SNS COLLEGE OF PHYSIOTHERAPY

Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai
Coimbatore– 641035

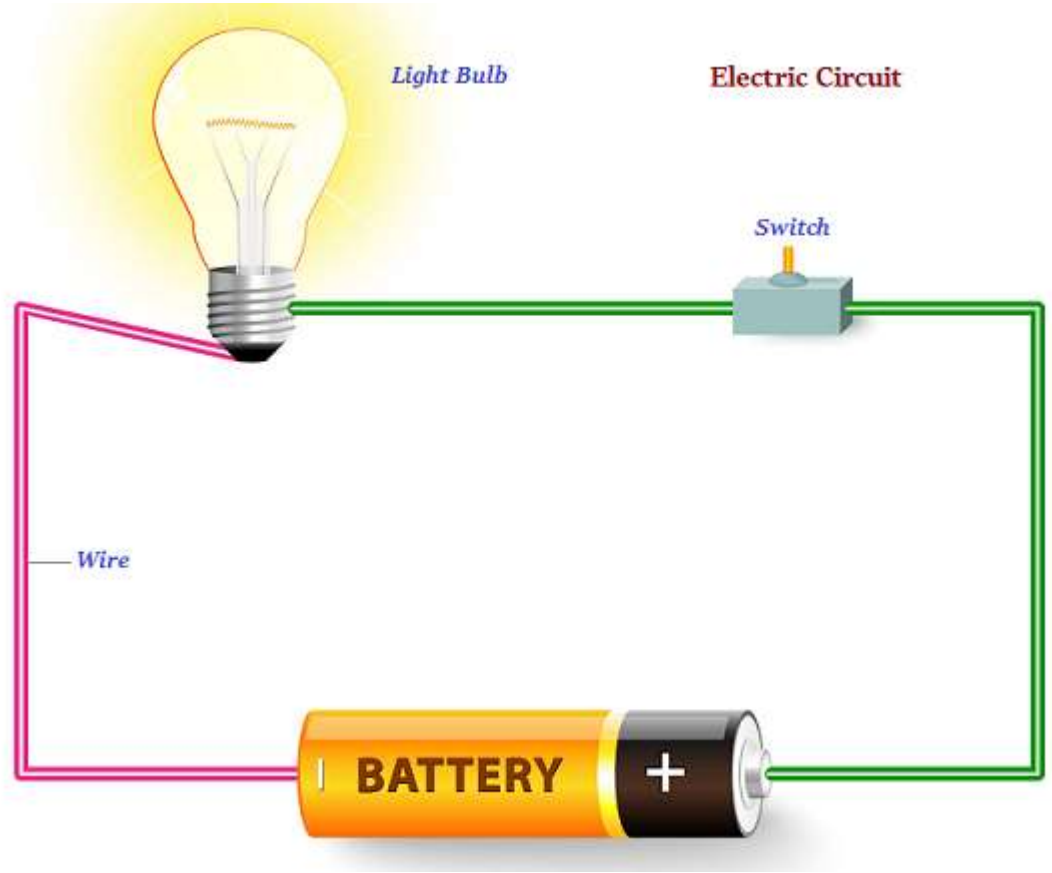
COURSE NAME: ELECTROTHERAPHY I

SUBJECT CODE: 6281

TOPIC: ELECTRICITY

Introduction to the Electricity

- Electricity is a form of energy produced by movement of electrons
- Widely used in industry, daily life, and medicine
- Plays an important role in therapeutic treatments



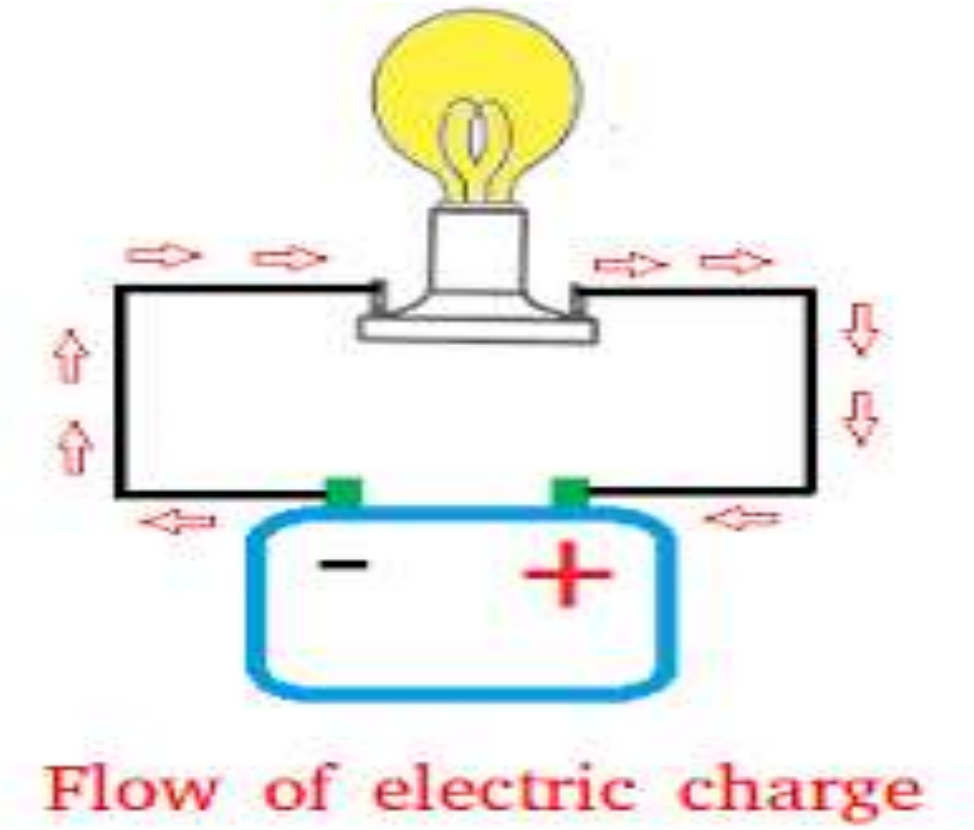
What is Electricity?

Electricity is the flow of electric charge

Charge is carried mainly by electrons

Requires a source, conductor, and complete circuit

Produces physical and physiological effects



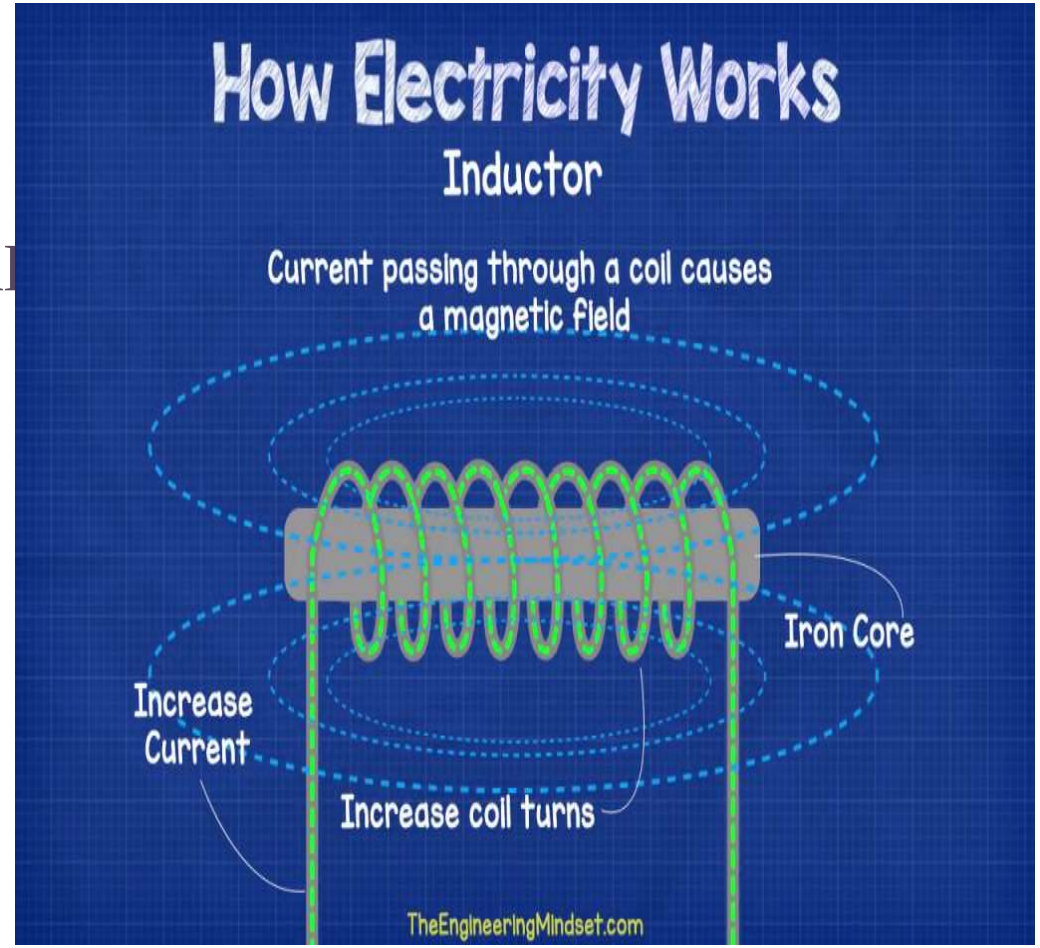
Working of Electricity

Electricity works by movement of electrons

Electrons move from negative to positive terminal

Flow occurs only when circuit is complete

Rate of flow is called electric current



Components Required for Working

Source of electricity (battery/generator)

Conductors (wires, tissues in body)

Load (bulb, muscle, nerve)

Switch/control unit

Electronic Components	Circuit Symbol
Resistor	
Capacitor	
Inductor	
Transformer	
Transistor	
Diode	

Electric Current

Flow of electrons per second

Measured in amperes (A)

Determines strength of electrical effect

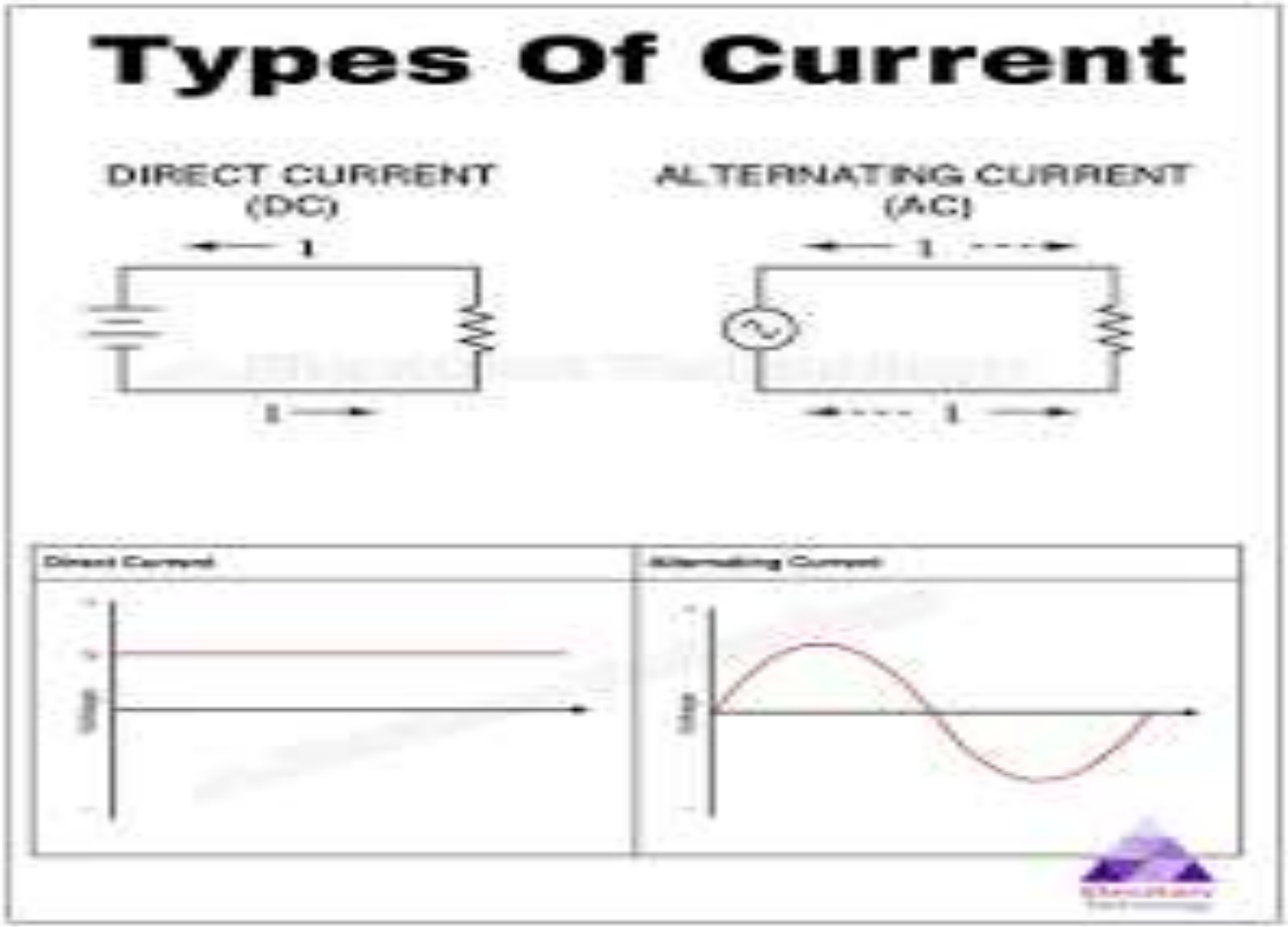
Very important in therapeutic applicationss

Types of Electric Current

Direct Current (DC): flows in one direction

Alternating Current (AC): changes direction

Both are used in medical treatments



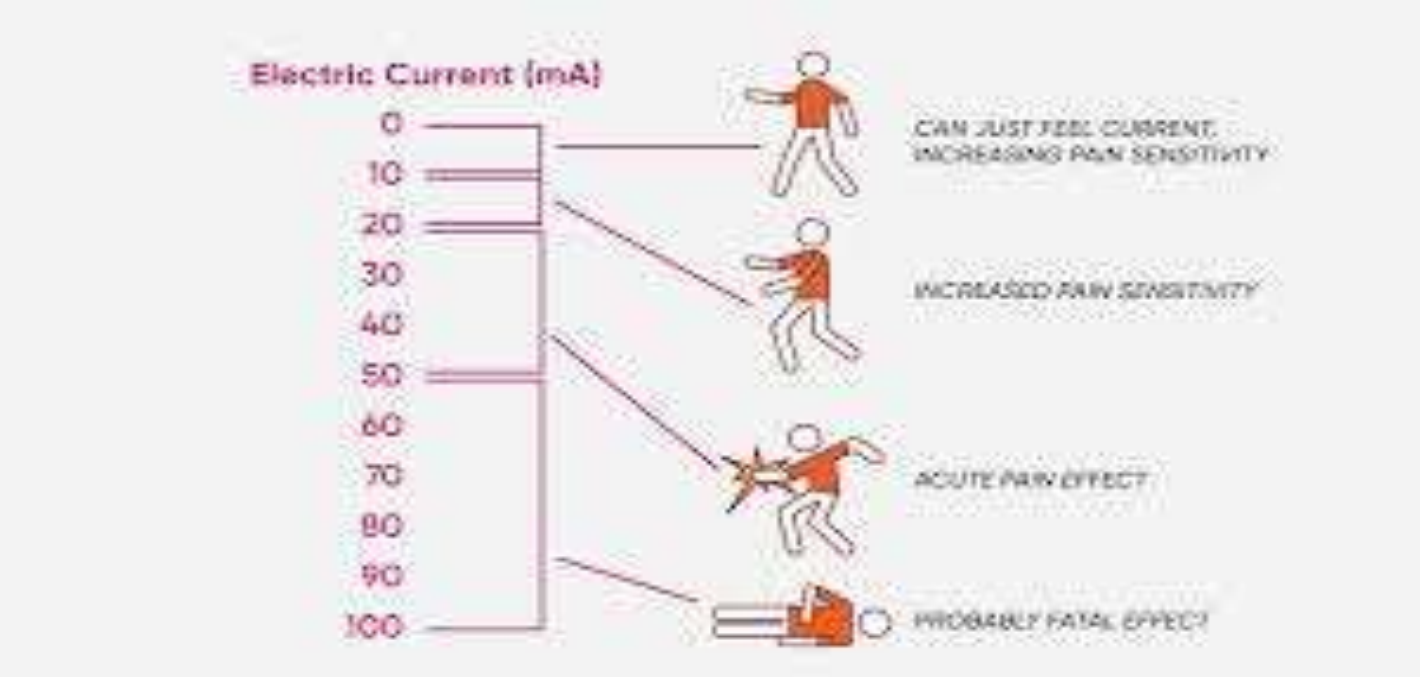
Working of Current in the Human Body

Human body contains water and electrolytes

Body tissues act as conductors

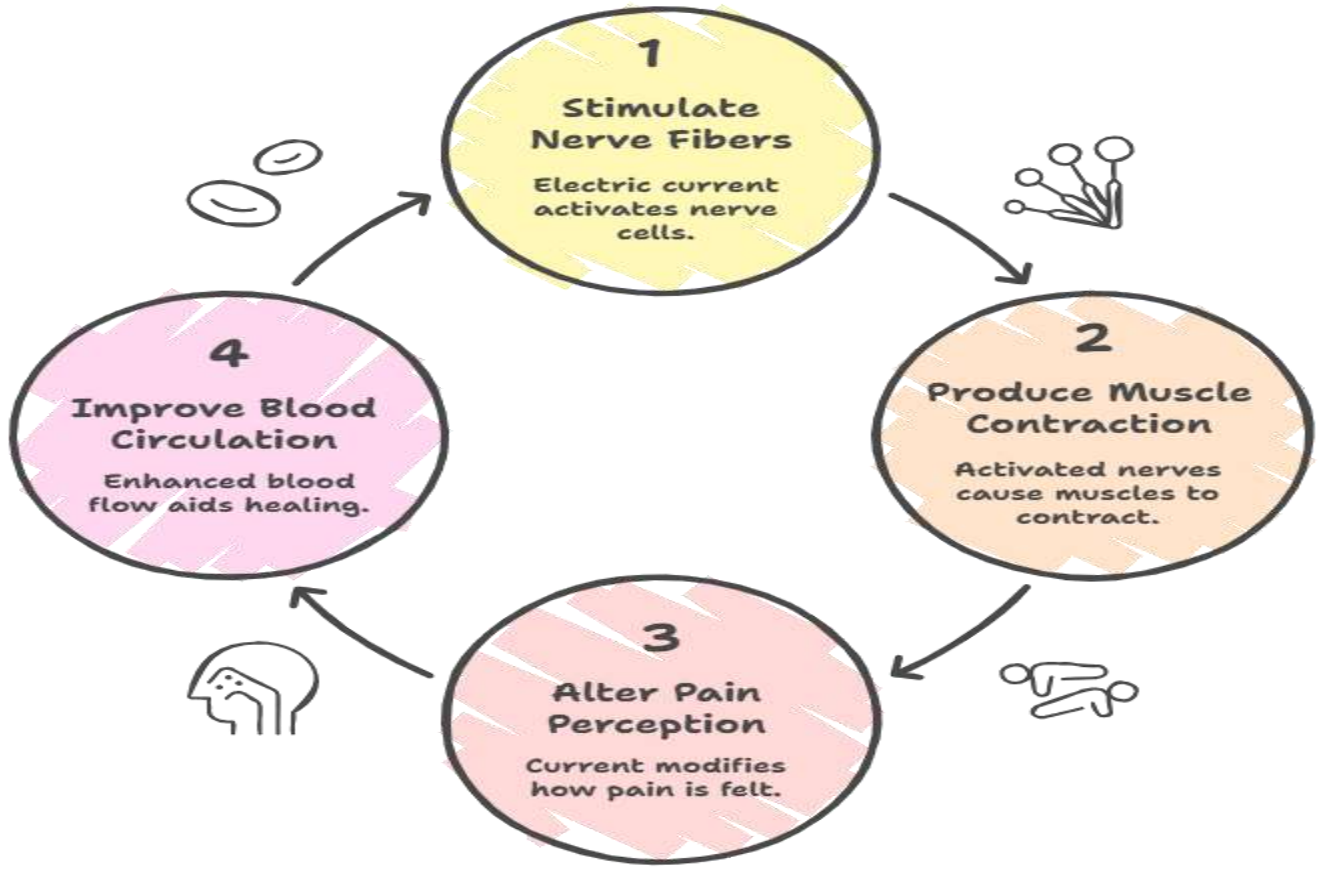
Electric current stimulates nerves and muscles

Controlled current produces therapeutic effects



Importance of Current in Treatment

- Helps stimulate nerve fibers
- Produces muscle contraction
- Alters pain perception
- Improves blood circulation



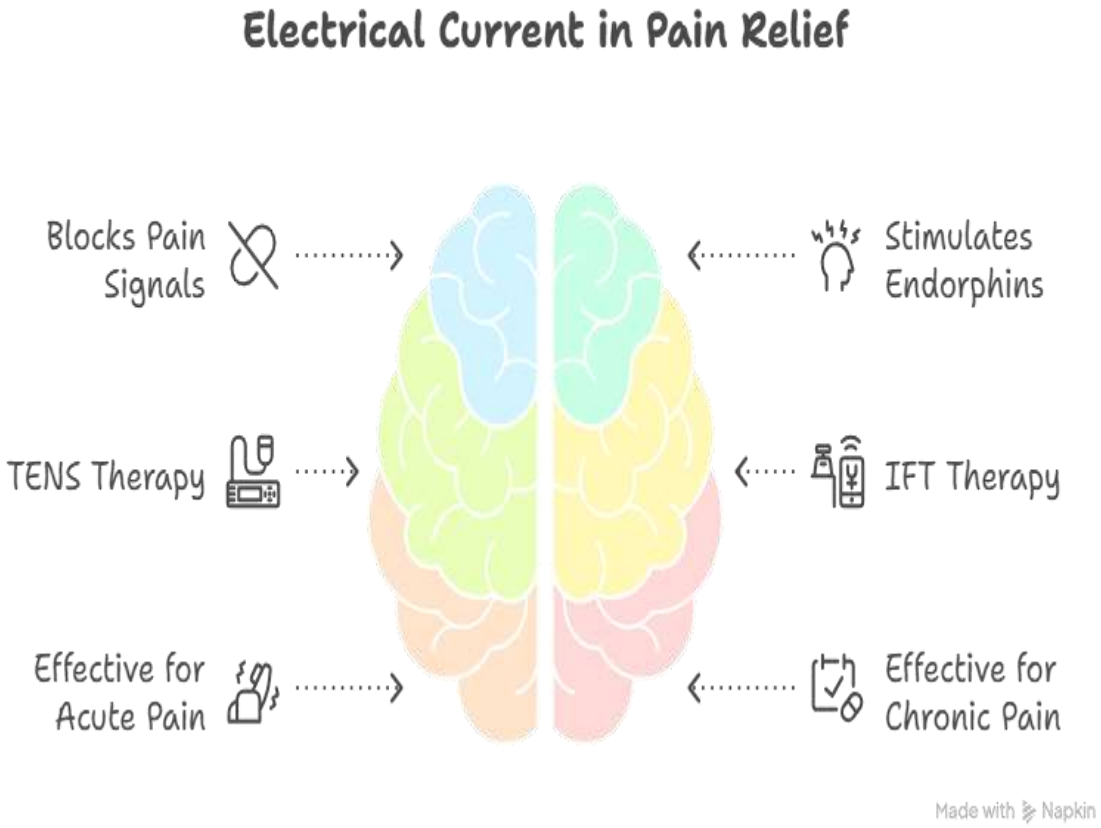
Role of Current in Pain Relief

Electrical current blocks pain signals

Stimulates release of endorphins

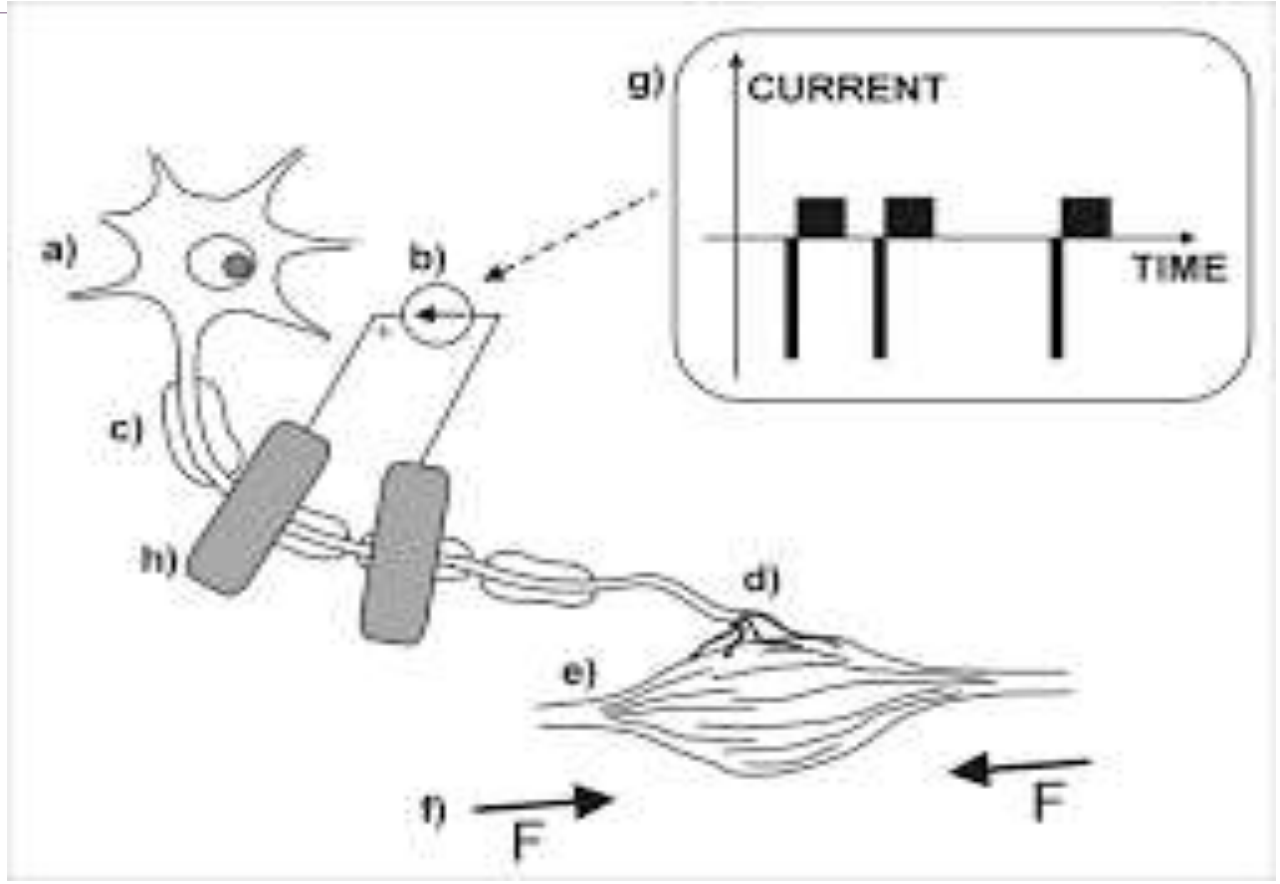
Used in TENS and IFT therapy

Effective for acute and chronic pain



Role of Current in Muscle Stimulation

- Causes muscle contraction
- Prevents muscle wasting
- Improves muscle strength
- Used in paralysis and post-injury rehab



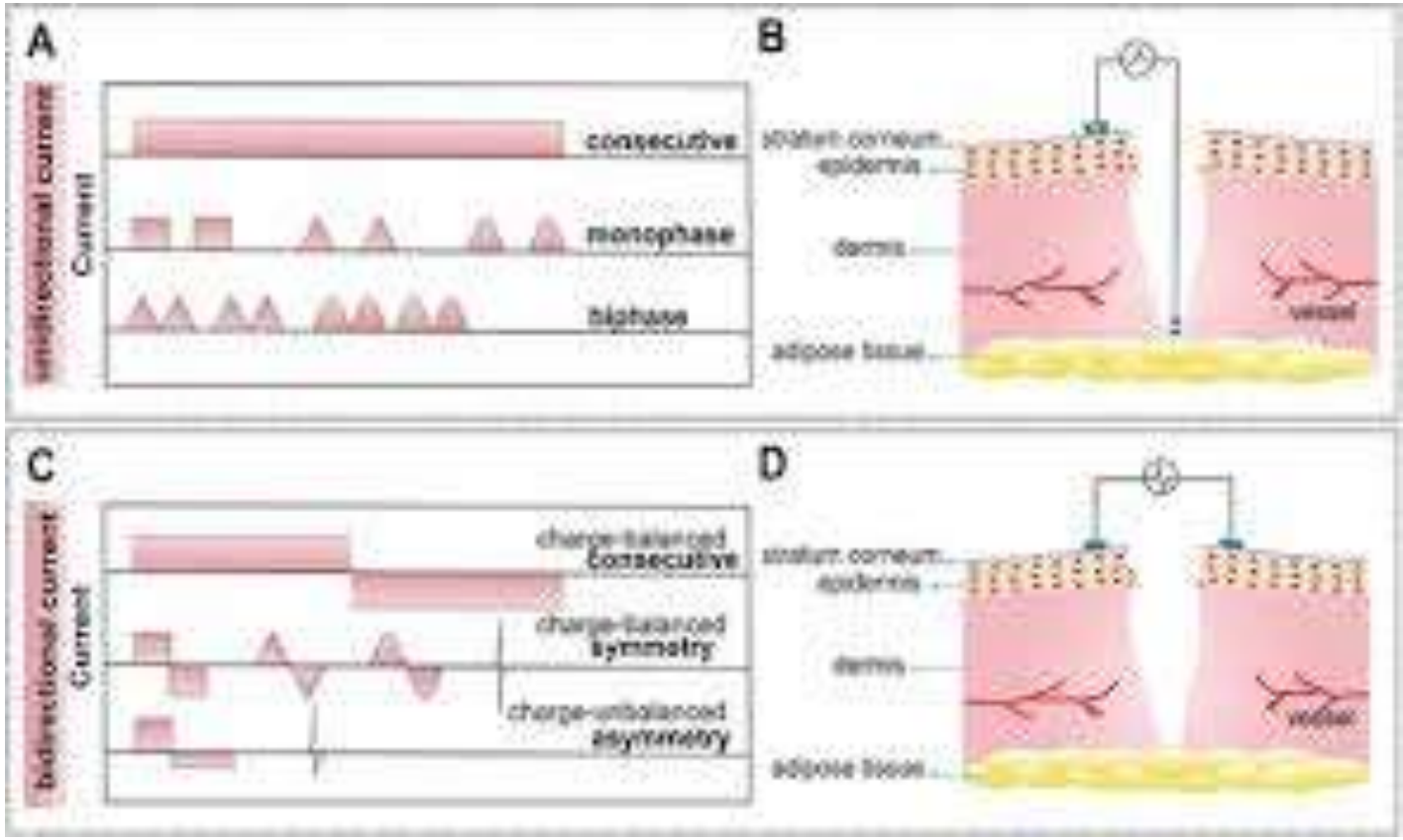
Role of Current in Tissue Healing

Improves blood supply

Enhances cellular activity

Reduces inflammation

Accelerates healing process



Therapeutic Uses of Electricity

- Pain management
- Muscle strengthening
- Nerve stimulation
- Improving blood circulation
- Reducing inflammation

Common Electrotherapy Modalities

TENS (Transcutaneous Electrical Nerve Stimulation)

IFT (Interferential Therapy)

Ultrasound therapy

Galvanic and Faradic currents

Uses of Electricity in Daily Life

Lighting and appliances

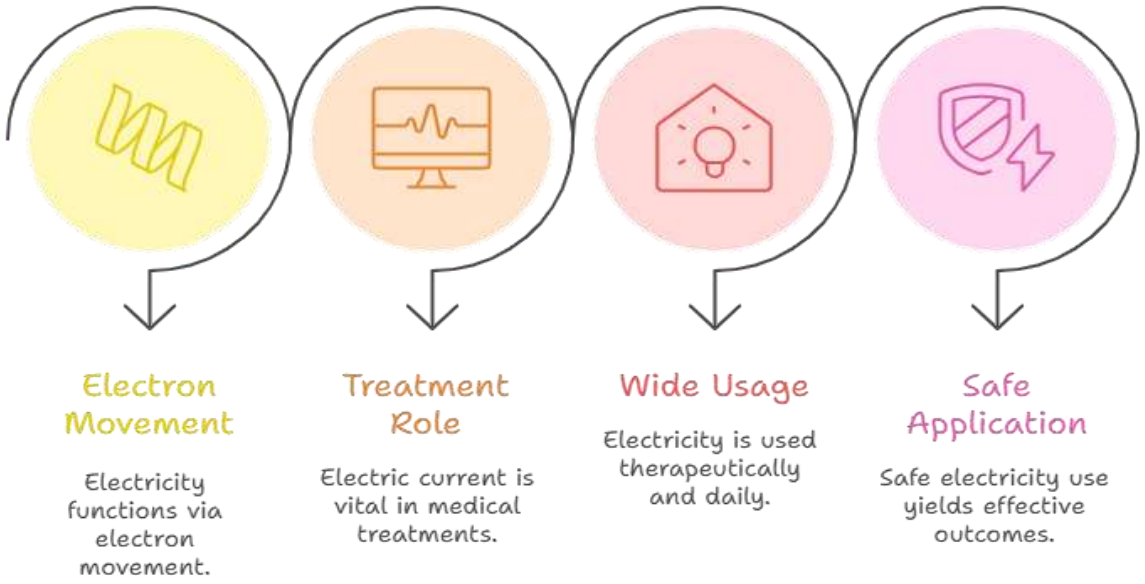
Communication systems

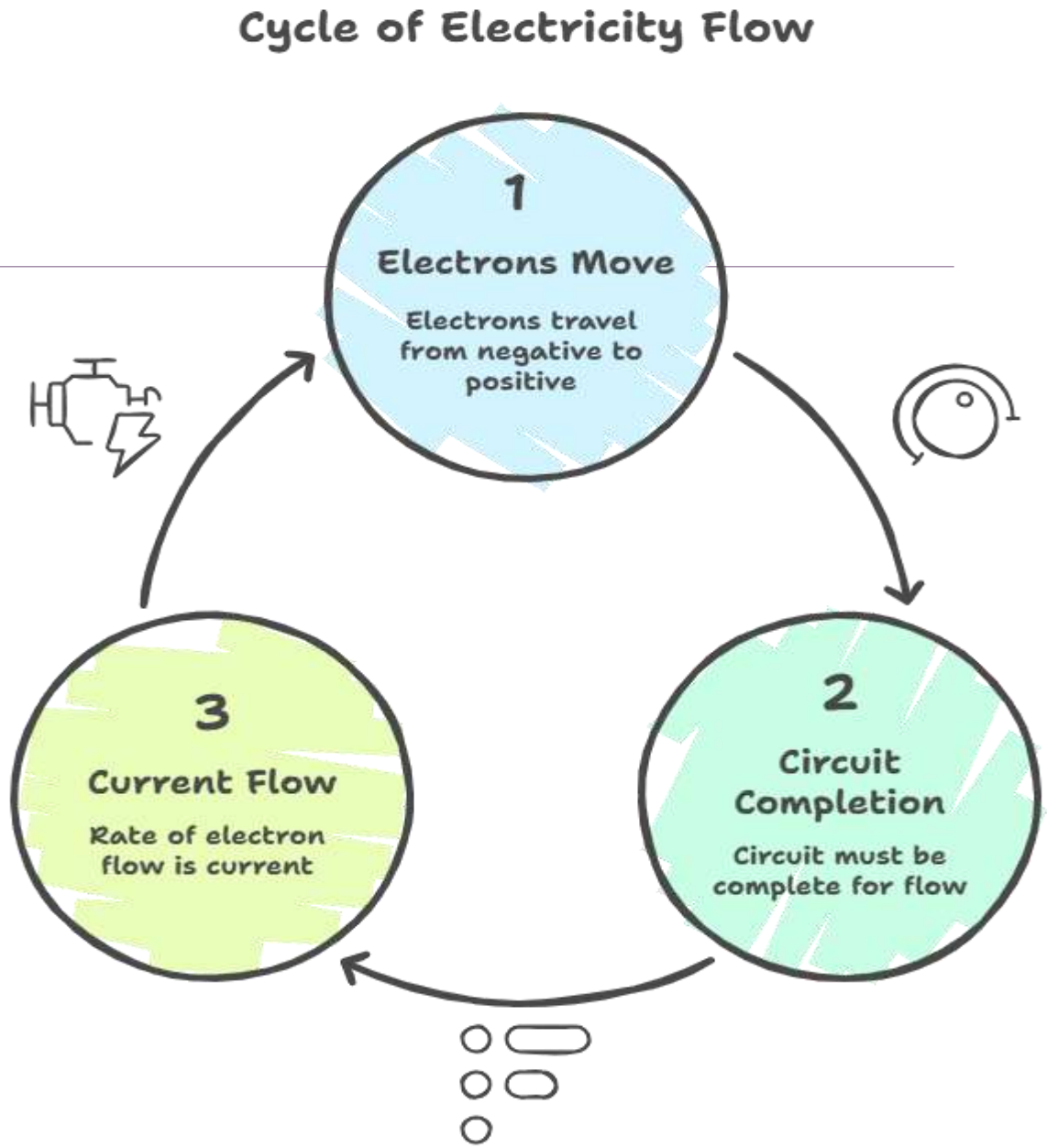
Medical equipment

Industrial machinery

Transportation

Summary


Electricity's Applications
Electron Movement
Electricity functions via electron movement.
Treatment Role
Electric current is vital in medical treatments.
Wide Usage
Electricity is used therapeutically and daily.
Safe Application
Safe electricity use yields effective outcomes.
Made with Napkin


Cycle of Electricity Flow
1
Electrons Move
Electrons travel from negative to positive
2
Circuit Completion
Circuit must be complete for flow
3
Current Flow
Rate of electron flow is current

Thank you