SNS COLLEGE OF PHYSIOTHERAPY

Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai

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COURSE NAME: ELECTROTHERAPHY

SUBJECT CODE: 6281

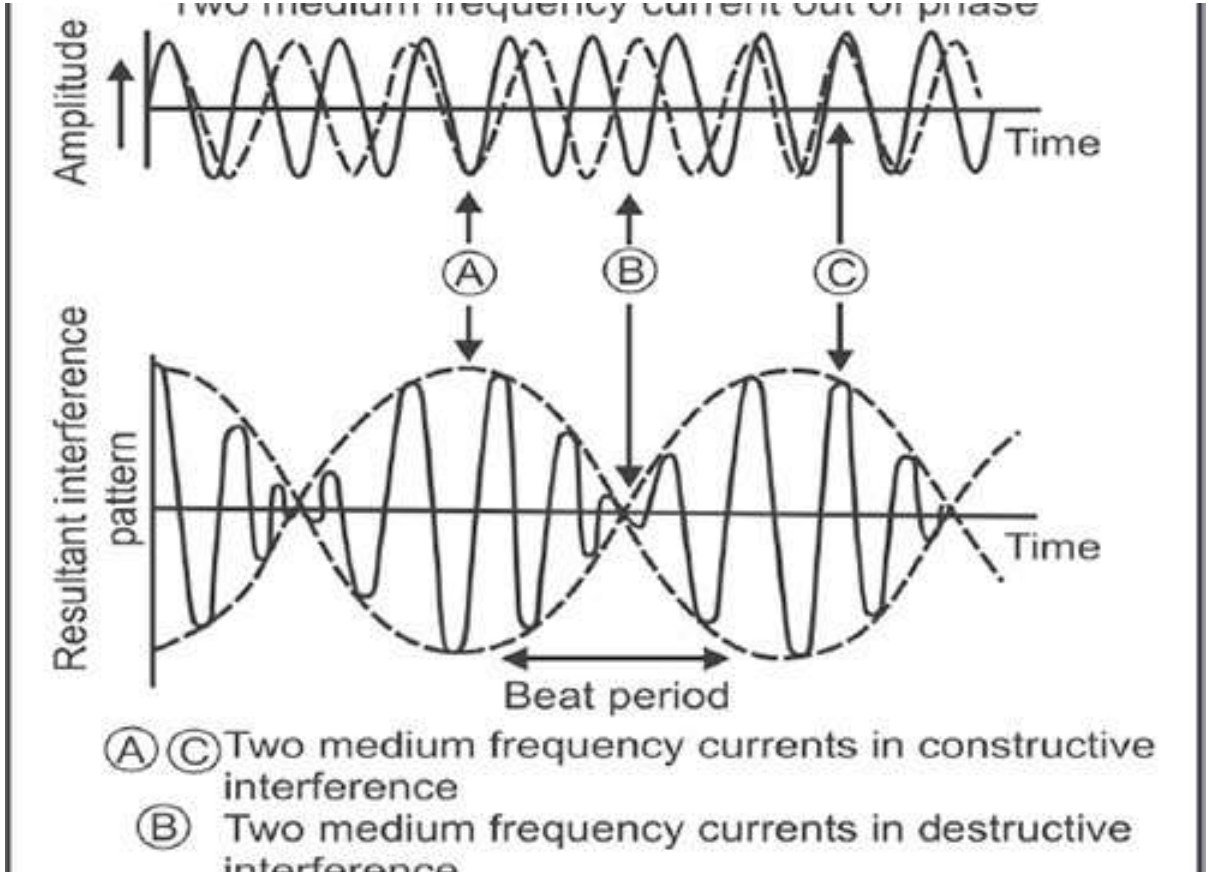
TOPIC: THERAPEUTIC CURRENT

MEDIUM FREQUENCY CURRENT

- Medium Frequency Current: 1000–10,000 Hz
- Lower skin resistance compared to low frequency currents
- More comfortable for patients

- Used mainly for:
  - Pain relief
  - Muscle stimulation
  - Edema reduction

- Examples:
  - Interferential Current (IFC)
  - Russian Current



INTERFERENTIAL CURRENT(IFC) -DEFINITION

- IFC uses two medium-frequency currents that intersect in tissues
- Interference produces a low-frequency therapeutic current
- Common carrier frequency: 4000 Hz

- Advantages:
  - Deeper penetration
  - Less discomfort
  - Effective pain relief

TYPES OF IFC

- Based on electrode arrangement:
  - 2-Pole IFC
  - 4-Pole IFC
  - Classical IFC
  - Vector IFC

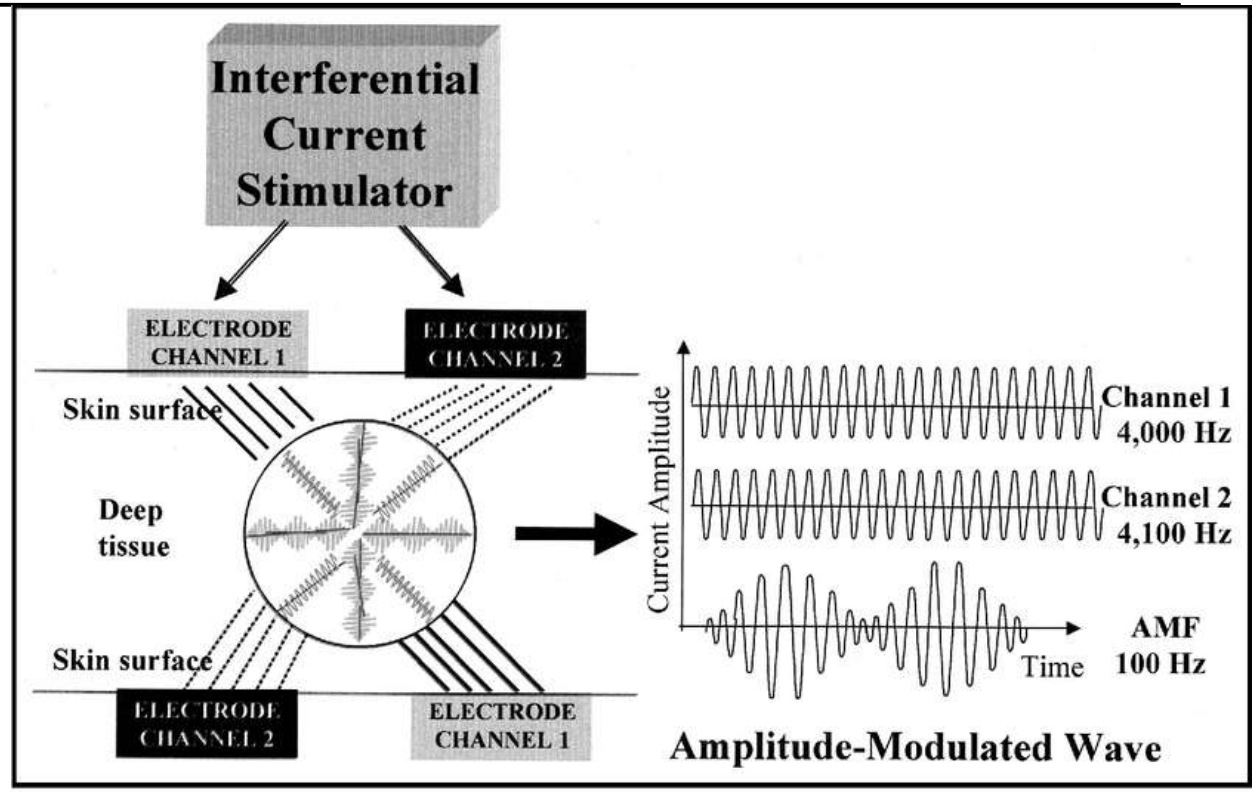


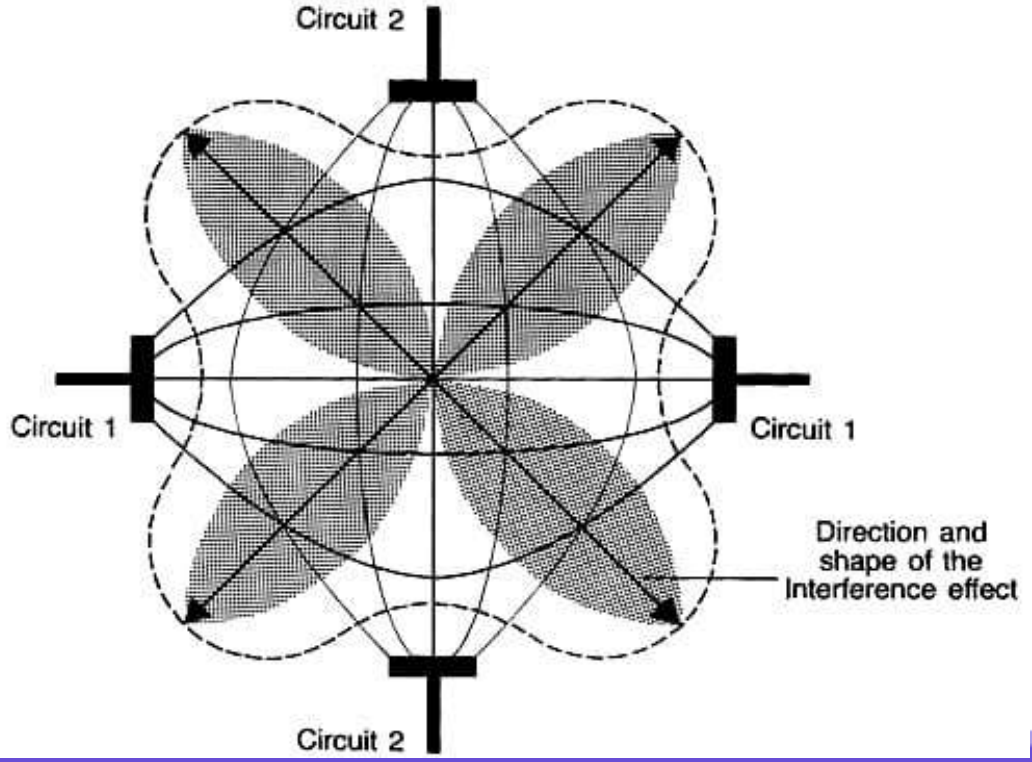
Figure 1.

2- POLE

IFC

- Uses two electrodes
- Current is pre-modulated
- Medium frequency carrier current is modulated inside the machine

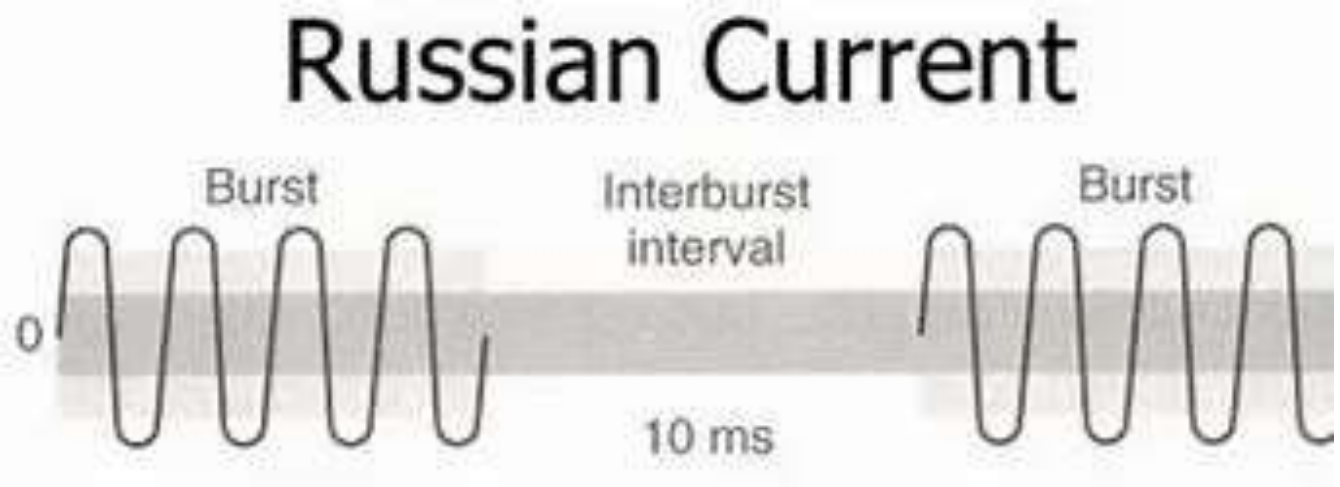
- Frequencies used:
  - Russian Current – 2000 Hz
  - Medium Frequency Current – 4000 Hz
- Uses:
  - Muscle strengthening
  - Pain relief
  - Easier electrode placement



RUSSIAN CURRENT (2000 HZ)

- Type of 2-pole IFC
- Carrier frequency: 2000 Hz
- Burst-modulated medium frequency current

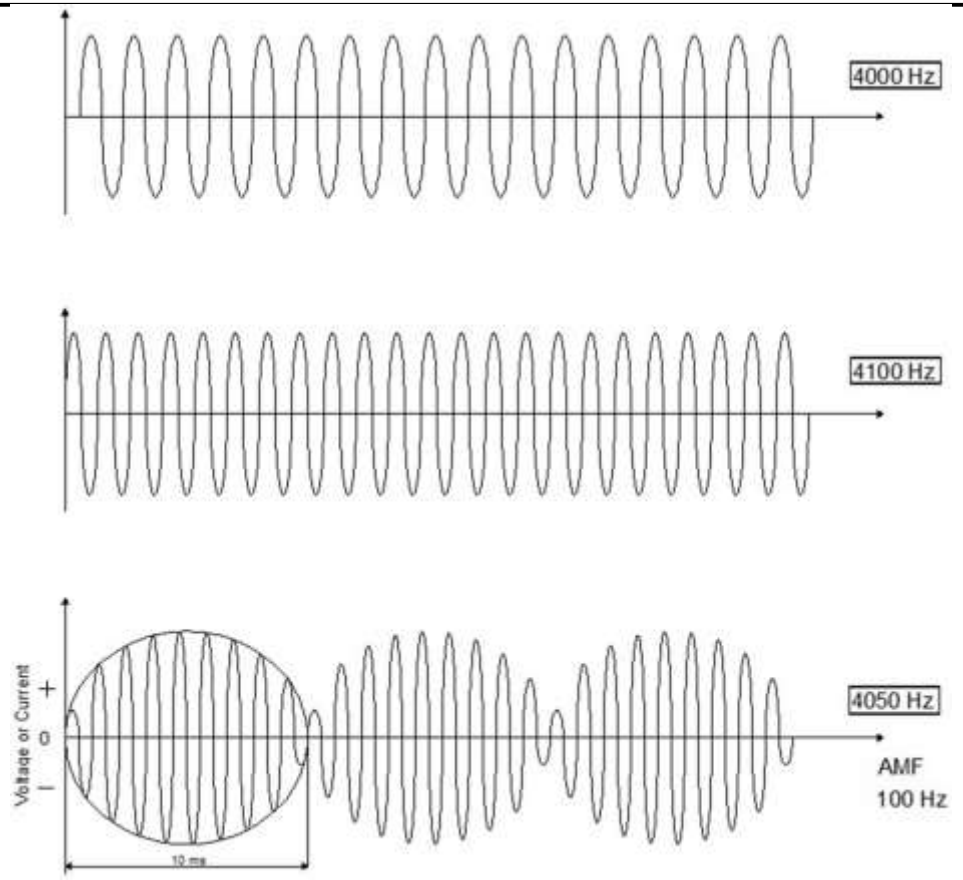
- Indications:
  - Muscle re-education
  - Muscle strengthening
  - Disuse atrophy
- Advantages:
  - Produces strong muscle contraction
  - Used commonly in sports rehabilitation



4-POLE IFC – Classical Method

- Uses four electrodes
- Two separate currents intersect at right angles
- Carrier frequency: 4000 Hz
- Beat frequency produced in tissues
- (e.g., 4000 Hz & 4100 Hz → 100 Hz)

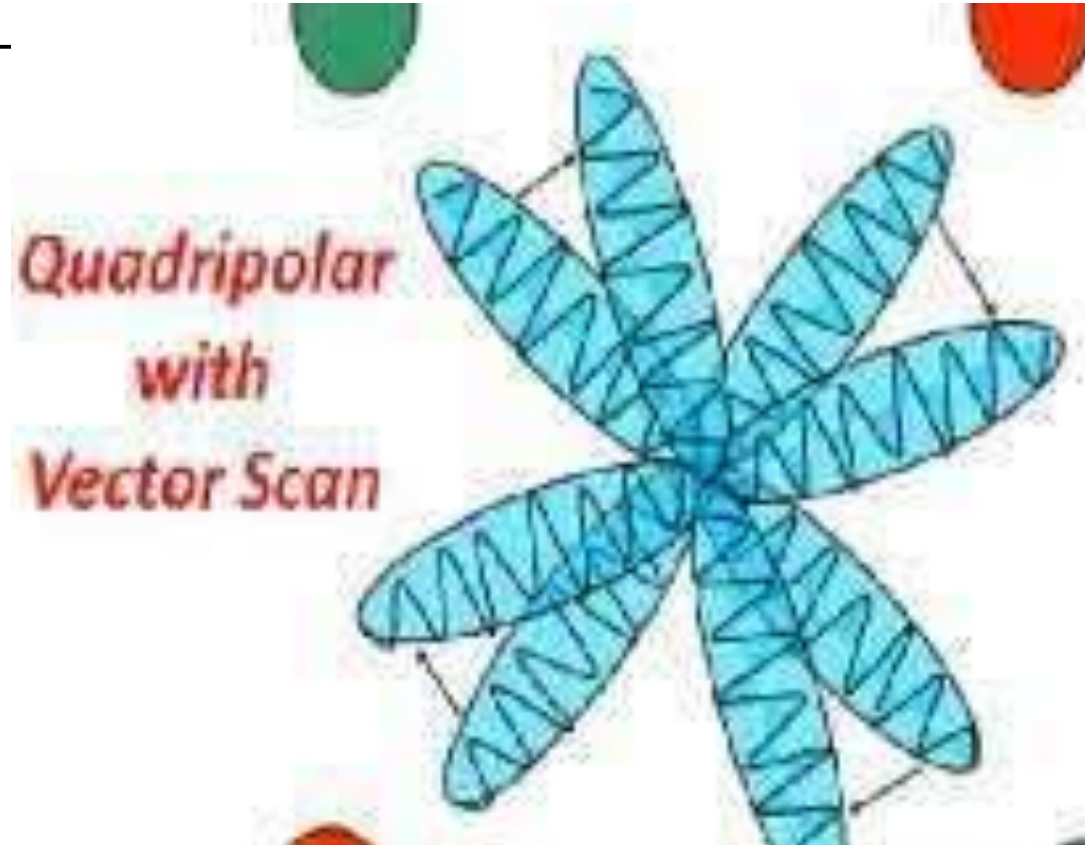
- Advantages:
  - Greater depth of penetration
  - More effective pain relief



4-POLE IFC – Vector Method

- Modification of classical 4-pole IFC
- Interference field rotates automatically
- Covers a larger treatment area

- Benefits:
  - Uniform stimulation
  - Better pain control
  - Less chance of missing the painful area



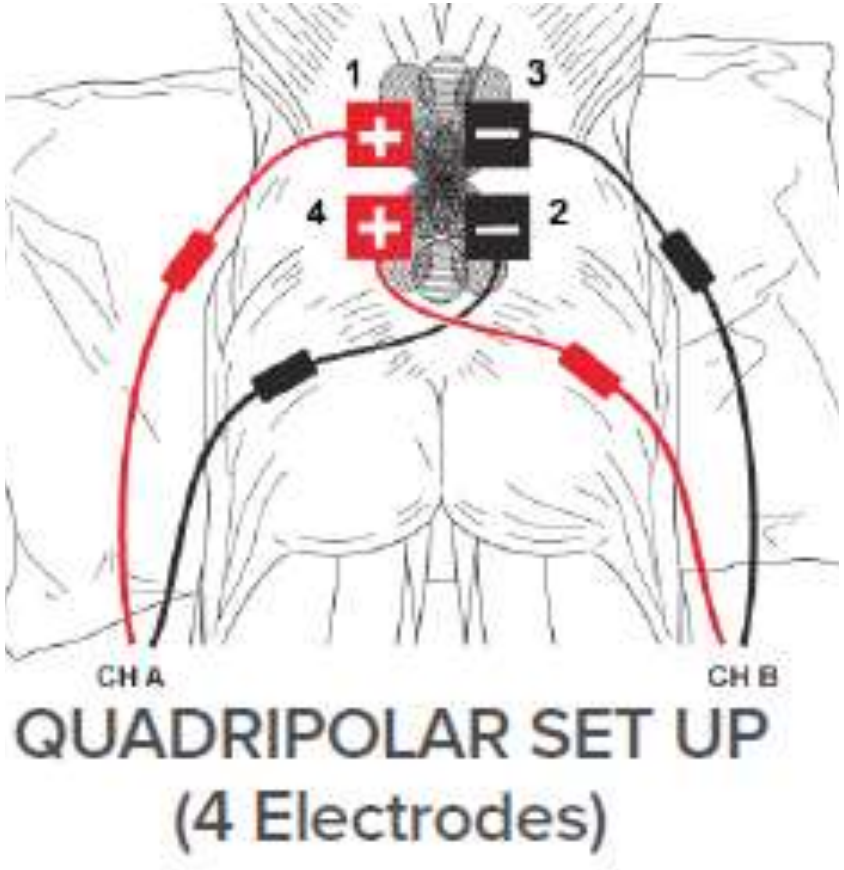
COMPARISON – 2-Pole vs 4-Pole IFC

2 - poles

- The 2-pole IFC uses two electrodes
- In 2-pole IFC, modulation of the current is pre-modulated within the machine.
- The depth of penetration in 2-pole IFC is relatively less, making it suitable for smaller and more superficial areas
- The treatment area covered by 2-pole IFC is small.
- 2-pole IFC is comfortable,

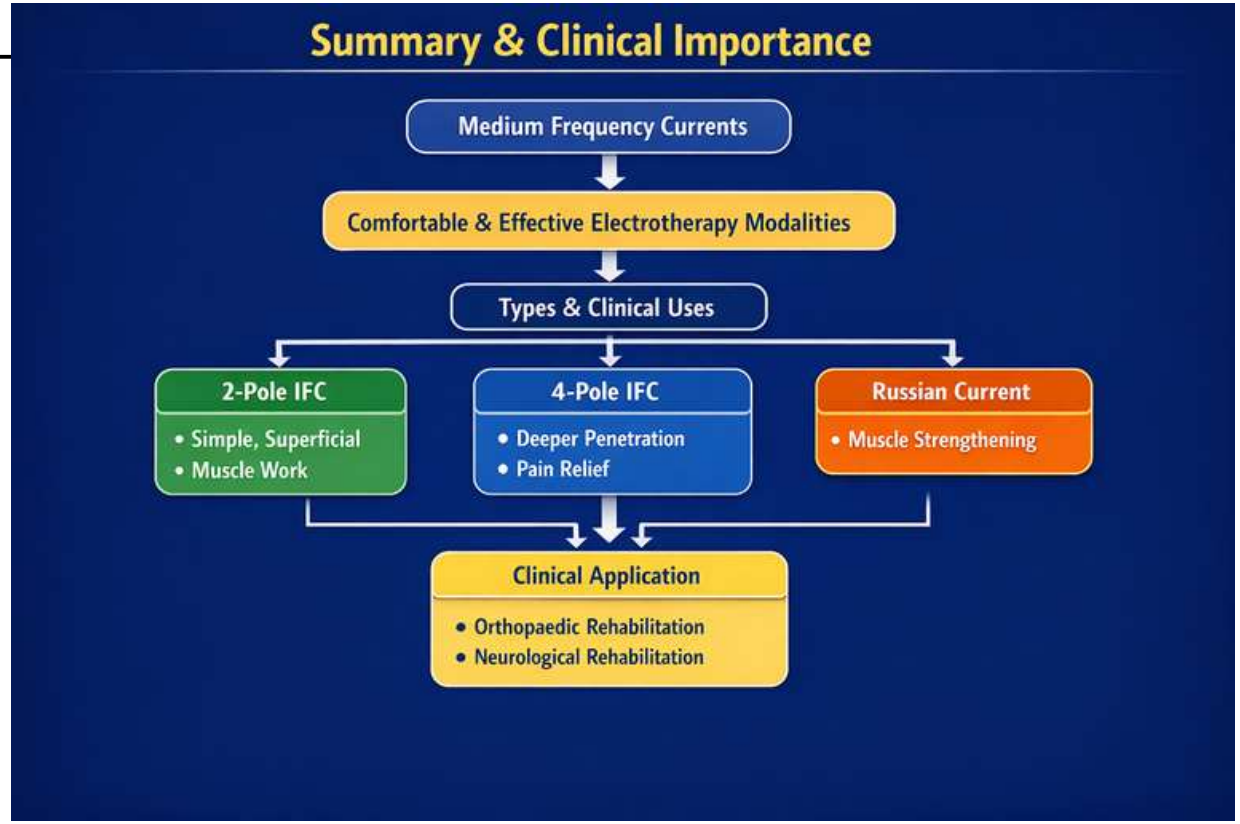
4- poles

- Whereas the 4-pole IFC uses four electrodes placed in a criss-cross pattern.
- In 4-pole IFC, modulation occurs within the body tissues due to interference of two medium-frequency currents.
- Whereas 4-pole IFC provides greater depth of penetration, allowing effective treatment of deeper tissues.
- 4-pole IFC can treat a larger area.



SUMMARY & CLINICAL IMPORTANCE

- Medium Frequency Currents are comfortable and effective
- 2-Pole IFC: Simple, superficial, muscle work
- 4-Pole IFC: Deeper penetration, pain relief
- Russian Current: Best for muscle strengthening
- Widely used in orthopaedic & neurological rehab



Thank you