

*REHABILITATION*  
&  
*PHYSIOTHERAPY*

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- ▶ Physiotherapy referred to a group of actions ( thermal , electrical and manipulative procedures )
- ▶ done by the patient him self or the Physiotherapist for reliving the pain , maintain mobility , improve or prevent deformity .

Changes in acute inflammation :

1-Initial vasoconstriction succeeded by vasodilatation.

2- Stasis.

3-Formation of inflammatory exudates via the lost of plasma and plasma proteins into tissues & chemotaxis to site of inflammation .

**These induce the classical signs of acute inflammation**

**( redness, heat, swelling, pain, and loss of function )**

**Finally these changes either resolved (removal of inflammatory exudates , fibrin and tissue debris ) or progressed to chronic inflammation .**

## Physiological effects of local heat :

1. Increase tissue metabolism .
2. Increase superficial blood flow .
3. Sedative effect on sensory nerve endings .
4. Relaxation of muscle tissue.

# Types of thermal procedures

- ▶ I – Short Wave Diathermy (SWD)
- ▶ II – Microwave
- ▶ III- Infra Red Radiation (IRR)
- ▶ IV- Ultra-Sound (US)
- ▶ V- Ultra-Violet Radiation (UVR)
- ▶ VI- Wax therapy



## **WAX BATH/ PARAFFIN THERAPY...**







# TNS(Transcutaneous Nerve Stimulation) & Low frequency muscle stimulating currents :

## I= Faradic type current

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### Uses :

- 1- Re-educate muscle action .
- 2- Train new muscle function .
- 3- Increase circulation .
- 4- Prevent / stretch adhesions .
- 5- Hypertrophy muscle .

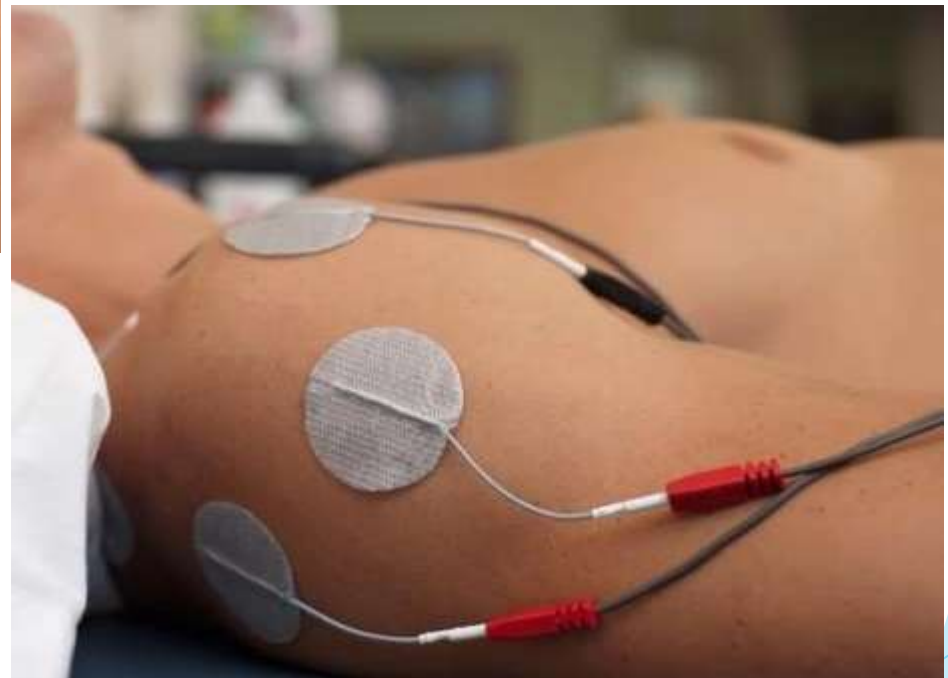
## II= Interrupted direct current :

(contracts denervated muscle)

### Uses :

- 1- Maintain properties of muscle .
- 2- Improve circulation .
- 3- Test muscle for reinnervation .
- 4- Prevent contracture .





# Cold therapy :

Physiological effects of local cold :

## I-Effect on nerve tissue :

- 1- Brief cutaneous cooling (3-5 sec) increases input to CNS and enhance motor out put .
- 2- Longer period (5-7 min) diminishes sensations .
- 3- Prolonged period (20-30 min) diminishes muscle tone and nerve conduction velocity .

## II-Effect on circulation :

Vasoconstriction .

### **III-Effect on tissues :**

1. Reduce metabolism rate .
2. Increase joint viscosity .
3. Increase muscle viscosity .
4. Produce longer contraction and relaxation time in muscle .

### **Methods of application :**

Cold pack , cold immersion of limb or lower trunk , ice cub massage and ethyl chloride spray .



# Manipulative procedures :

**Stroking & gliding movements** : (rhythmical with variable speed)

- Uses :
- 1- Relieve local muscle spasm .
  - 2- General relaxation .
  - 3- Stimulate superficial vasodilatation .

**Petrissage (compression movements)** : kneading , picking up , wringing and skin rolling .

**Friction (circular / transverse movements)**

**Percussion** : Uses :

- 1- Remove bronchial secretions .
- 2- Induce coughing .

# Examples of clinical uses of Physiotherapy

Physiotherapy for RA : Initially rest then  
Encourage mobility & Increase muscle  
power.

Physiotherapy for AS : 1-Vigorous exercises ,  
( side flexion, rotation & extension of all  
parts of spines ) & swimming  
2- Breathing & chest mobility exercises .



## Physiotherapy for monoarthritis :

1-Rest

2-Ice packs

3- Hydrotherapy

4-Then increase muscle power (exercises,  
Faradic type muscle stimulating current )

## Physiotherapy for lumber disk prolapse :

1-Rest ,

2-Heat ( SWD or IRR )

3- Traction

4-Passive manipulation

5- Spinal support ( plaster jacket or corset )



# Physiotherapy for Scleroderma :

- ▶ Wax therapy for hands & feet .
- ▶ Gentle passive stretching .
- ▶ Active movement .
- ▶ Ulcer care including ultraviolet light



