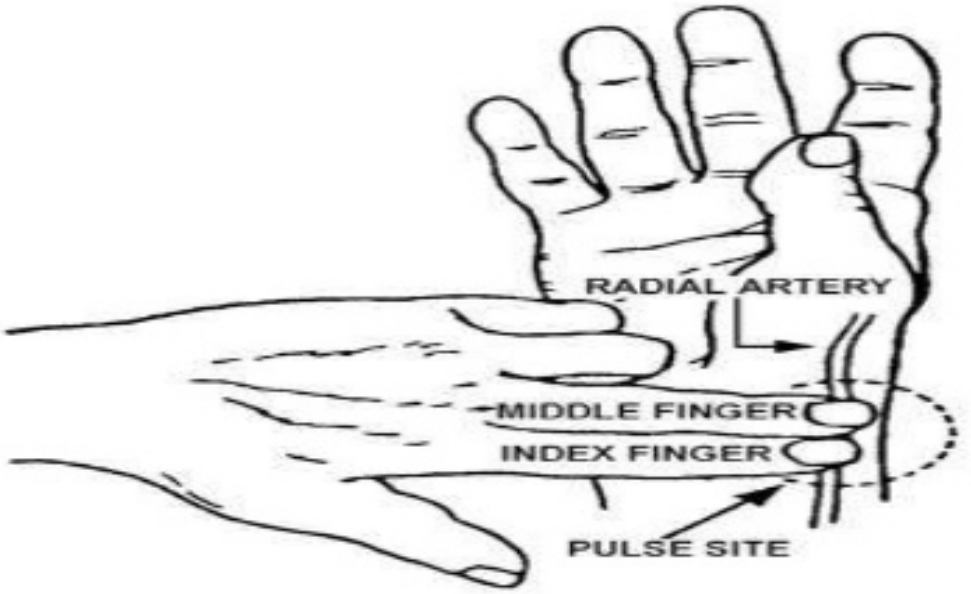
3. Apical-



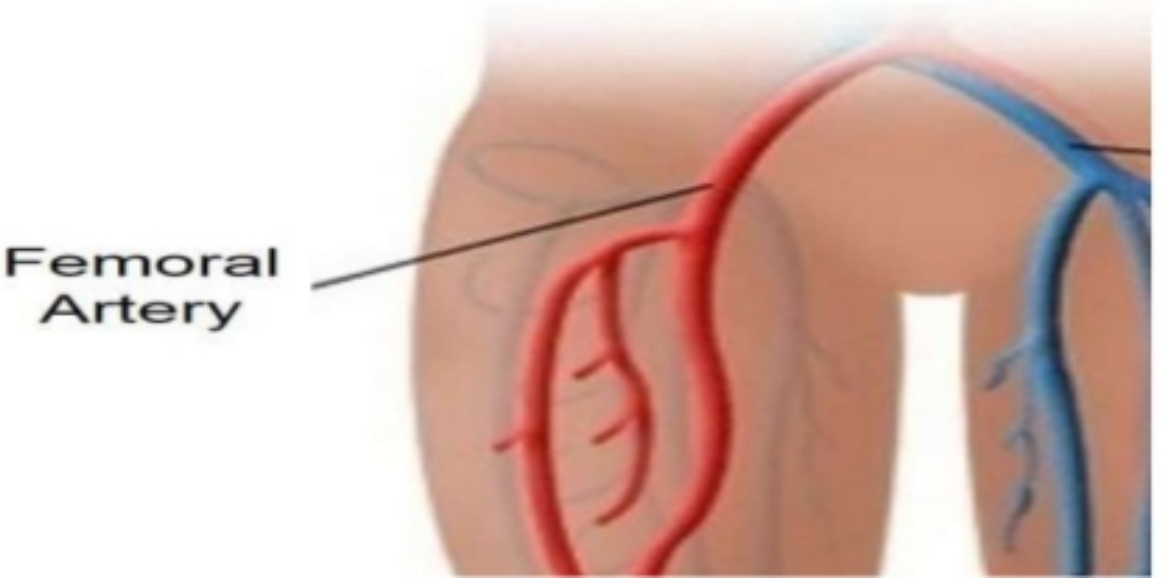
4. Brachial-



5. Radial-



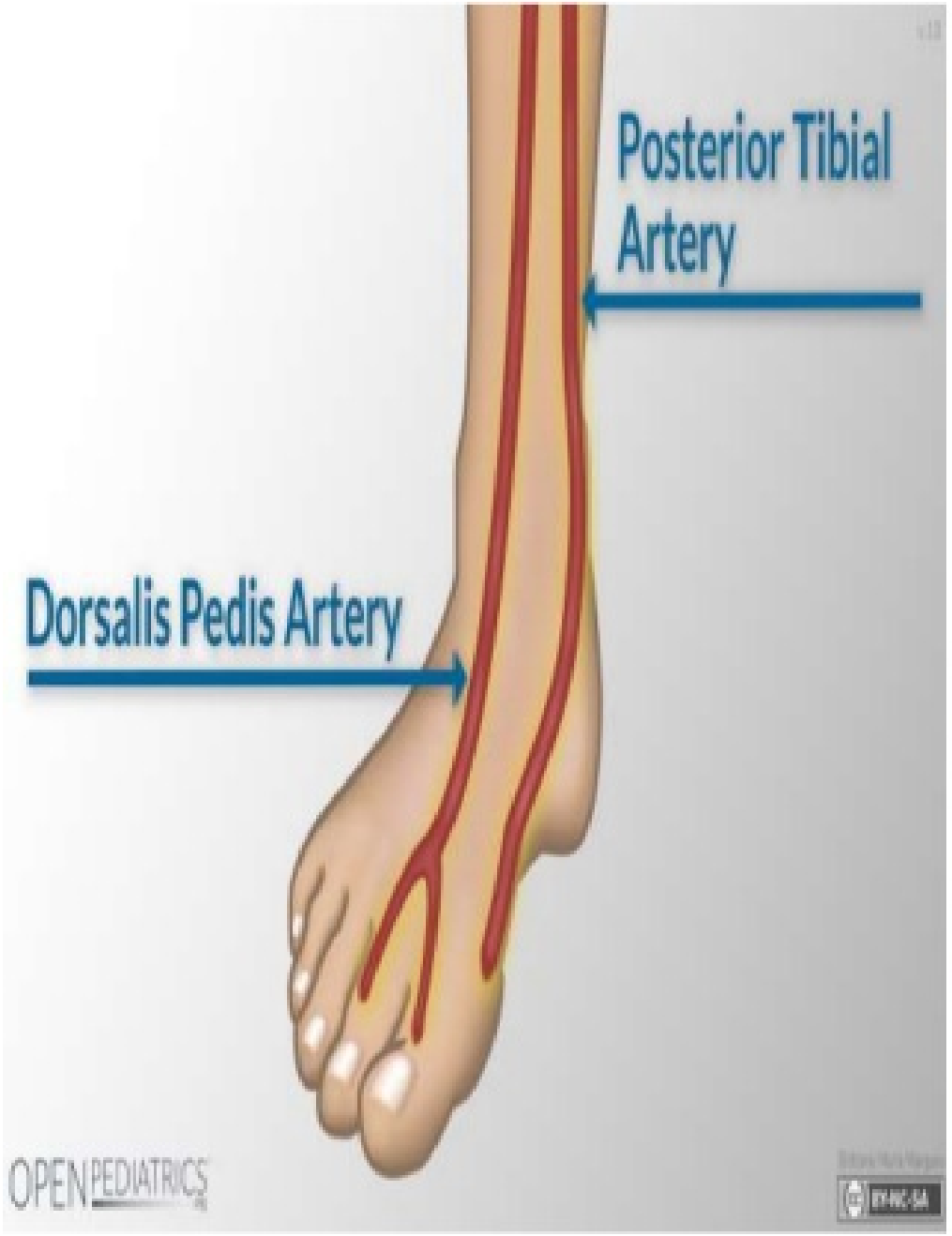
6. Femoral-

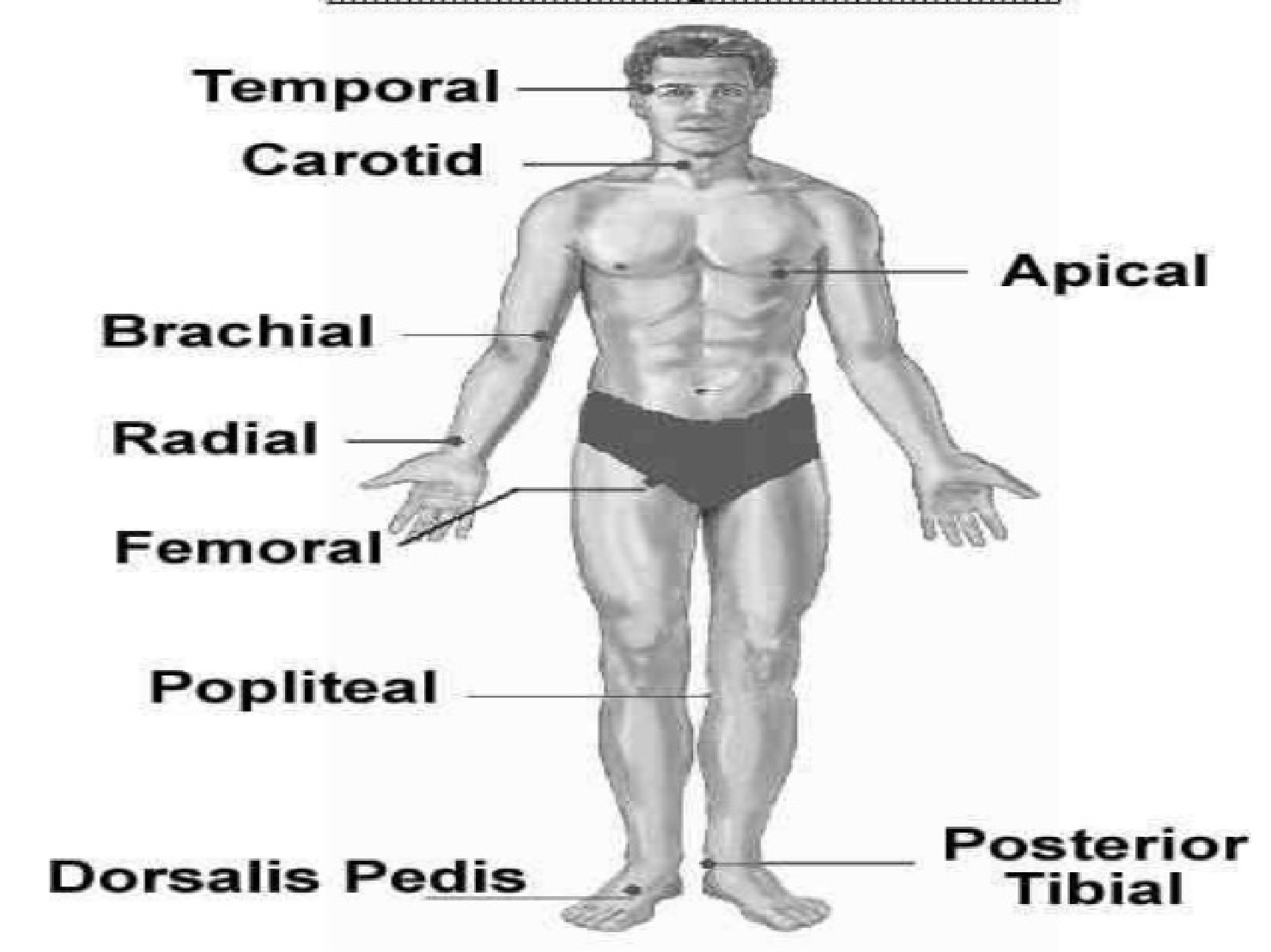


7. Popliteal-

8. Posterior tibial-

9. Dorsal pedis-




Temporal
Carotid
Apical
Brachial
Radial
Femoral
Popliteal
Dorsalis Pedis
Posterior Tibial

PULSE RANGE-

- Normal pulse rate varies depending on age.
- For a healthy adult the normal resting pulse ranges from 60-100 beats per minute.
- **Tacahycardia-** An abnormal rapid heart rate over 100 beats/min.
- **Bradycardia-** An abnormal slow heart rate below 60 beats/min.
- **Bounding-** Strong full force pulse.

- **Thready/ weak-** Difficult to palpate, a pulse of diminished strength.
- **Absent-** No palpable pulse.
- **Irregular-** When interval varies between pulse.
- **Bigeminal pulse-** A regular irregular pulse accuring with premature beats.
- **Dicrotic-** A split or double pulse beat the second being weaker than first.

Blood pressure

- Blood pressure is the force exerted by the walls of blood against vessel walls (arterial wall) which is measured in millimetre of mercury (MMHG)

Blood pressure measurements includes systolic and diastolic pressures-

- **Systolic pressure-** The maximal pressure exerted on the arteries during contraction of left ventricles of heart.

- **Diastolic pressure-** The amount of pressure exerted on the arterial wall with the ventricles at rest.

Methods of measuring blood pressure (BP)-

1. **Direct method-** An oscilloscope is used for this method. This is a continuous method which measures mean pressures. A needle or catheter is inserted into the brachial, radial or femoral artery and oscilloscope displays arterial pressure in wave form.

Indirect method- Taking blood pressure by using sphygnomanometer. Following types of measuring device is available-

1. Mercury manometer
2. Aneroid manometer
3. Electronic BP device

Normal blood pressure in an adult varies between 100 to 140 mm of Hg systolic and 60 to 90 mm of Hg diastolic but BP may vary widely depending on individuals other factors.

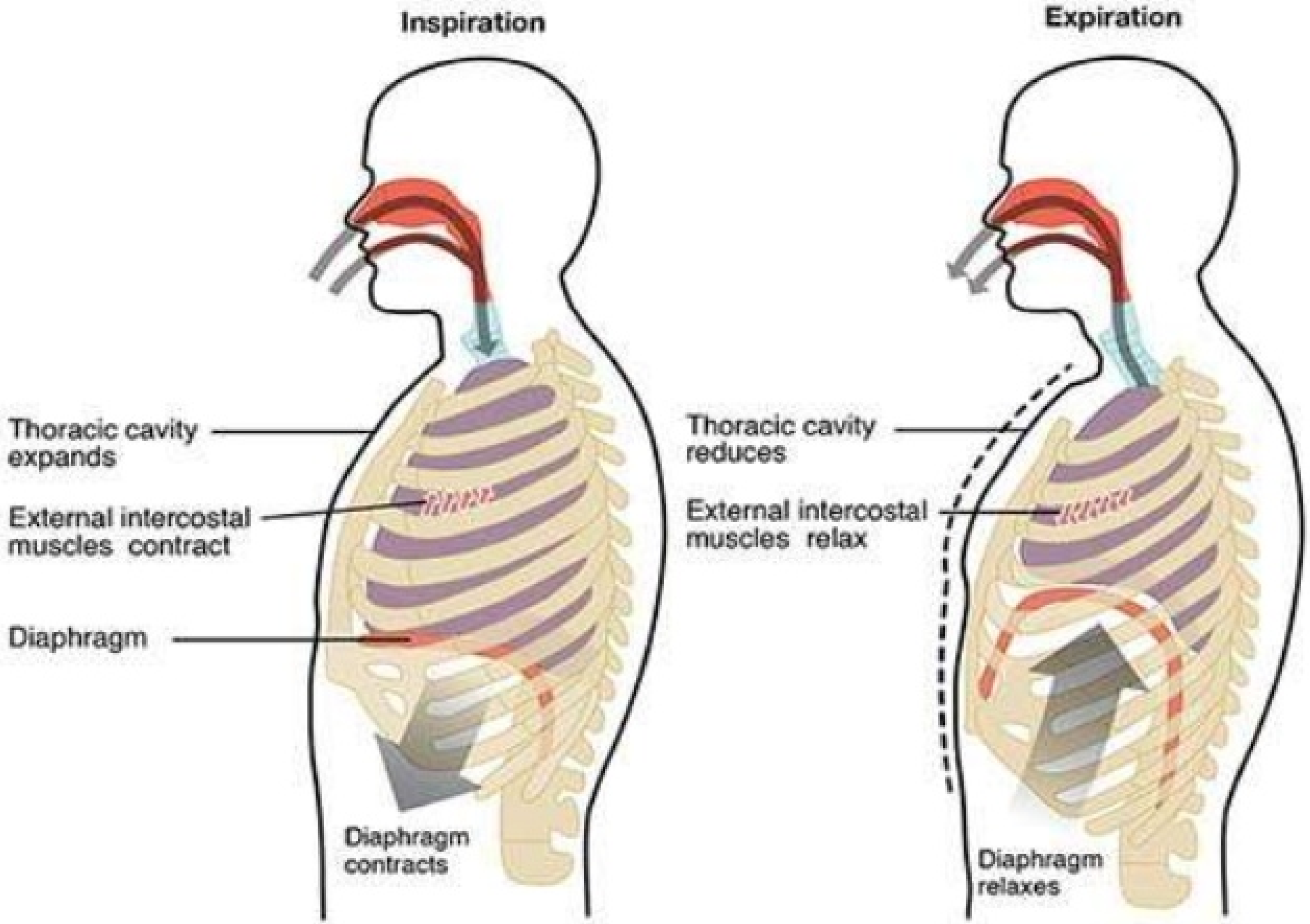
Blood pressure

Blood Pressure Ranges				
	Low	Normal	Borderline	High
Systolic	Below 90 mmHg	Below 120 mmHg	120 to 139 mmHg	140 mmHg or higher; over 135 mmHg if you have diabetes
Diastolic	Below 60 mmHg	Below 80 mmHg	80 to 89 mmHg	90 mmHg or higher; over 85 mmHg if you have diabetes

RESPIRATION

* Respiration is the process of bringing oxygen to body tissues and removing carbon di oxide from it. The lungs play a major role in this process.
* Respiration is the act of breathing which refers to two process-

1. External respiration
2. Internal respiration


Inspiration
Thoracic cavity expands
External intercostal muscles contract
Diaphragm
Diaphragm contracts
Expiration
Thoracic cavity reduces
External intercostal muscles relax
Diaphragm relaxes

Characteristics of respiration-

1. **Respiration rate:** It indicates the number of times the person breathes in and out in one minute.
2. **Depth:** It is estimated by observing the movement of chest during inspiration, which may be deep or shallow.
3. **Rhythm:** It indicate the equal interval between two respiration.

Normal respiration-

Normal respiration is autonomic, effortless, and regular. The normal adult rate of respiration is generally ranged between 14-20 breaths/minutes.

How to take respiratory rate-

Place the patient arm in relaxed position across his abdomen and place your hand on the patient's arm. Now observe complete respiratory cycle (Inspiration + expiration).

SOME TERMS OF RESPIRATION-

- **Tachypnoea-** An increased respiratory rate more than 24 breath/min.
- **Bradypnoea-** A decreased respiratory rate less than 10 breath/min.
- **Apnoea-** Total cessation of breathing or respiratory rate.
- **Hyperapnoea-** Increase in the depth of respiration.

Respiratory rate

Respiratory rate

Temperature

Normal range of body temperature (Adults)-

Body region	Temperature(°C)	Temperature(°F)
Oral / Tympanic	37	98.6
Rectal	37.6	99.6
Axillary	36.4	97.6

Temperature

Temperature

Temperature

Summary of general survey/ appearance

- The three components of general survey are

1. Impression of the client
    a. Physical appearance- e.g facial features, skin color (pale, cyanosis), level of consciousness, grooming
    b. Body build/ structure- position, symmetry of body parts, position, stature (height with range for age, nutrition)
    c. Mobility- gait (walking smoothly, staggering, dragging feet, stumbling

d. Range of motion

e. Behaviour – facial expression, mood and affect, speech, dress, personal hygiene

2. Anthropometric measures- scientific measurement of the body measurements to evaluate clients physical growth, development and nutritional status. It involves taking weight and weight and calculating BMI, taking mind upper arm circumference in children, post natal and antenatal mothers. It also involves taking the head circumference in infants

3. Vital signs- the signs which indicates basic functions of the body. Normal ranges vary according to age. They include;

- Temperature
- Heart rate
- Respiratory rate
- Blood pressure
- Oxygen saturation and supplemental oxygen device (see arterial blood gas analysis and pulse oximetry)
- Possibly pain assessment

Systemic examination

- Systemic examination reviews the major systems of the body like the Central nervous system, Respiratory system, Cardiovascular system, Gastrointestinal system and locomotor system
- Systemic examination is currently divided into sub-modules/segments:
  - Central Nervous System
  - Respiratory System
  - Cardiovascular System
  - Abdomen Examination (gastrointestinal system)
- Locomotor system

Central nervous system

- Central nervous system examination should routinely include an assessment of higher cortical function (language, perception and memory).

Respiratory system

1. Inspection of the chest

Look for;

- **Appearance of the chest**- skin color, lumps on the chest skin, presence of any scars, inspect the shape of the chest itself. The normal chest is bilaterally symmetrical and **elliptical in cross-section**, with the narrower diameter being anteroposterior. The chest may be distorted by disease of the ribs or spinal vertebrae, as well as by underlying lung disease. Kyphosis (forward bending) or scoliosis (lateral bending) of the vertebral column will lead to asymmetry of the chest and, if severe, may significantly restrict lung movement.

Ct,

- **Movement of chest-** Look to see if the chest movements are symmetrical. If they seem to be diminished on one side, that is likely to be the side on which there is an abnormality. Intercostal recession, a drawing-in of the intercostal spaces with inspiration, may indicate severe upper airways obstruction, as in laryngeal disease, or tumours of the trachea. In COPD, the lower ribs often move paradoxically inwards on inspiration instead of the normal outwards
- movement.

ct.,

2. Palpation

Lymph nodes

The lymph nodes in the supraclavicular fossae, cervical regions and axillary regions should be palpated. If they are enlarged, this may be secondary to the spread of malignant disease from the chest, and such findings will influence decisions regarding treatment.

Lymph nodes in the neck are best felt by sitting the patient up and examining from behind

ct

Swellings and tenderness

- It is useful to palpate any part of the chest that presents an obvious swelling, or where the patient
- complains of pain. Feel gently, as pressure

may increase the pain. It is often important, particularly in the case of musculoskeletal pain, to identify a site of tenderness

Ct,

Trachea and heart

- The positions of the cardiac impulse and trachea should then be determined. Feel for the trachea by putting the second and fourth fingers of the examining hand on each edge of the sternal notch and use the third finger to assess whether the trachea is central or deviated to one side. Avoid heavyhandedness in this situation. Rough technique is uncomfortable for the patient who may feel like he is being choked. A slight deviation of the trachea to the right may be found in healthy people

Ct,

Chest expansion

- As well as by simple inspection, possible asymmetrical expansion of the chest may be explored further by palpation.
- Face the patient and place the fingertips of both hands on either side of the lower ribcage, so that the tips of the thumbs meet in the midline in front of the chest, but not touching it.
- A deep breath by the patient will increase the distance between the thumbs and indicate the degree of expansion. If one thumb remains closer to the midline, this suggests diminished expansion on that side.

Ct,

- Tactile vocal fremitus is detected by palpation, but this is not a commonly used routine examination technique

Percussion of the chest

- Percussion of the lung field produces sounds
- Percussion can help detect changes in respiratory sound
- Percuss over the intercostal space and note the resonance and feel for percussion
- During percussion ensure that the finger of the left hand is applied flatly and firmly to the chest wall and secondly, strike the percussion blow from the elbow rather than from the wrist

Ct;

- Reduction of resonance (i.e. the percussion note is said to be dull) occurs in two important circumstances:
  - When the underlying lung is more solid than usual, usually because of consolidation or collapse.
  - When the pleural cavity contains fluid, i.e. a pleural effusion is present.

Ct,

Auscultation

- Auscultative breath sounds **intensity and quality**
- The intensity (or loudness) of the sounds may be normal, reduced or increased. The quality of normal breath sounds is described as vesicular
- Breath sounds will be normal in intensity when the lung is inflating normally, but may be reduced if there is localized airway narrowing, if the lung is extensively damaged by a process such as emphysema or if there is intervening pleural thickening or pleural fluid.

Muscle bulk assessment

- Muscle bulk is related to age, sex, physical activity and to nutritional status.
- Atrophy (reduction in muscle size) may indicate primary muscle disease or peripheral nerve damage. Measurement of the amount of wasting can be obtained with a tape measure, comparing two limbs or by repeated measurements after a timed interval.
- Atrophy is related to prolonged immobility of the body as a whole (disuse), unless isometric exercises were routinely performed during period of immobility. It is accentuated by poor nutrition

- Hypertrophy is increase in muscle size. Hypertrophy is detected as a unilateral or bilateral increase in contour of the muscle.
- Bilateral hypertrophy is common among athletes involved in weight lifting or other activities that require repetitive motion against opposing resistance.
- Measure the circumference at set distances from a bony landmark such as the tip of the shoulder in the upper arm, the olecranon for the forearm and the tibial tubercle for the thigh and calf

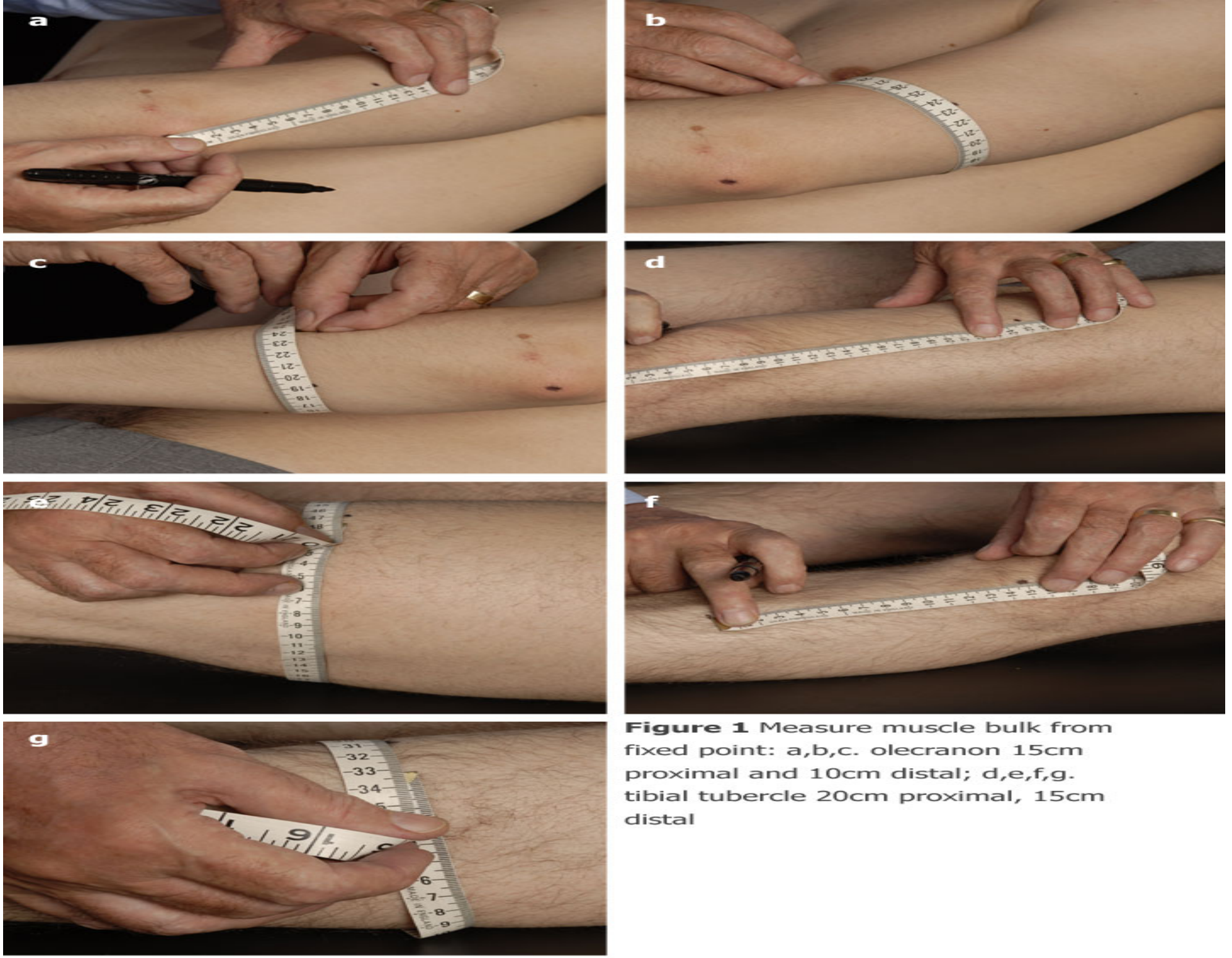


Figure 1 Measure muscle bulk from fixed point: a,b,c. olecranon 15cm proximal and 10cm distal; d,e,f,g. tibial tubercle 20cm proximal, 15cm distal

Assessing muscle tone

- Muscle tone is assessed by assessing response to stretch
- Relaxed muscles demonstrate a state of readiness to respond to contraction stimuli. This state of readiness, known as muscle tone (tonus), is produced by the maintenance of some of the muscle fibers in a contracted state.
- Muscle tone refers to partial muscle contraction state that is maintained in order for the muscle to respond quickly to the next stimulus.

- Muscle spindles, which are sense organs in the muscles, monitor muscle tone. Muscle tone is minimal during sleep and is increased when the person is anxious. A muscle that is limp and without tone is described as flaccid; a muscle with greater thannormal tone is described as spastic.
- In conditions characterized by lower motor neuron destruction (eg, polio), denervated muscle becomes atonic (soft and flabby) and atrophies.

- Hypotonicity (flaccidity) is a decrease in muscle tone. When muscles is palpated, it feels flabby and soft to touch. When a flaccid limb is held away from the body and then released, it falls quickly with gravity
- Spasticity refers to an increase in muscle tension on passive stretching (especially rapid or forced stretching of the muscle). It is often noted with extreme flexion and extension

Systemic examination

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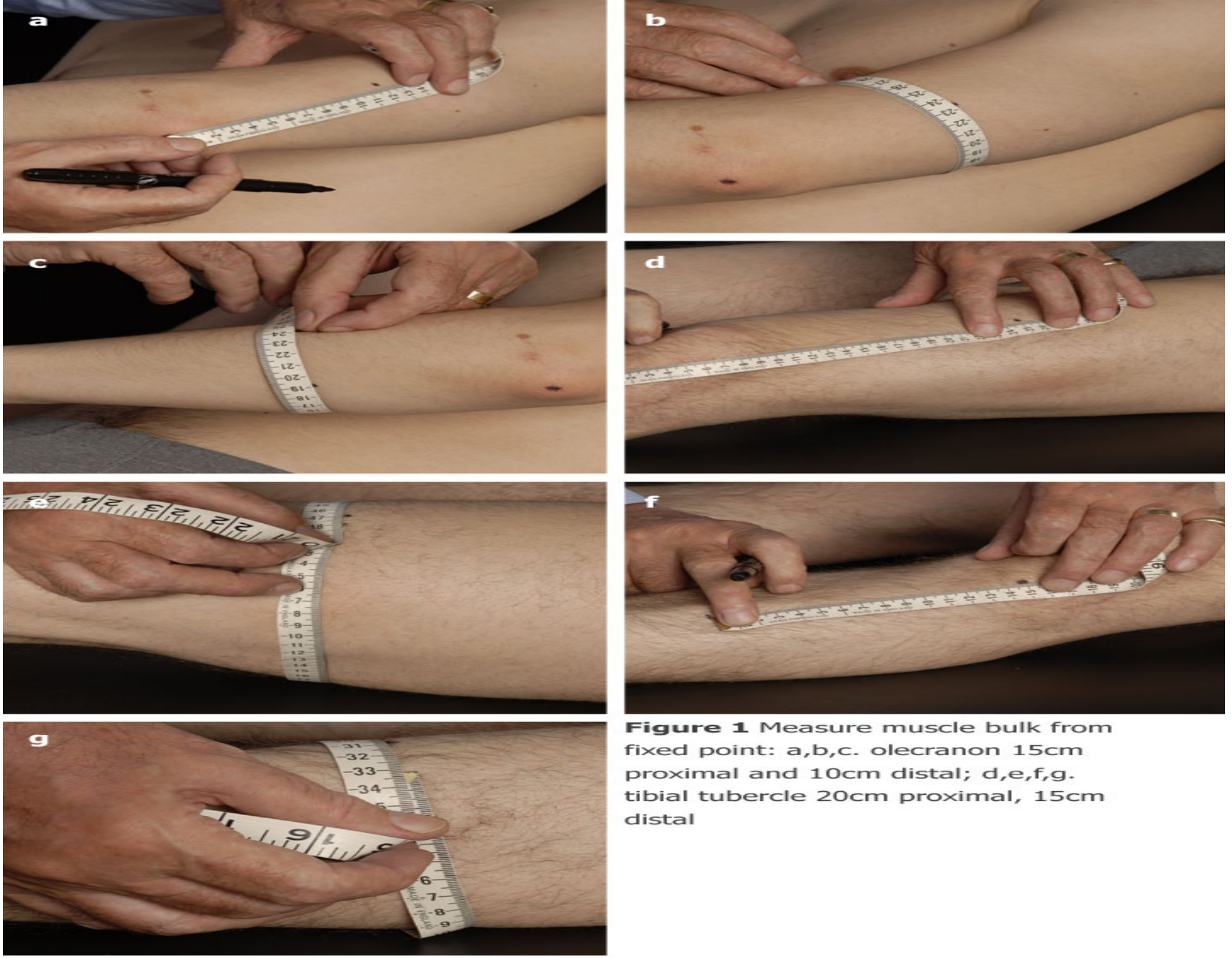

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- Respiratory rate
- Blood pressure
- Oxygen saturation and supplemental oxygen device (see arterial blood gas analysis and pulse oximetry)
- Possibly pain assessment

Diagnostic imaging

- Diagnostic imaging techniques help **narrow the causes of an injury or illness and ensure that the diagnosis is accurate.** These techniques include x-rays, computed tomography (CT) scans, and magnetic resonance imaging (MRI).
- These imaging tools let your doctor "see" inside your body to get a "picture" of your bones, organs, muscles, tendons, nerves, and cartilage. This is a way the doctor can determine if there are any abnormalities.

Diagnostic investigations

1. **Radiographic imaging**

- Radiology is the medical discipline that uses medical imaging to diagnose and treat diseases within the body
- Conventional X-rays visualize only four basic radiographic densities: air, metal, fat and water. Air densities are black; metal densities (the most common of which are calcium and barium) are white with well-defined edges; fat and water densities are dark and mid grey. There can be difficulty in visualizing a three-dimensional structure from a two-dimensional film.

- One helpful rule in deciding where a lesion is situated is to note which, if any, adjacent normal landmarks are obliterated. For example, a water density lesion which obliterates the right border of the heart must lie in the right middle lobe and not the lower lobe. A different view, e.g. lateral chest radiograph, is needed to be certain of the position of densities

a. **X-Ray Studies**

- X-rays (radiographs) are the most common and widely available diagnostic imaging technique. Even if you also need more sophisticated tests, you will probably get an x-ray first.
- X-ray studies are important in evaluating patients with various disorders e.g musculoskeletal disorders.
- Bone x-rays determine bone density, texture, erosion, and changes in bone relationships. X-ray study of the cortex of the bone reveals any widening, narrowing, or signs of irregularity. Joint x-rays reveal fluid, irregularity, spur formation, narrowing, and changes in the joint structure.

Ct,

- Multiple x-rays, with multiple views (eg, anterior-posterior, lateral), are needed for full assessment of the structure being examined. Serial x-rays may be indicated to determine the status of the healing process.
- The part of your body being pictured is positioned between the x-ray machine and photographic film or digital x-ray sensor. You have to hold still while the machine briefly sends electromagnetic waves (radiation) through your body, exposing the film to reflect your internal structure. The level of radiation exposure from x-rays is not harmful, but your doctor will take

- After being positioned for the study, the patient must remain still while the x-rays are obtained.
- X-rays can be done in different sites of the body to rule out pathology e.g x-ray of chest to study structure in the chest, x-ray of the abdomen to study structures in the abdomen, X-rays of the bones and also the joints.
- X-rays **may not show as much detail as an image** produced with more sophisticated techniques. They are, however, the most common imaging tool used to evaluate an orthpaedic problem and are readily available in most doctors' offices.

b. Computed Tomography

- A computed tomography (CT) scan, which may be performed with or without the use of contrast agents, shows in detail a specific plane of involved bone and can reveal tumors of the soft tissue or injuries to the ligaments or tendons.
- Computed tomography (CT) is an imaging tool that combines x-rays with computer technology to produce a more detailed, cross-sectional image of your body. A CT scan lets your doctor see the size, shape, and position of structures that are deep inside your body, such as organs, tissues, or tumors. Tell your doctor if you are pregnant before undergoing a CT scan.

- It is used to identify the location and extent of fractures in areas that are difficult to evaluate (eg, acetabulum). The patient must remain still during the procedure

Ct,

- You lie as motionless as possible on a table that slides into the center of the cylinder-like CT scanner. The process is painless.
- An x-ray tube slowly rotates around you, taking many pictures from all directions.
- A computer combines the images to produce a clear, two-dimensional view on a television screen.

Ct,

- You may need a CT scan if you have a problem with a **small, bony structure or if you have severe trauma to the brain, spinal cord, chest, abdomen, or pelvis.** Sometimes, you may be given a dye or contrast material to make certain parts of your body show up better.
- A CT scan costs more and takes more time than a regular x-ray. It can be done in either a hospital setting or an outpatient imaging center.

c. Magnetic Resonance Imaging

- Magnetic resonance imaging (MRI) is another diagnostic imaging technique that **produces cross-sectional images of your body.**
- Unlike CT scans, MRI works without radiation.
- The MRI tool uses magnetic fields and a sophisticated computer to take high-resolution pictures of your bones and soft tissues. Tell your doctor if you have a pacemaker, implants, metal clips, or other metal objects in your body before you undergo an MRI scan because it is electromagneti

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- You lie as motionless as possible on a table that slides into the tube-shaped MRI scanner. The MRI creates a **magnetic field around you and then pulses radio waves** to the area of your body to be pictured. The radio waves cause your tissues to **resonate.**
- A **computer records the rate at which your body's various parts (tendons, ligaments, nerves, etc.) give off these vibrations,** and translates the data into a detailed, two-dimensional picture. You will not feel any pain while undergoing an MRI, but the machine may be noisy.
- An MRI may be used to help diagnose torn knee ligaments and cartilage, torn rotator cuffs, herniated disks, osteonecrosis, bone tumors, and other problems.
- It may take from 30 to 60 minutes to do the study. Like a CT scan, an MRI scan may be done in a hospital or at an outpatient imaging center.

- To enhance visualization of anatomic structures, **intravenous (IV) contrast agent** may be used.
- During the MRI, the patient must lie still and will hear a rhythmic knocking sound.
- Patients who experience claustrophobia may be unable to tolerate the confinement of closed MRI equipment without sedation. Open MRI systems are available, but they use lower-intensity magnetic fields, which produce lower quality images.
- Advantages of open MRI include increased patient comfort, reduced problems with claustrophobic reactions, and reduced noise.

Other Imaging Studies

- Other orthopaedic imaging studies include ultrasound and bone scan (nuclear imaging).

a. ultrasound

- Ultrasound uses high-frequency sound waves that echo off the body. It is painless and noninvasive, and does not require radiation.
- Ultrasound is used in the detection of soft tissue abnormalities, synovial (Baker's) cysts, rotator cuff tears and various tendon injuries.
- The advantage of an ultrasound is that it is a relatively simple test to perform.
- The disadvantage is that the image quality may not be as detailed as an MRI, and the clarity sometimes depends on the expertise of the person performing the test.

- The technique has the advantage of being safe, using non-ionizing radiation, being repeatable, painless and requiring little, if any, pre-preparation of the patient.
- It is also possible to carry out the examination at the patient’s bedside and to evaluate a series of organs in a relatively short period of time.
- Ultrasound is used in many different situations, including diagnosing pathology in abdomen, neck, breast, brain, musculoskeletal.

b. Bone Scan

- A bone scan uses a **small amount of radioactive material to identify areas of increased bone activity**. The material is injected into a vein and circulated throughout the body and is absorbed by areas that are forming new bone, such as a healing fracture, bone tumor, or bone infection.
- By using a machine called a Geiger counter, the physician can track this material and detect any areas of inflammation throughout a bone or body part.
- The scan is done several hours after the injection. The radioactive material is eliminated quickly from the body.
- A bone scan has the advantage of showing bone activity throughout the entire body.

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- It is useful in demonstrating malignant deposits and evaluation of Paget’s disease.
- Increased uptake also occurs in osteoarthritic joints and also in inflammatory arthropathies, but these abnormalities can easily be distinguished from malignant disease

c. Arthrography

Arthrography is useful in identifying acute or chronic tears of the joint capsule or supporting ligaments of the knee, shoulder, ankle, hip, or wrist.

A radiopaque contrast agent or air is injected into the joint cavity to visualize irregular surfaces. The joint is put through its range of motion to distribute the contrast agent while a series of x-rays is obtained.

If a tear is present, the contrast agent leaks out of the joint and is evident on the x-ray image. After an arthrogram, a compression elastic bandage is applied as prescribed and the joint is usually rested for 12 hours.

Other radiologic tests which may be non-orthopaedic

Arteriography and venography

- An X-ray film is taken after a radiopaque contrast has been injected into a blood vessel – coronary arteriography, e.g. coronary artery disease

  – cerebral angiography, e.g. aneurysm after subarachnoid haemommorhage

Positron emission tomography (PET)

- This scanning uses radio-nuclide which decays by emission of positrons.
- Fluorine18 deoxy glucose is used for this and areas of increased glucose uptake detected (vascular tumour).
- It is helpful to locate tumour and to demonstrate large vessel vasculitis.
- It can be used with CT/ MRI.

Endoscopy

- Internal organs are directly visualized, usually with a flexible fibreoptic endoscope.

Gastroscopy

- A flexible scope is inserted by mouth after intravenous diazepam for direct vision of oesophagus, stomach and duodenum).

Proctoscopy

- With the patient lying in a left lateral position on one side, with knees and hips flexed, a short tube is introduced through the anus with a removable obturator lubricated with a gel. To investigate:
  - rectal bleeding
  - haemorrhoids or anal carcinoma

Bronchoscopy

After intravenous diazepam, the major bronchi are observed.

To investigate:

- haemoptysis or suspected bronchial obstruction
- bronchial carcinoma and for clearing obstructed bronchi, e.g. plug of mucus

Sigmoidoscopy

- With the patient in left lateral position, either a rigid tube with a removable obturator or a flexible fibreoptic endoscope is introduced.
- Bowel is kept patent with air from a hand pump.
- To investigate:
  - bleeding, diarrhoea or constipation
  - ulcerative colitis, other inflammatory bowel disease or carcinoma inflamed area or lumps can be biopsied

Colonoscopy

After the bowel is emptied with an oral purgative and a washout if necessary, the whole of the colon and possibly the terminal ileum can be examined.

To investigate:

- bleeding, diarrhoea or constipation
- inflammatory bowel disease, polyps or carcinoma

Bronchoscopy

After intravenous diazepam, the major bronchi are observed. To investigate:

– haemoptysis or suspected bronchial obstruction

—bronchial carcinoma and for clearing obstructed bronchi, e.g. peanuts, plug of mucus

Laparoscopy

- After general anaesthetic, organs can be observed through a small abdominal incision, aspirated for cells or organisms, or biopsied.
- Laparoscopic surgery includes sterilization, ova collection for in vitro fertilization and laparoscopic cholecystectomy.

Cystoscopy

- After local anaesthetic, a cystoscope is inserted into the urethral meatus.
- To investigate:
  - urinary bleeding or poor flow
  - bladder tumours
  - under direct vision, catheters can be inserted into ureters for retrograde pyelograms

Colposcopy

Examination of cervix, usually to take a cervical smear. To investigate: – premalignant changes or crance

Biopsies

Core biopsy

- A small core of tissue is obtained through needle puncture of organs for histological diagnosis.
- To investigate:
  - liver
  - cirrhosis, alcoholic liver disease, chronic active hepatitis
  - kidney
  - glomerulonephritis, interstitial nephritis
  - lung
  - fibrosis, tumours, tuberculosis

Fine-needle aspiration

- A technique to obtain cells for diagnosis of tumours or for microbiological diagnosis.
- The needle position is guided by ultrasound, computed tomographic (CT) scan or magnetic resonance imaging (MRI) scan.
- For investigation of many unexplained lumps, e.g. pancreas or breast lumps, to diagnose carcinoma.

Diagnostic laboratory tests

- Lab tests can help to identify a number of injuries and disease processes that a patient may be experiencing in addition to an injury. These tests include:
  - Arterial blood gases (ABGs)
  - Complete blood count (CBC)
  - Erythrocyte sedimentation rate (ESR)
  - Blood cultures
  - Urinalysis
  - Rheumatoid factors

Erythrocyte sedimentation rate

- This test, also called "sed rate," determines if you have inflammation. The sedimentation rate can measure the amount of inflammation present.
- The test measures how fast red blood cells cling together, fall, and settle toward the bottom of a glass tube in an hour's time, like sediment. The higher the sedimentation rate, the greater the amount of inflammation.
- As inflammation responds to medication, the sedimenation rate usually goes down. Another test used to measure this is the C-Reactive Protein (CRP) test.