

**King Saudi University**  
**Collage of Applied Medical Science**  
**Rehabilitation Health Science Department**

**LAB ACTIVITY 1 – HEATING MODALITIES**

Course name: therapeutic modalities -1-

Course code: RHS321

Student name .....Student number.....

**I-Objectives:** To demonstrate an understanding different classification of therapeutic modalities and their physiological and therapeutic effects

**1- Physical Agent Modalities (Def)**

**2-What are the local physiological effects of heat application**

**Increased**

- a) .....
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....

**Decreased**

- a) .....
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....

**2-What are the systemic physiological effects of heat application**

**Increased**

- a) .....
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....

**Decreased**

- a) .....
- b) .....
- c) .....
- d) .....
- e) .....
- f) .....

**3-Physical agent modalities used in conjunction with other components of rehabilitations to**

- a. ....
- b. ....
- c. ....
- d. ....
- e. ....

**4-What are the clinical indications /contraindications heat applications**

<b>Indications</b>		<b>Contraindications</b>	
a.	.....	a.	.....
b.	.....	b.	.....
c.	.....	c.	.....
d.	.....	d.	.....
e.	.....	e.	.....
f.	.....	f.	.....

**4- Physical agent modalities can be classified according to their place in physical therapy into different categories such as energy types, depth of penetration, and methods of energy transfers**

**A-Classify the following modalities according to their place in physical therapy**

<b>Modalities</b>	<b>Classifications---Energy types</b>
Traction	
Electrical stimulation	
Infrared	
Hot packs	
Cold packs	
Ultrasound	
Shortwave diathermy	
Microwave diathermy	
Low level laser therapy	
Pneumatic compression therapy	
Ultraviolet	
Massage	

**B-Classify therapeutic heat modalities according to the degree of penetration**

<b>Modalities</b>	<b>Classifications---depth of penetration</b>	
	<b>Superficial</b>	<b>Deep</b>
Infrared		
Hot packs		
Cold packs		
Ultrasound		
Shortwave diathermy		
Microwave diathermy		
Low level laser therapy		
Pneumatic compression therapy		
Ultraviolet		

**C-Classify the heat modalities according to the methods of heat transfers**

<b>Modalities</b>	<b>Methods of heat transfers</b>				
	<b>Radiation</b>	<b>Conduction</b>	<b>Convection</b>	<b>Conversion</b>	<b>Evaporation</b>
<b>Infrared</b>					
<b>Whirlpool</b>					
<b>Cold pack</b>					
<b>Fluidotherapy</b>					
<b>Ultrasound</b>					
<b>Shortwave diathermy</b>					
<b>Ultraviolet</b>					
<b>Laser</b>					
<b>Shockwave therapy</b>					
<b>Hot packs</b>					
<b>Paraffin wax</b>					

## ***Patient's preparation procedures***

### **a-Verify identity of the patients**

Good morning sir / madam. I am your therapist who is going to treat you. Do not worry; I will do my best for you.

**N.B some diseases and medical condition are linked to sex and age**

### **b-Verify the absence of contraindications and ask about previous treatment of current condition, and check treatment notes.**

I will go through reading and understanding medical sheet of the patient and look for

Assessment and diagnosis done by the physician

Laboratory investigation reports

#### **Face to face, interview with your patients**

Identify the ID of patients

- a. Name – Identification of the patient
- b. Age – Modulation of treatment (Adult/Old)
- c. Sex – Provide privacy (Male/Female)
- d. Occupation – Correlate the symptoms/signs of the patient
- e. Chief Complaints – Generation of problem list & Setting goals (Short & long term) for the treatment
- f. Side – Right or Left side of the involvement.
- g. Site – Specific area/region to be treated
- h. Duration of the condition – Acute/Sub-acute/Chronic

This may be very helpful in finding out the **general contraindications** for my treatment.

By this I will also be able to know about **previous medical or physiotherapy treatment** if any taken by the patient and its effects.

**Checking General Contraindications:** By using rapport with patient and by case sheet reading, I will check the general contraindications (related to the modality to be used).**e.g.**

- Epilepsy
- Severe renal and cardiac problems/ Cardiac pacemakers
- Severe Hypotension and hypertension
- Infections
- Pregnant women
- Metal Implants
- Mentally retarded patients
- Malignancy
- Eyes

#### **Checking Local Contraindications:**

- Place patient in a well-supported comfortable position (How)
- Exposed the part to be treated, and removed all jewelry from the area

#### **Then I will check body area to be treated for local contraindications.**

- Open wounds
- Scars
- Skin disorders such as infection, dermatitis, abrasions, and eczema
- Localized hemorrhagic spots

**If there is no general contraindication and no local contraindications, I will proceed with treatment.**

**Then I will check body area to be treated for local.**

- Thermal sensation hot/cold test tube
- Check for light touch perception (piece of cotton and/or brush)
- Check for sensation (pin prick sensation)
- Check circulatory conditions (Pulses, capillary refill, pallor)

**Then I will check body area to be treated for functional limitation and disability.**

**Assess the patient and set treatment goals.**

- ROM,
- Pain, and muscles spasm
- Increased Muscles strength,
- Edema /Wound size
- Function

**Positioning of the patients**

**3-When preparing to use heating modalities, is it important to remember that**

- ❖ The patient should assume a comfortable and relaxed position during assessment and treatment session
- ❖ Thermotherapy should not be applied over the patient's clothing.
- ❖ The patient should be provided with a way to alert the provider if he/she thinks the thermotherapy feels too hot or is causing discomfort.
- ❖ Patients should be closely monitored (initially 5-minute intervals).

The patient must be assumed the most comfortable and relaxed position during treatment position.

**(Mention the position for the treatment)**

**NOTE:**

- The position of the part to be treated should be completely relaxed.
- Patient should be made comfortable by using maximum number of pillows and sand bags for the support.
- Position of the patient should be such that all the joints of the body are completely relaxed.
- If possible give the position in which patient can see the treatment.

**During this process, therapist will demonstrate the treatment to the patient, and explain the treatment to the patient.**

***Equipment Preparation Procedures***

- ❖ Select the type of physical agent modalities based on your objectives and plan of treatment
- ❖ The apparatus and accessories needed should be assembled and suitably positioned.
- ❖ Visually check the equipment, leads, cables, plugs, power outlets, switches, controls, dials, and indicator lights for cracks and breaks and finally insure the amplitude controls are at zero.
- ❖ Obtain pillows, bed sheet and towel for draping.
- ❖ Assessment and screening tools

## Instruction and warning

**Before starting treatment, therapist must give following *Instruction and warnings to the patient***

- ❖ Do not move during the treatment.
- ❖ Do not sleep while the treatment is going on.
- ❖ Do not touch the cables, apparatus, therapist, and any other metal nearby you.

***Warnings:* Remind the patient to inform you when feels something. Do not tell the patient what will feel**

- ❖ As there are chances of getting a blister/burn due to excessive overheating, so please inform me if the current is not comfortable or heating is more.
- ❖ If there is any burning sensation immediately, inform me, as it might lead to burn.
- ❖ Inform me if the position is not comfortable.
- ❖ The warning given should be noted on the patient's record card.

## Treatment follow-up and termination

### **Treatment:**

- ❖ Turn on the device slowly till it is comfortable for the patient.
- ❖ Duration of the treatment is decided on the basis of the condition/goals of treatment plan
- ❖ Recheck the patient's response after the first 5 minutes by asking the patient how it feels ,if the sensation has diminished , adjust the intensity of radiations appropriately, and observed throughout to ensure that treatment is progressing satisfactorily and without adverse effects

**When the treatment is completed;**

- ❖ Remove the electrodes
- ❖ Clean the treatment area and the equipment according to normal protocol

**Recheck the patient's response**

- ❖ **Inspect** the patient's skin for any signs of adverse reaction to the treatment.
- ❖ **Ask** the patient how the treated area feels,
- ❖ **Palpate** treatment area for tenderness, pain, and muscle spasm. perform functional test

**Document the treatment, including all treatment parameters and the patient's response to the treatment.**

- ❖ Region treated, such as knee, shoulder, elbow, back, neck),
- ❖ Conditions stage (acute, subacute, chronic)
- ❖ Parameter of treatment technique, dosage, frequency and duration,
- ❖ Patients positioning
- ❖ Electrodes placement /configuration
- ❖ Assessment parameter (pain, ROM, muscle strength etc.,)
- ❖ Response to treatment and Adverse effect (erythema, burning blisters)