SNS COLLEGE OF ALLIED HEALTH SCIENCE

Affiliated to The Tamil Nadu Dr. M.G.R Medical University, Chennai

DEPARTMENT OF RADIOGRAPHY AND IMAGING TECHNOLOGY

COURSE NAME :CONTRAST AND SPECIAL RADIOGRAPHY

PROCEDURES

UNIT : GERIATRIC RADIOGRAPHY

TOPIC : INTRODUCTION TO POSITIONING

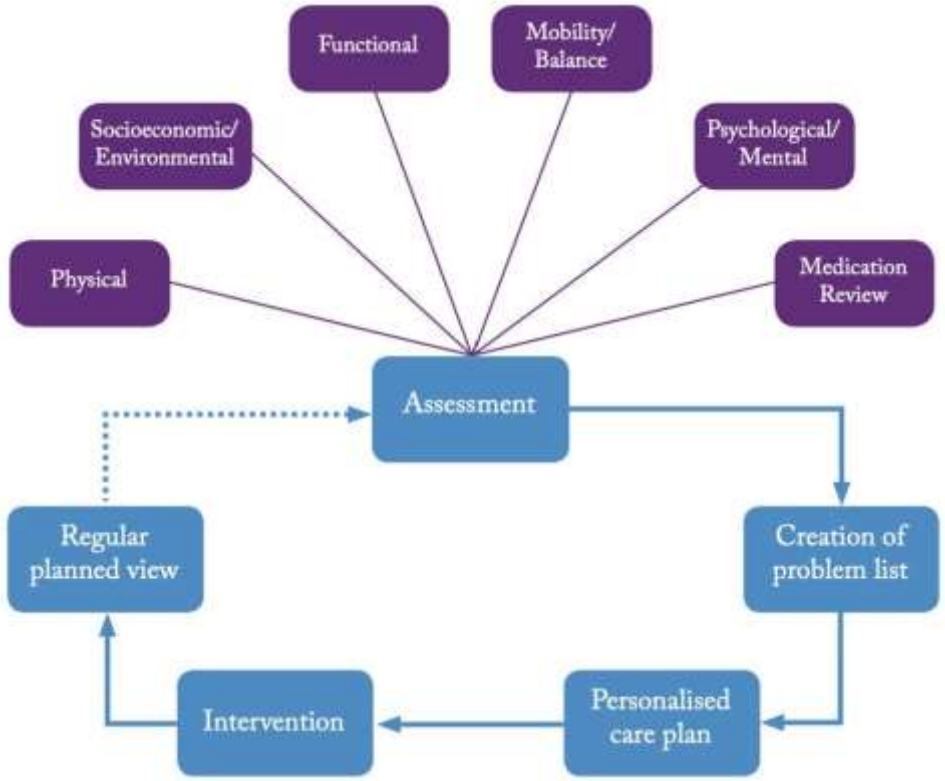
FACULTY NAME : MRS.G.HELANA JOY

INTRODUCTION (Define)

The branch of medicine that deals with all aspects of aging,including pathological and social problems.From a chronological viewpoint, medical treatment of the elderly (geriatrics) starts from the age of 65 years old

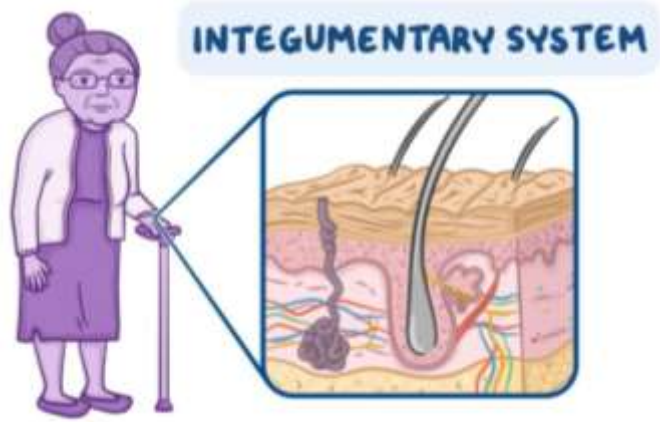
PRINCIPLES OF GERIATRIC

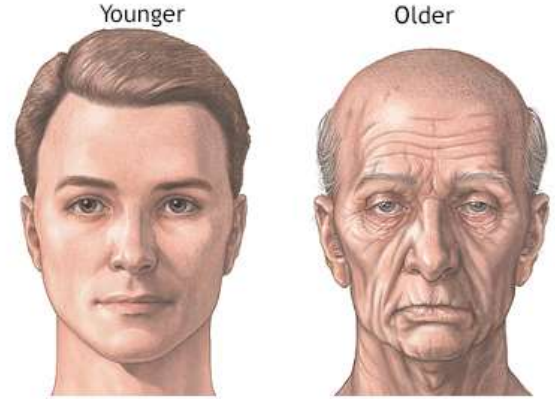
The basic principle of geriatric care is mainly to help identify functional impairments in the elderly and to find ways to maximize their residual function.

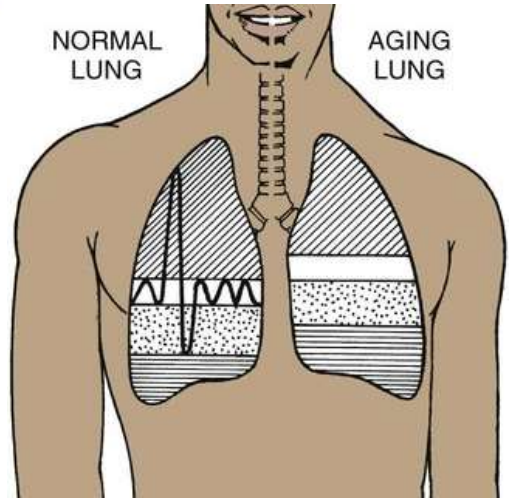


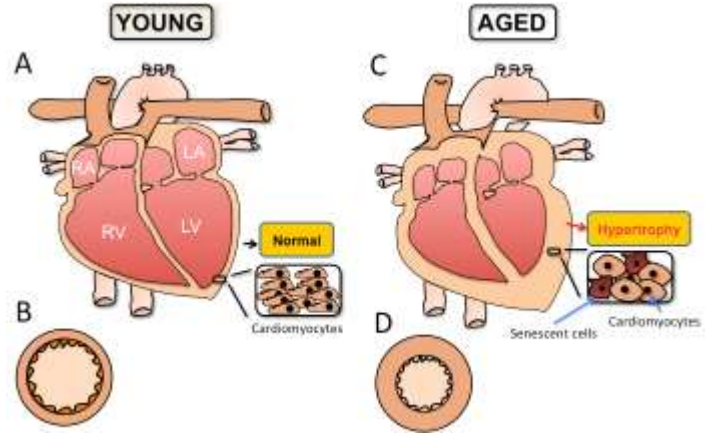
CHANGES ASSOCIATED WITH AGING

- Integumentary System
- Head and Neck
- Pulmonary System
- The Cardiovascular System

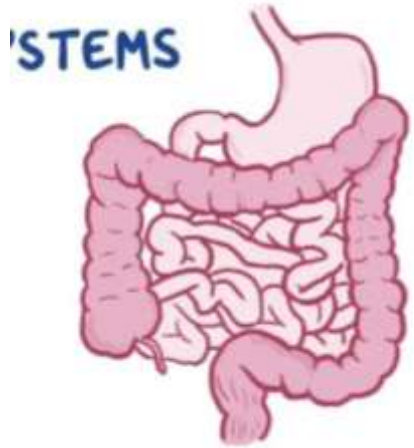


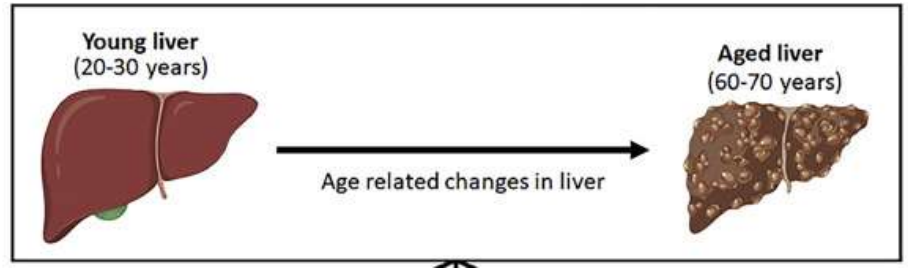


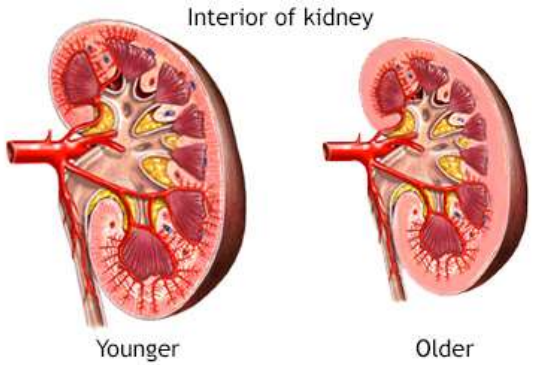


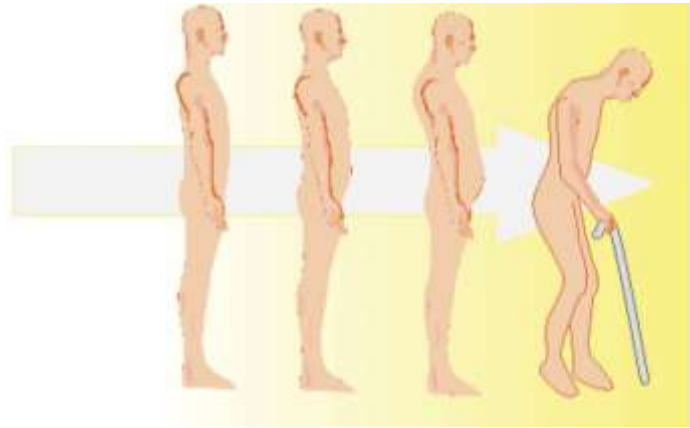


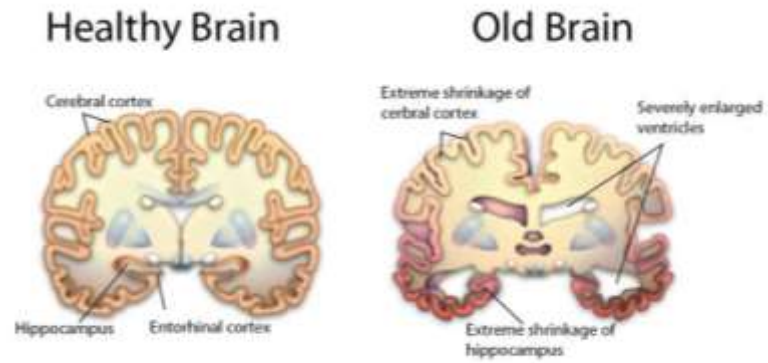
- The Gastrointestinal System
- The Hepatic System
- The Genitourinary System
- Musculoskeletal System
- The Neurologic System











INTEGUMENTARY SYSTEM

- The skin wrinkles,becomes lax.
- The vascularity of the dermis decreases,and the skin of white people begins to look paler and more opaque.
- Skin on the back of the hands and forearms becomes thin and fragile.
- Nails lose their luster and may yellow and thicken,especially the toenails.

- Hair loses its pigment and begins to gray.
- Hair patterns changeb and the hair becomes thin and more brittle.
- There is hair loss on the scalp and other body areas.

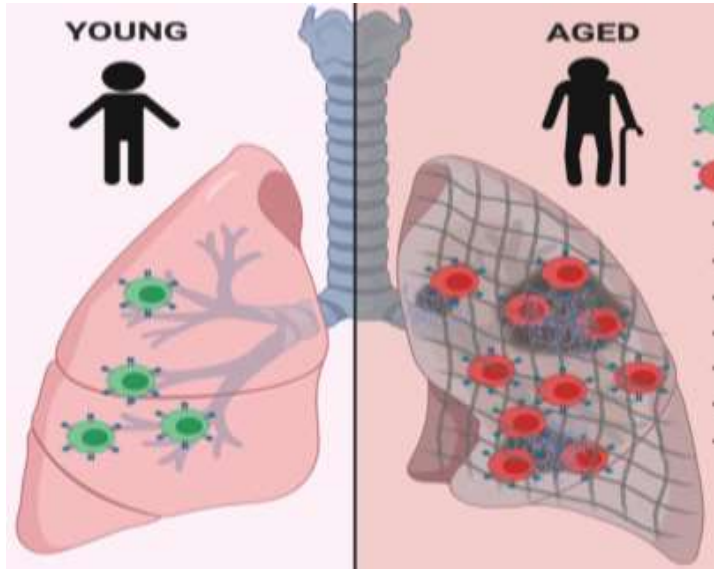
CHANGES IN THE HEAD AND NECK

- There is mild loss of visual acuity,particularly **presbyopia.**
- The light-sensing threshold is affected and adaptation from light to dark and color preception diminish.
- Tear production is either reduced or increased.
- The skin of the eyelid loosens and the muscle tone dcecreases.

- Sensory,neural and conductive changes occur in the ear.
- Hearing loss is common.
- There is a loss of muscle mass in the neck.
- There is an accentuated forward upper thoracic curve,which may result in **kyphosis**.

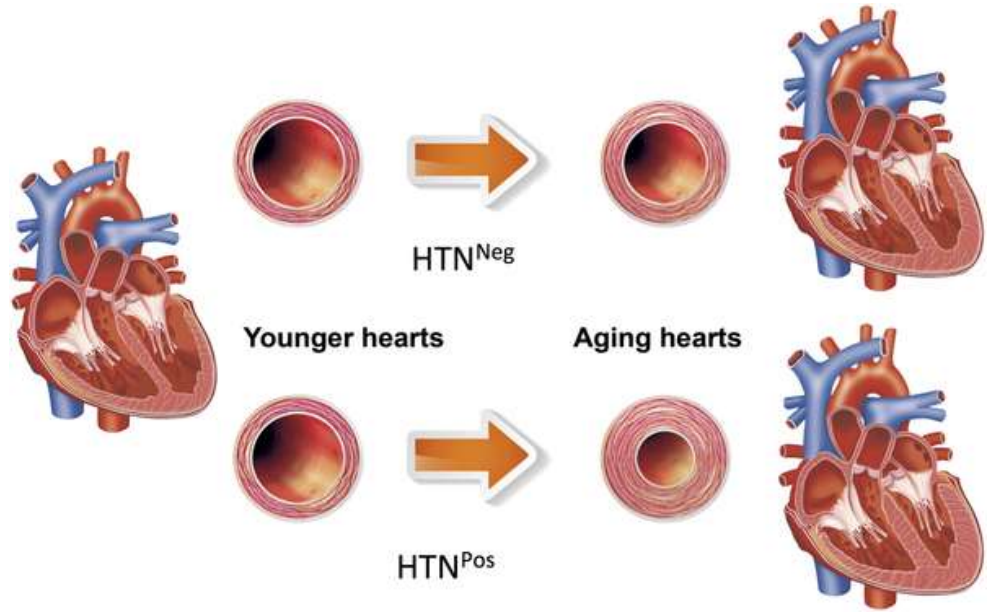
PULMONARY SYSTEM

- Pulmonary function changes with age;lung capacity diminishes owing to stiffening of the chest wall,among other changes.
- The cough reflex becomes less effective.
- The normal respiratory defense mechanisms lose effectiveness.



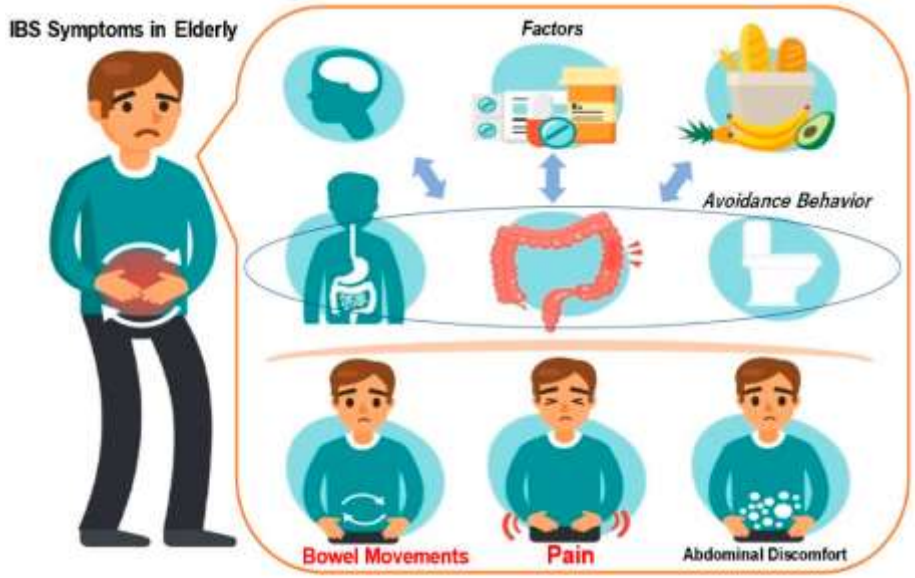
THE CARDIOVASCULAR SYSTEM

- Structural changes occur in the heart as aging progresses.
- The coronary arteries calcify and lose elasticity.
- The aorta and its branches dilate and elongate ; the heart valve thickens.
- There is a decline in coronary blood flow.



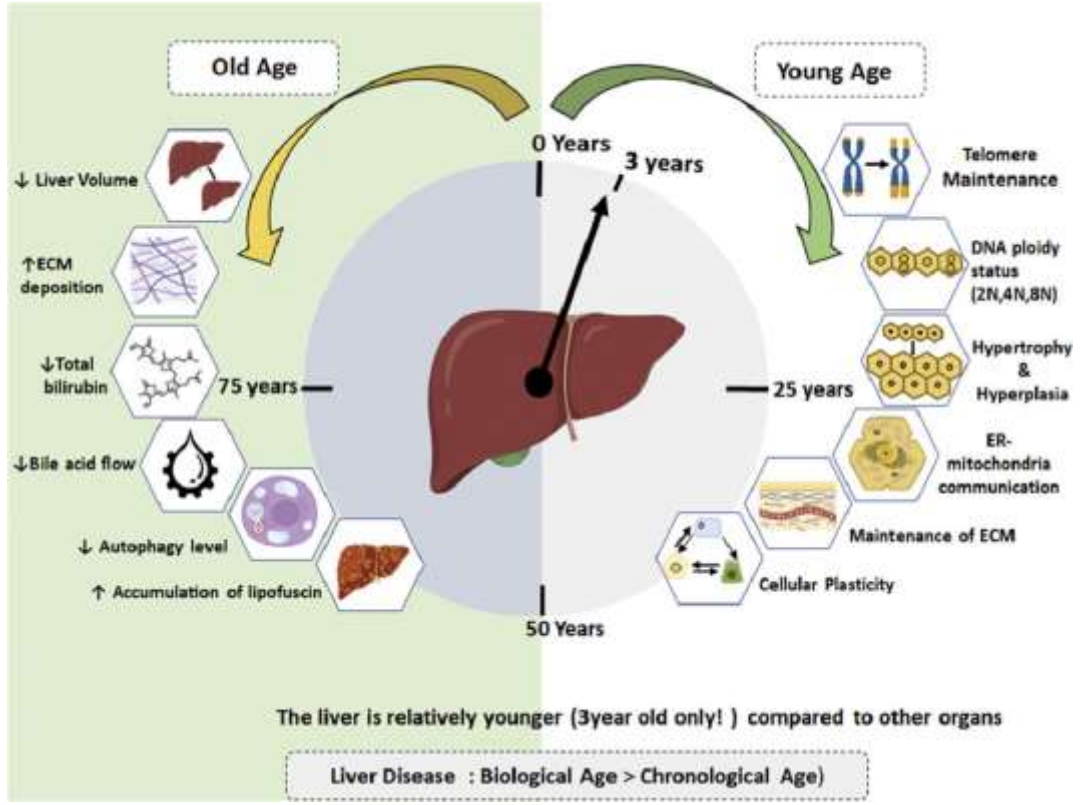
THE GASTROINTESTINAL SYSTEM

- Gastric secretion,absorption and motility decrease.
- There is a predisposition to dryness of the mouth and swallowing reflex becomes less effective.
- The abdominal muscles weaken.
- Absorption of iron,vitamin B12 and folate decreases with resulting potential for anemia.
- Esophageal motility declines.
- The tone of the internal anal sphincter decreases.



THE HEPATIC SYSTEM

- Liver size decreases.
- Enzyme activity and the synthesis of cholestrol decrease.
- Bile storage is reduced.



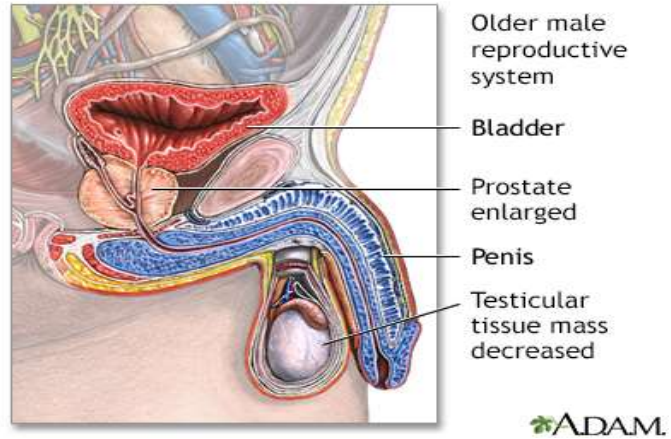
THE GENITOURINARY SYSTEM

Normal changes of aging : Women

- Muscle tone and bladder capacity decreases.
- Vaginal atrophy occurs.
- Involuntary bladder contractions increase.

Normal changes of aging : Men

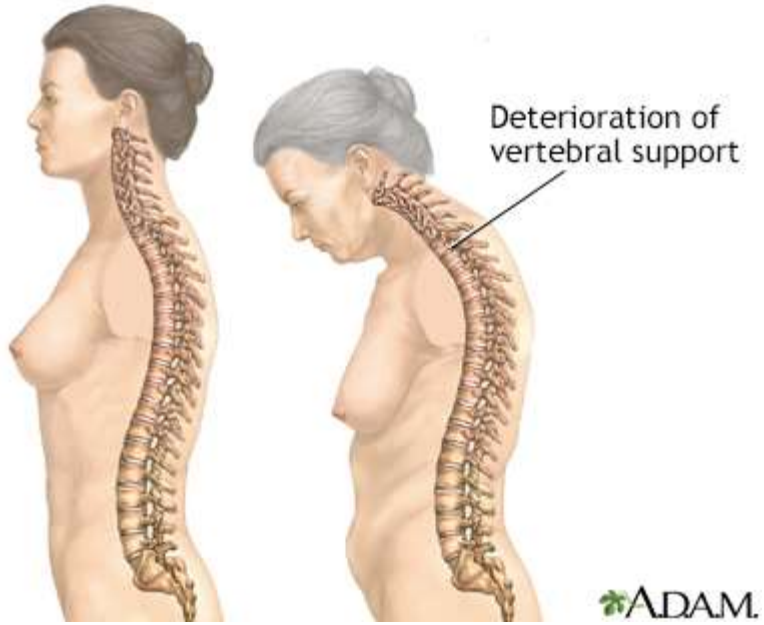
- The prostate gland enlarges.
- The capacity of the urinary bladder is reduced by 500 to 900 ml.
- The size of the penis and testes is decreased,owing to sclerosis of blood vessels.



MUSCULOSKELETAL SYSTEM

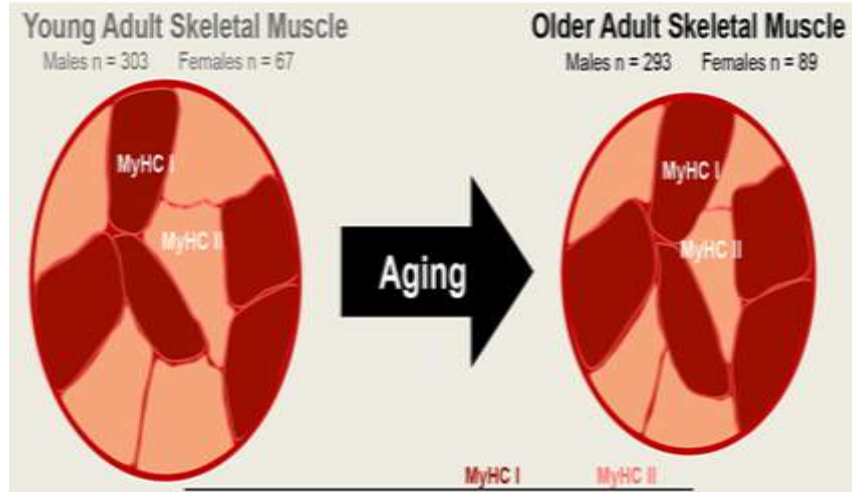
- Bone mass is reduced and bones become weaker.
- Muscle mass decreases.Muscle cell decrease in number and are replaced by fibrous connective tissue.
- Muscle strength decreases.
- Invertebral disc shrinks and vertebrae collapse.

changes.



MUSCULOSKELETAL SYSTEM

- Articular cartilage erodes.
- The normal lordotic curve of the lower back flatters.
- Flexion and extension of the lower back are diminished.
- Placement of the neck and shaft of the femur changes.

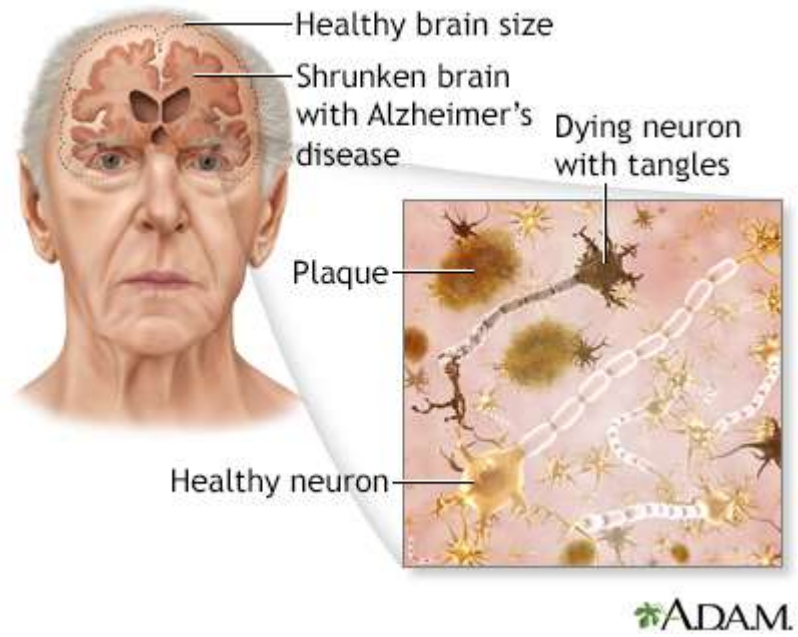


RADIOGRAPHERS RESPONSE FOR PATIENTS WHO HAD ARTHROPLASTIC SURGERY

- When the patient with a recent arthroplasty comes to the radiographic imaging department,the radiographer must understand and adhere to the limits that have been placed on the patients weight bearing and mobility of the restricted joint.
- Move patients who have had hip,knee or ankle arthroplasty to and from the department by gurney.They cannot get onto and off the radiographic table without placing weight on the aaffected limb.Move patient toward their affected side in this situation.
- After hip arthroplasty,do not allow the patient’s affected leg to adduct (move toward the center of the body).Keep a pillow or block between the legs to prevent this.

THE NEUROLOGIC SYSTEM

- Brain Structure & Function
- Memory & Cognition
- Processing Speed & Reaction Time
- Sensory Changes
- Motor & Sensorimotor Function
- Sleep Changes
- Autonomic Nervous System



IMPLICATIONS FOR THE RADIOGRAPHERS

•**Integumentary**: Handle skin gently; avoid trauma, tape burns, or pinching as skin is thin, fragile, and heals slowly.

•**Head & Neck**: Speak clearly and loudly (without shouting); assist with sudden lighting changes; confirm understanding of instructions; allow time for visual/auditory adaptation.

•**Pulmonary**: Expect quick fatigue and dyspnea; limit supine positioning; instruct full second inspiration for chest exams; give contrast slowly in upright position to prevent aspiration.

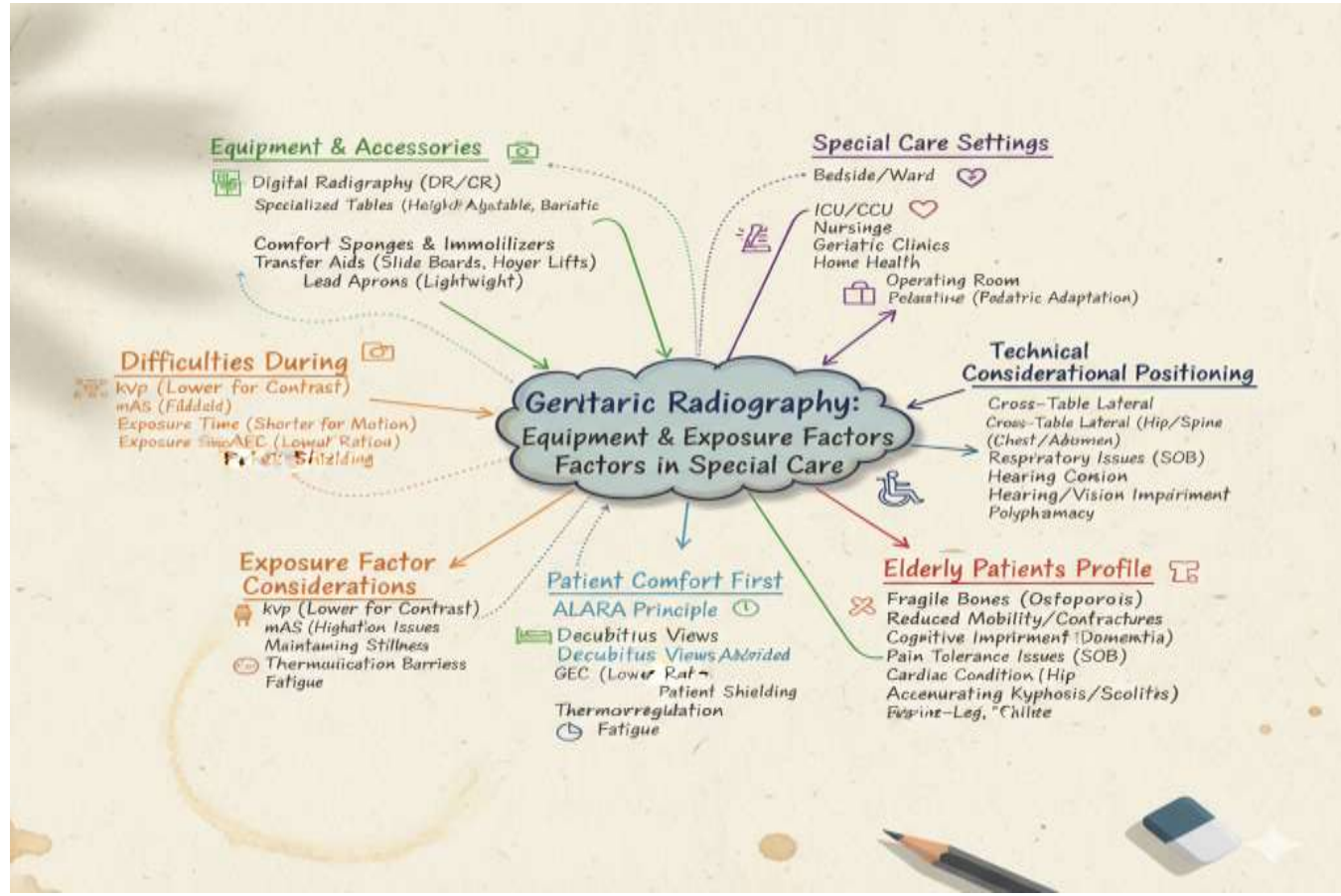
•**Cardiovascular**: Work efficiently to minimize fatigue; provide rest breaks; keep patient warm with blankets to prevent chilling/hypothermia.

•**Gastrointestinal**: Schedule fasting exams early morning; give oral contrast slowly in upright position; watch for choking or aspiration risk.
•**Hepatic**: Be alert for adverse drug/contrast reactions due to reduced liver metabolism and higher toxicity risk.
•**Genitourinary**: Offer bedpan/urinal readily; expect frequent urination or incontinence; have assistance available.
•**Musculoskeletal**: Provide maximum assistance and support with sponges/pillows; move slowly; prevent falls; respect post-arthroplasty restrictions (no adduction or >90° flexion of hip/knee, use pillow between legs, transport by gurney).
•**Neurologic**: Allow extra time for instructions and movements; increase safety awareness (patient feels less pain and reacts slower); ensure good lighting for steps/stools; confirm comprehension.

DONT'S

- **Physical Abuse** : Intentional use of physical force against an elder.
- **Sexual Abuse** : Any non-consensual sexual contact or activity with an elderly person.
- **Emotional/Psychological Abuse** : Verbal or nonverbal acts that cause emotional pain, anguish, or distress.
- **Financial Abuse/Exploitation :** Illegal, unauthorized, or improper use of an elder's money, property, or assets.

SUMMARY


Geriatric Radiography:
Equipment & Exposure Factors
Factors in Special Care
Equipment & Accessories
Digital Radiography (DR/CR)
Specialized Tables (Height Adjustable, Bariatric
Comfort Sponges & Immobilizers
Transfer Aids (Slide Boards, Hoyer Lifts)
Lead Aprons (Lightweight)
Special Care Settings
Bedside/Ward
ICU/CCU
Nursing
Geriatric Clinics
Home Health
Operating Room
Pediatrics (Pediatric Adaptation)
Technical Considerational Positioning
Cross-Table Lateral
Cross-Table Lateral (Hip/Spine
(Chest/Abumen)
Respiratory Issues (SOB)
Hearing Conion
Hearing/Vision Impairment
Polypharmacy
Difficulties During
kvp (Lower for Contrast)
mAS (Fiddeld)
Exposure Time (Shorter for Motion)
AEC (Lowest Ration)
Exposure Factor Considerations
kvp (Lower for Contrast)
mAS (Highation Issues
Maintaining Stillness
Thermuuication Barriess
Fatigue
Patient Comfort First
ALARA Principle
Decubitus Views
Decubitus Views Abbridged
Patient Shielding
Thermorregulation
Fatigue
Elderly Patients Profile
Fragile Bones (Osfoporois)
Reduced Mobility/Confractures
Cognitive Imprirment (Domentia)
Pain Tolerance Issues (SOB)
Cardiac Condition (Hip
Accenurating Kyphosis/Scolites)

References

- https://radiologykey.com/geriatric-radiography/
- https://en.wikipedia.org/wiki/Geriatrics