COURSE NAME : EXERCISE THERAPY – I

COURSE CODE : 746278

TITLE : INTRODUCTION TO EXERCISE THERAPY

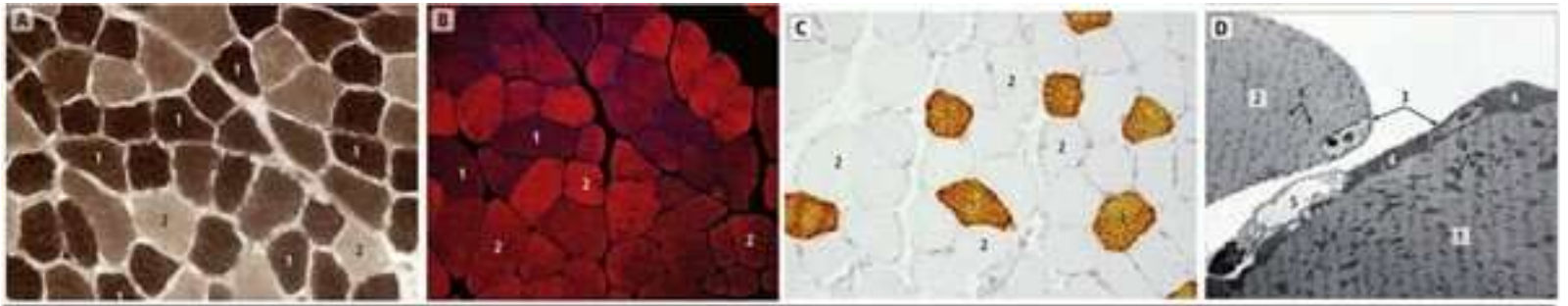
NAME : EZHILARASU T

DESIGNATION : ASSOCIATE PROFESSOR


INTRODUCTION TO
EXERCISE THERAPY

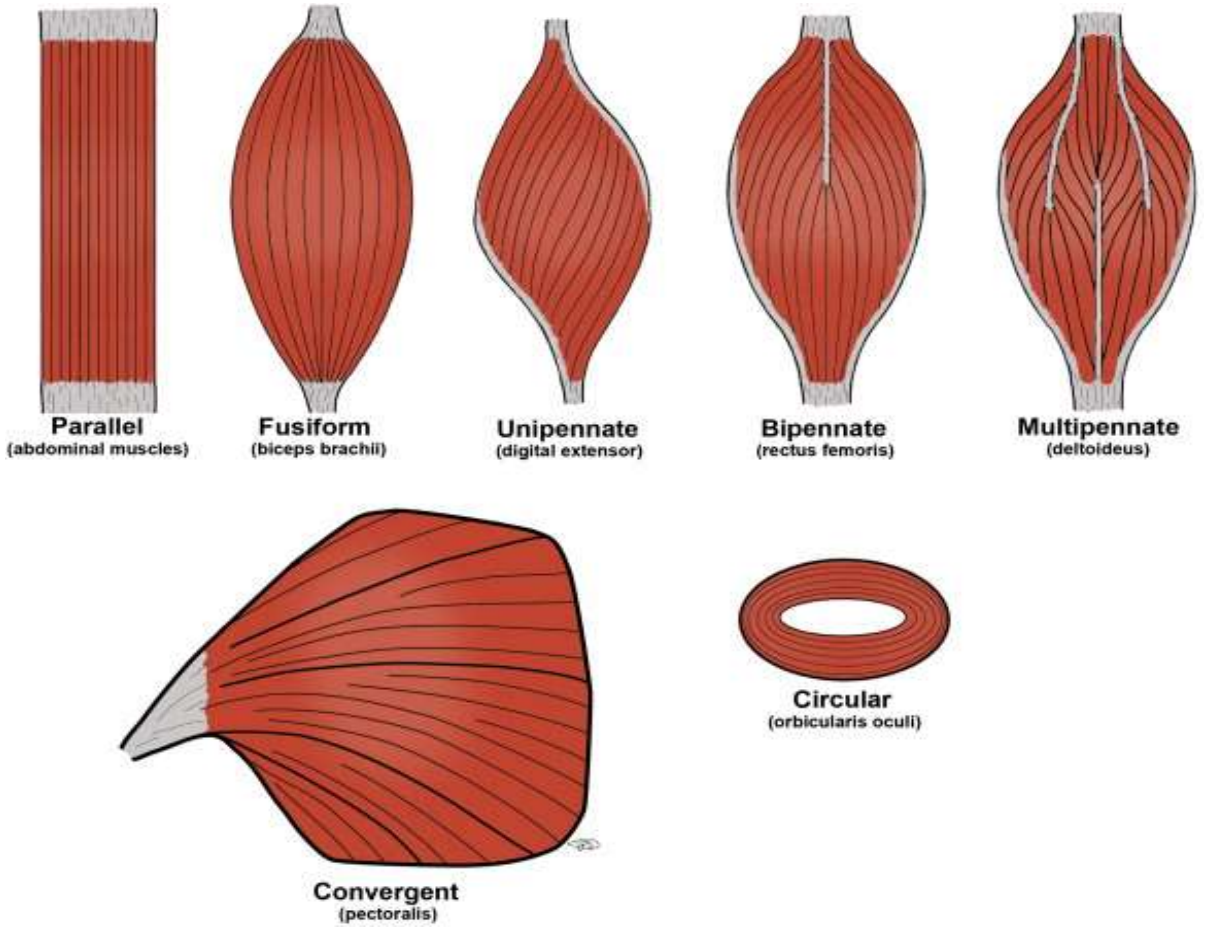
EFFECTS OF THERAPEUTIC EXERCISE

TYPES OF SKELETAL MUSCLE FIBERS (TYPE I & TYPE II)

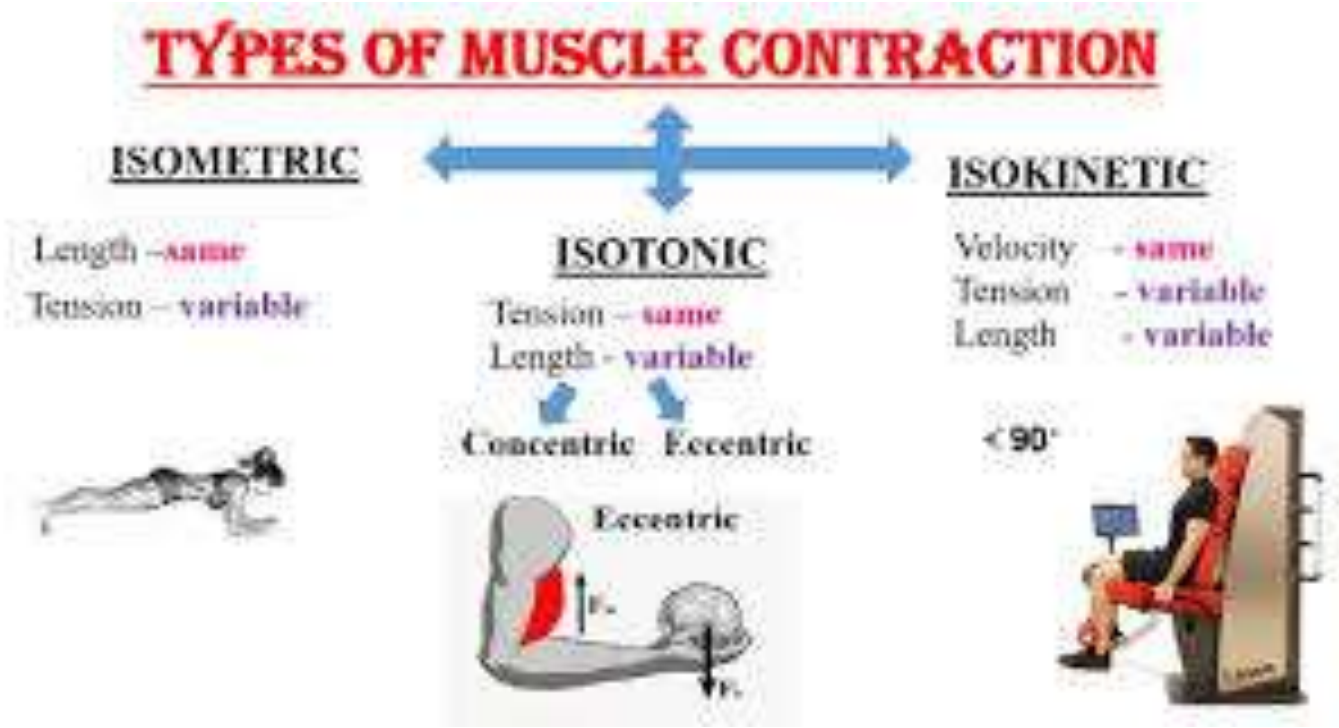


E	Type I fibers	Type IIA fibers	Type IIB fibers	Type IIX fibers
Contraction time	Slow	Moderately fast	Very fast	Fast
Resistance to fatigue	High	Fairly high	Low	Intermediate
Activity used for	Aerobic	Long-term anaerobic	Short-term anaerobic	Short-term anaerobic
Maximum duration of use	Hours	<30 minutes	<5 minutes	<1 minutes
Power produced	Low	Medium	Very high	High
Mitochondrial density	High	High	Low	Medium
Capillary density	High	Intermediate	Low	Low
Oxidative capacity	High	High	Low	Intermediate
Glycolic capaicty	Low	High	High	High
Major storage fuel	Triglycerides	Creatine phosphate, glycogen	Creatine Phosphate, glycogen	Creatine phosphate, glycogen
Myosin heavy chain Human genes	MYH7	MYH2	MYH4	MYH1

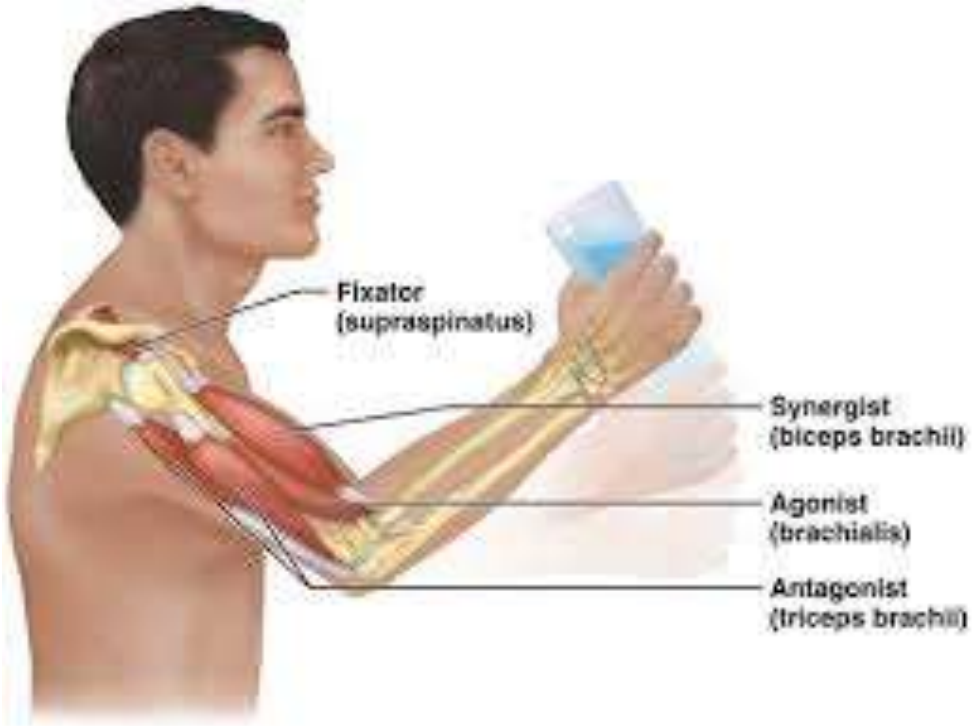
CLASSIFICATION OF MUSCLE - BASED ON ARRANGEMENT OF FASCICULE



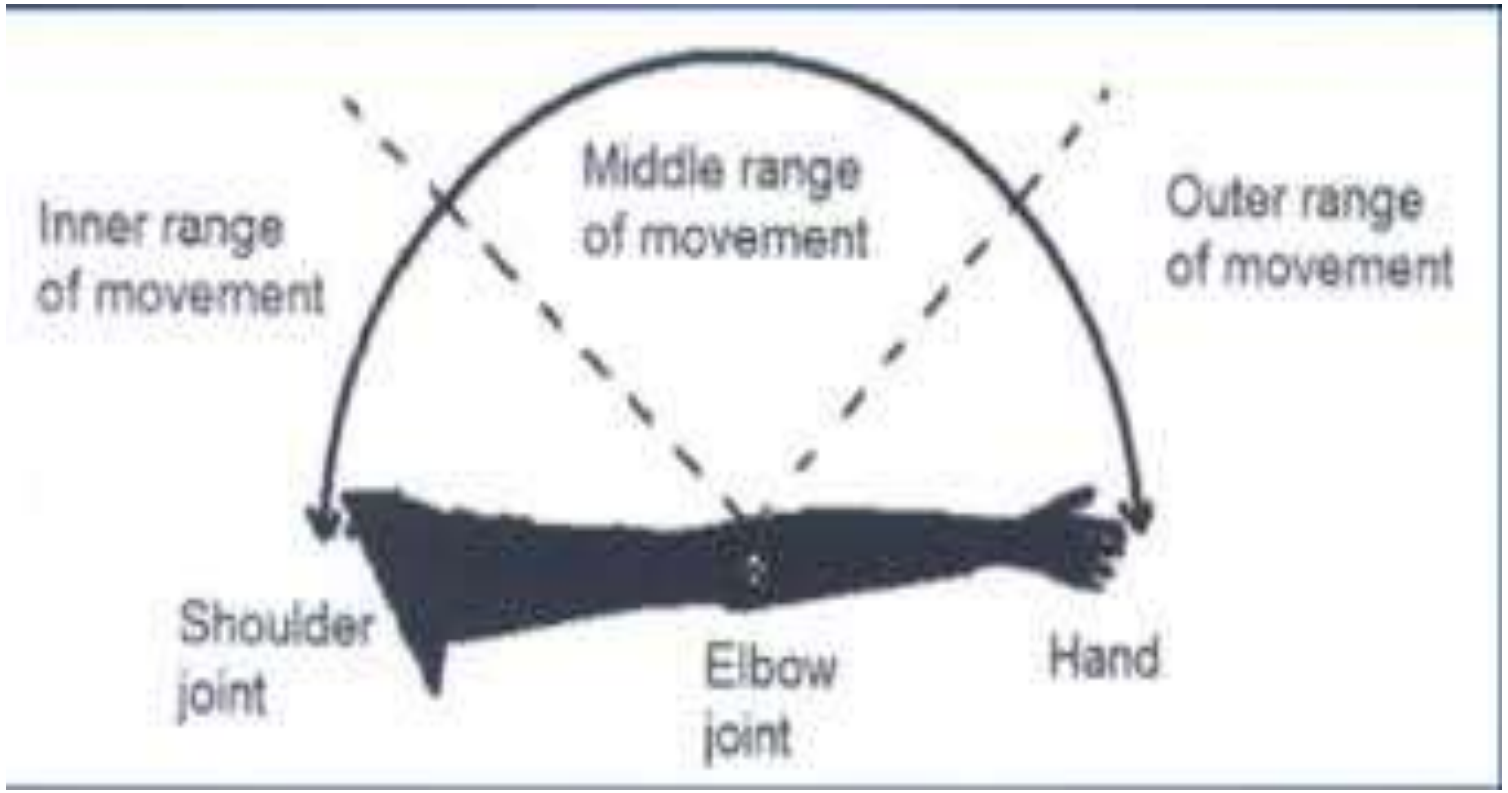
TYPES OF MUSCULAR CONTRACTION



GROUP MUSCLE ACTION



RANGE OF MUSCLE WORK



INCLASS ASSESSMENT

1. Which of the following best defines therapeutic exercise?
a) Any movement performed for recreation
b) Planned physical movement to improve health and function
c) Passive movement for relaxation only
d) Any sport or athletic competition

2. Which muscle fiber type is characterized by slow contraction speed and high fatigue resistance?
a) Type IIa fibers
b) Type IIb fibers
c) Type I fibers
d) Type I and II mixed fibers

3. The rectus femoris muscle is an example of which fascicular arrangement?
a) Strap muscle
b) Fusiform muscle
c) Bipennate muscle
d) Unipennate muscle

INCLASS ASSESSMENT

4. During an eccentric contraction:
a) Muscle shortens while producing tension
b) Muscle lengthens while controlling movement
c) Muscle maintains constant length and tension
d) No tension is produced

5. When a muscle acts to prevent unwanted movement at a joint during an action, it functions as a:
a) Agonist
b) Antagonist
c) Neutralizer
d) Stabilizer or Fixator

INCLASS ASSESSMENT

Answers

1. b) Planned physical movement to improve health and function
2. c) Type I fibers
3. c) Bipennate muscle
4. b) Muscle lengthens while controlling movement
5. d) Stabilizer or Fixator

THANK YOU!!!!

References Books:

- Kisner & Colby - Therapeutic Exercises : Foundations and Techniques
- Dina Gardiner - Exercise Therapy
- Lakshminarayan - Textbook of Therapeutic Exercises
- Roshan Meena - Exercise Therapy Principles and Practice
- Phyllis Fletcher Cook and Margaret Hollis - Practical Exercise Therapy