



Tishk
International University

Faculty of Applied Science

Department of Anesthesia

Physics of Physiotherapy

Fall Semester

Course Name : Biophysics

Stage : First

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2026



Heat production for therapy

The conductive method:

The transfer of heat takes **place** with the help of the movement of heat (energy) through the conducting medium such as air or fluid. •

It is using for the treatment of **strains**, and **back pain**.

A close-up photograph of a person's shoulder and upper arm. The person is wearing a red, textured heat pack over their shoulder. Their right hand is placed on top of the heat pack, and their left hand is resting on their upper arm. The background is a plain, light-colored wall.

Thermotherapy

Radiant Heat:

Infra-red rays are the electromagnetic wave whose wavelength is just below the red ray of the visible light.

Treatment by exposure to various wavelengths of infrared radiation

USE OF IR THERAPY :

- ~ Neck spasm.
- ~ Cervical spondylitis (inflammation of the joints of the backbone.).
- ~ Frozen shoulder.
- ~ Pain in and around shoulder.
- ~ Low back ache.
- ~ Chronic back strain.
- ~ Piriformis syndrome (pain on the side of buttock).



Transcutaneous Electrical Nerve Stimulation (TENS)



Transcutaneous electrical nerve stimulation (TENS) is a type of pain relief therapy. It uses a low-voltage electrical current to block pain

Transcutaneous electrical nerve stimulation (TENS) :-
is a method of pain relief involving the use of a mild electrical current.

A TENS machine :-
is a small, battery-operated device that has leads connected to sticky pads called electrodes.



Diathermy:

Types of Diathermy

There are three primary types of diathermy. Each method uses a different type of energy to produce deep heat.

Radio wave Diathermy. Radio wave diathermy is also called **high-frequency diathermy** and **shortwave diathermy**.

This treatment uses high-frequency electromagnetic currents transmitted deep into your tissue.

Microwave Diathermy. This type of diathermy uses microwaves, a type of electromagnetic radiation. Microwave diathermy uses the same very high frequencies as a microwave oven!

Ultrasound diathermy. This method of diathermy is also called ultrasonic therapy. It uses high-frequency sound to create a gentle heat.



Short wave Diathermy



Short wave Diathermy



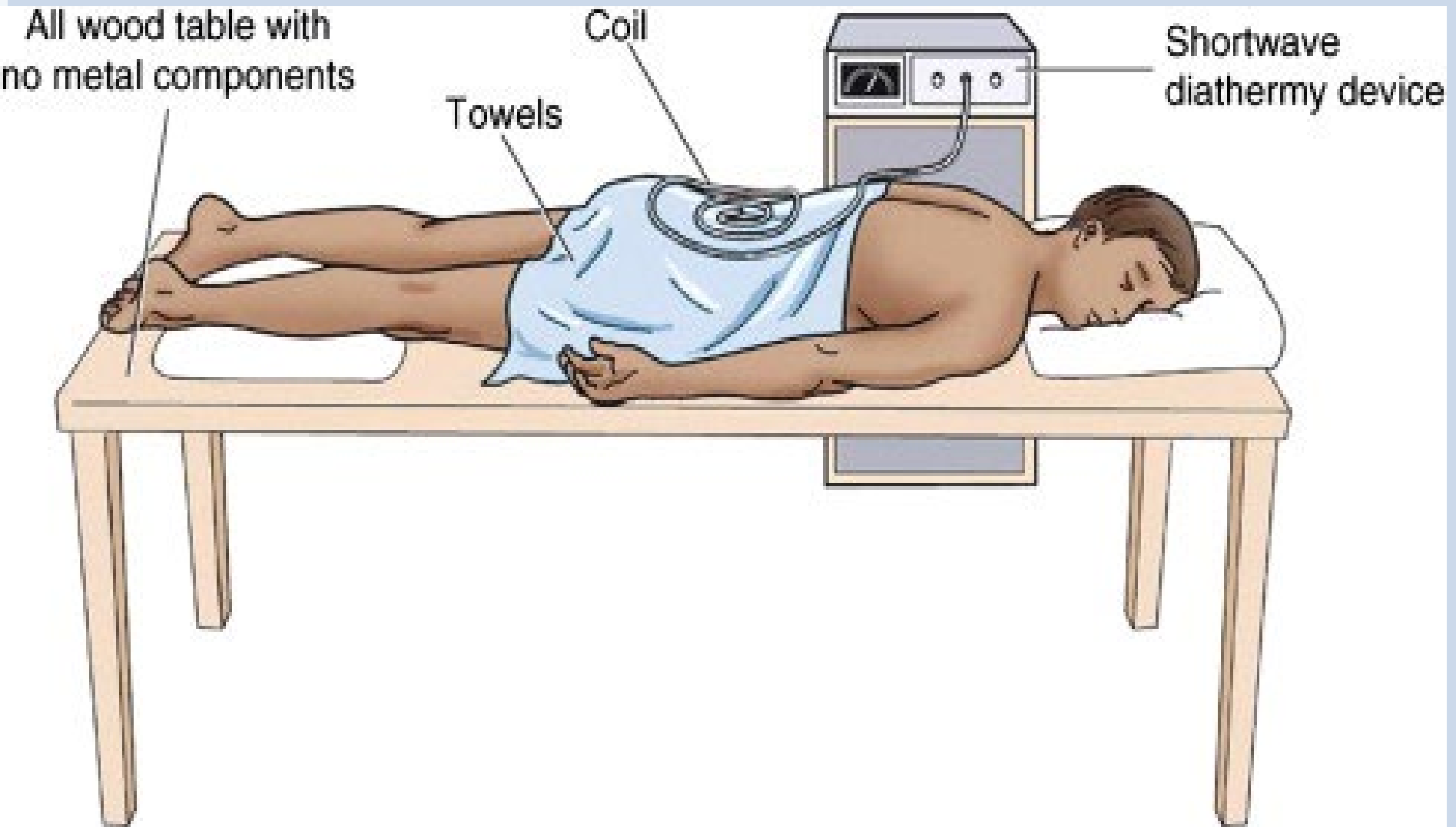
Microwave



Ultrasound



Mostly used for deeply placed structures .
The Electrodes are placed over opposite aspects of the part of the body which part has to be treated .



- Coil or cable :Electrodes consists of a wire with plugs at either end creates Electromagnetic field .

Name of the experiment:- **Physics of Physiotherapy**

Date of the experiment

Name of the student

Group



Results and Measurements

Methods of physiotherapy	Conductive Method	Infrared IR	TANES
Type of Disease			
Duration treatment			
Heat superficial			
Heat deeper			

Discussion :-

discuss the methods (Names) of physiotherapy to produce heat in the body (superficial or deep), and duration of treatment of each methods

When can we use heat therapy before or after exercises?