

##  **IQRA NATIONAL UNIVERSITY**

 **NAME GHAZALA**

 **CLASS ID 14023**

 **SUBJECT PA & ELECTROTHERAPY**

 **SEMESTER SIXTH (6)**

 **TEACHER MA’AM MARIA**

 **DEPARTMENT (AHS) DPT**

 **EXAM MID TERM**

# **QUESTION ANSWERS**

Q1: Explain how cryotherapy reduces :

**PAIN**

* Pain is a tragic feeling caused by damaging stimuli.
* Cryotherapy help to decrease pain
* When we apply ice on painful part of body, that part gets cool, this cooling causes cold receptors to activate.
* Impulses will go to the brain and from their impulses will be send back which will pass into the posterior root horn of spinal cord.
* Activation of nerves of large diameter and block small diameter nerves, this than relieves pain.
* This reduces pain temporarily. For long lasting relieve of pain we do Positive physiotherapy which include strengthening, mobilization and this is given during the period of transitory pain relief.

**SPASTICITY**

* Spasticity is abnormal condition of muscle in which muscle become stiffed and come in a state of contracture.
* Cold therapy helps to cure spasticity.
* Spasticity is abnormal muscle state of increased muscle tone resulting from damage to the upper motor neurons.
* Fastly signal passes towards anterior horn after posterior horn
* Nerve fires spontaneously towards spastic muscle
* Increase tone in extrafusal muscle fiber
* After cryotherapy the nerve conduction slows down so the muscle start contracting normally.

Q2: Write in your own words:

What is the difference between 1g of ice at 0c an 1g of water at 37c

ICE\_\_\_49J\_\_\_WATER (MORE HEAT LOSS)

0C 37C

In 1g of ice at 0c there is no heat loss and in 1g of water at 37c heat loss occur.

Explain why the rate of conduction of nerve fibers in a mixed (motor and sensory) peripheral nerve is reduced by cooling

We know that nerve conduction depends on temperature too. If we apply cold it decreases temperature and nerve fiber conduction in (motor and sensory) peripheral nerve reduces, cold temperature actually blocks the Na channels so nerve cant conduct impulses. Cooling provide resistance thats why conduction of nerves reduces, and we know that cold receptor are more than heat receptors.

Why Cryotherapy contraindicated in cardiac patients

In heart patients heart blood vessels are narrow and walls of heart vessels are damage and are also constricted due to which blood supply to heart is low. If we go for cryotherapy in cardiac patients their vessels can constrict more which can cause no blood supply to heart and a patient can die thats why cryotherapy is contraindicated in heart patients. We know that due to cold therapy blood vessels constrict and blood supply decreases.

Write in detail the uses of ice cube massage

* Used to relieve pain (temporary relief) . Massage in circular motion.
* Cubes with some form of handle is used to cure injured muscles.
* Used for muscle stimulation if muscle is having problem like low muscle tone, reduce muscle spasm.
* Ice cube massage causes irritation when ice is applied on skin but at the same time inflammation or discomfort reduces.
* For neural facilitation ice is applied briefly. In neural facilitation we stretch muscles to increase their flexibility.
* Ice cube massage is helpful in curing acne on face.
* It improves blood circulation.
* It rinses skin too.
* Effective in removing facial hair
* It cures rashes that form due to heat.
* Provide massive relief from sunburns.
* Has relaxing effect on puffy eyes.

Q3: A) Differentiate between luminous and nonluminous generators (At least ten differences)

**LUMINOUS GENERATORS**

1. IR rays that emit from luminous generator penetrate more in skin.
2. We use one or more incandescent lamps
3. Wavelength of waves that emits from luminous generator is 100nm
4. Waves penetrate through epidermis, dermis and subcutaneous tissue
5. Penetration depth is 5-10 mm.
6. Luminous generator is used for chronic condition
7. Treatment time of luminous generator is 15-20 minutes
8. Luminous generator should be 40-60 cm far apart from treated area.
9. It is more effective.
10. The absorption is deep

**NONLUMINOUS GENERATORS**

1. IR rays does not penetrate more in skin.
2. In Non luminous generator wire is coiled around cylinder
3. Wavelength of waves that emits from Non luminous generator is 4000nm
4. Waves penetrate through epidermis and superficial dermis
5. Penetration depth is 2mm.
6. It is used in acute condition.
7. Treatment time is 20-30 minutes.
8. Non luminous generator should be 75-90 cm far apart from treated area.
9. It is less effective.
10. The absorption is superficial.

B) Are infrared rays more effective in relieving the pain than Ultraviolet light or not. Give evidence to support your answer.

Yes, infrared rays are more effective in relieving pain than ultraviolet light.

**EVIDENCE**

Infrared rays improve blood circulation in skin and also in other parts of body It brings oxygen and nutrients to injured and damaged tissues that promotes healing. It helps in relieving pain. Luminous and Nonluminous generators are used in treating pain. These rays also decrease muscle tension, do weight loss, purify skin, lower the side effects of diabetes and lows blood pressure. Ultraviolet light does not help in relieving pain as IR do. IR rays are way more effective in decreasing pain as compared to UVL. Ultraviolet light causes many problems in body like Skin cancer, Eye damage, Sunburns and many more. UV cant relief pain because in UV light source intensity increases sometimes and we cant control it and In IR source we can control intensity of heat.

**REFERENCES OF LAST QUE**

<https://www.zeiss.com/vision-care/int/better-vision/health-prevention/the-benefits-and-disadvantages-of-uv-light.html>

<https://www.news-medical.net/health/How-Does-Infrared-Therapy-Work.aspx>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4833175/>