Mid-Term Assignment (Spring-20) (DPT 6TH Semester)

#  SIDRA

* **ID: 14115**

**Q1.**

**Ans**

**Part A.**

 **Difference**.

* The main difference b/w both of them is energy loss.

## Explanation.

* As we know that energy move from high potential to lower.
* So 1gm of ice at 0℃ required 491 j of energy to raise it temperature .
* & 1gm of water at 37℃ required only 115j of energy .
* So for therapeutic purpose we always prefer Ice .

## Part B.

**Conduction of Nerve Fibre:**

* As our skin has both warm and cold receptor cold receptor are those which sense cold in environment , while warm receptor sense heat in environment
* But cold receptors are more than warm receptors so when we apply cold therapy to skin

it slow down the conduction and reduce the rate of the conduction.

## Part C.

**Cardiac Patients:**

* Cryothearpy for cardiac patients those who have heart problems also mean’s that he has circulatory problems so ice therapy will be contraindicated because when we apply ice to the patient it will cause vaso contraction so blood will move with high pressure due to which patient BP will rise so load on heart can increase heart Problems so that's why Cryotherapy should be avoided in cardiac patients.

## Example.

* Suppose a patient come with pain in shoulder with left arm which is also common in cardiac patients because sympathetic nerve supply with our left arm and heart is same. So if he is a cardiac patient then by applying cryotherapy can lead the person to chronic heart attack or other problems.

## Part D .

**Uses of ice cube massage:**

* **Ice cube massage** can be used for two distant reasons:

## Muscle stimulation:

* Ice massage is used to stimulate the muscle as sometimes the person muscles are stiff or sometimes they are unable to feel so for this purpose ice massage can be used.

## Rational action:

* Ice cube massage is used to increase rational action of the person. Rational action or behaviour is the behaviour of the person in which refers to the decision making process. So ice cube massage can be used for counter irrational actions.

## For Instant Pain Relief:

* Ice cube is placed on the injured part and is gradually moved in circular motion to prevent skin from ice burn and that gives instant relief to the injured area where pain occurs.

## Neurological facilitation in body:

* For nerve activation ice cube should be briefly applied, Sometimes people take ice cube bath for few minutes for this purpose.

## To improve Blood circulation:

* Ice cube massage improves Blood circulation because in result of ice cube massage vasoconstriction and vasodilation occurs which maintain a balance by circulating high amount of blood which can makes the body healthy in some cases.

## Other use of ice cube massage:

* Also Reduce skin inflammation.
* Provide relief from sun burning .
* Can be used to cure some skin rashes.
* Can also reduce puffins under eye.

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## Q2.

**Ans. A) Reduction of pain by cryotherapy:**

* Pain gate therapy is the mechanisms by which cryotherapy works and pain is reduced by the time when our cold receptors activate Sensory nerves.
* The activate posterior horn through our hand give sensation to some other object which are in touch to our body gives single back through motor response .
* In pain gate through cold receptors activates in cooling which activate posterior horn thorough sensory nerve give sensation to brain that some things like cold is when touched to our body activates the nerve fibers .
* There are two types of nerve fiber so large diameter and other is small diameter nerve fiber. So the large diameter fibre send impulse quickly or with fast speed and conduction in nerve supply is fast. While Other is small diameter nerve fibre that sends impulse with slow speed as compared to large diameter fibre.
* Thus These are pain impulse sent by these nerve fibers.
* Now **Pain is reduce here** when we cryotherapy is applied as it cause the large diameter nerve fibers to slow down the frequency of sending impulses due to which instant relief to the pain occurs.
* But the Pain start again after sometime but if we want permanent result than we recommend exercise during ice therapy because due to exercise our brain get some stimulus and will not let pain stimulus further. So it will reduce pain permanently.

## **Spasticity:** .

* It Means contraction caused due to damage in upper motor neurons which will send singles with fast speed that will activate anterior horn which increases in muscle contraction due to more efferent nerves fibers these muscle become spacitic because of increased muscle tone

.

* *This Increased tone of muscles is called spaciticity.*

## When cryotherpy is applied:

* So as we know that ice slow down the nerve conduction and is makes the nerve fibers to slowly pass the signals so no signals goes fast due to which interiors horn will not activate more which may decreased the muscle tone as a result the Spasticity is also decreased.

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 **Q3**.

## **Ans:** **Differences:**

|  |  |
| --- | --- |
| Luminous Generator:* It consists more than one incident lamp which provides light when it heat up .
* It wave length is about 3500 to 4000
* Maximum 1000 nm
* It produce infrared rays , heat, visible and few of UV rays
* High depth of penetration to skin about 5 … 10 nm
* More effective
* Use chronic inflammation
* It's treatment time 15 to 20 mint.
* Distance of rays from treated area must be forty to sixty cm.
* Cause skin irritation which pain pigment and reduce pain in chronic
* Need less time to heat up.
* Reduce pain via counter irritant effect
 | **Non luminous Generator:*** While it consists of a sample heat resistant wire an a cylinder.
* While it's wave length is 1500 to 2000 mm (4000) mm .
* It produces infrared rays only .
* Depth of penetration about 2 mm only
* Less effective .
* Use acute inflammation .
* Less effective so it's treatment time is 20 to 30 mint.
* While 75 to 90 cm distance from treated area.
* While it give sedative effective reduce pain .
* Need more time to heat up.
* Reduce pain via sedative effect.
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## Part B.

**Infrared rays are more effective:**

* Infrared rays are used for several new therapies now a days these rays used for treatment of chronic or acute pain also.
* In therapy use specific wave lengths of light that are provides only to the site of injury body have while on other side UV light has damaging effects on cells and tissue on the body.

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* Infrared red light has the ability which can help the cells to repair itself again or regenerate and IR UV light also make blood circulation better or improves Blood circulation and can also help on tissue healing which is helpful to give relief to pain.
* This is one of the painless method which provides us many health benefits by not damaging skin as compared to Ultraviolet Light rays.
* Infrared has no side effects because it gives benefits of sun to people while UV Ray's is harmful.
* UV rays also damage DNA which to stop reproduction.
* UV is also harmful for immune system of the body that protects the human body from harmful viruses and bacteria.
* While IR decrease the pain with many benefits because it can deeply penetrate into the inner layer of the skin about 2 to 7 cm deep and reached to the nerves, muscle and even to bone due to which it is useful to give relief.
* It's wavelength is 700 to 1000 nm which is best for healing inflammations.
* Hence it Proves that infrared rays is more effective in pain relieving that UV light Not.
* There are many research studies which proves the benefits of infrared red light then other Ray's some of the research links are given below:

 **Links** : <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2539004/>.

[https://www.google.com/amp/s/www.news-medical.net/amp/health/How-Does-Infrared-Therapy-](https://www.google.com/amp/s/www.news-medical.net/amp/health/How-Does-Infrared-Therapy-Work.aspx?espv=1) [Work.aspx?espv=1](https://www.google.com/amp/s/www.news-medical.net/amp/health/How-Does-Infrared-Therapy-Work.aspx?espv=1)