

Dosage (of ultrasound)

The factors which determines the US dosage are

- Size of area to be treated
- Depth of the lesion from the surface
- Nature of the lesion.

Dosage in Acute condition →

- Acute conditions can be treated with pulse mode because it will reduce the heating effect which could provoke the symptoms.
- In the initial stages a low dose (0.5 watt) is used for 3-4 min.
- Progression of dosage is not necessary if the condition improves. The same dose can be repeated.

- A failure to improve at this dose might require a slight increase in the intensity of ultrasound to 0.8 watt/cm^2 or an increase in time of insolation to 4-6 min.

• Dosage in chronic condition:

- Chronic condition can be treated with either a pulsed or a continuous beam with the continuous beam the maximum intensity of ultrasound which should be used is that which produces a mildly perceptible warmth usually occurs around 2 watt/cm^2 .

- Initially a low dose is given (0.8 watt/cm^2 for 4 min) if this dose produces beneficial effects, it is repeated next time.

- If no improvement results the dose can be gradually increased by increasing the intensity and treatment time upto 2 watt/cm^2 for 8 min. If no improvement results at this maximum dose that means ultrasound therapy is no more effective for this condition.

• Dosage Parameter:

Mode: Continuous mode will produce some heat in the tissue if the intensity is great enough whereas pulsed ultrasound at the same intensity produce negligible heating.

Frequency: As the attenuation increases with rising frequency, the ~~level~~ lower frequency ultrasound gives greater depth of penetration than higher frequency.

US which is absorbed in the superficial tissues.

Intensity: Power is the total energy per second supplied by the machine, is measured in watts.

Since this power is emitted from the whole face of transducer and the transducers are of different sizes.

It more useful to give the intensity in watt/cm^2 .

The intensity applied should be in accordance with the nature of lesion that is acute or chronic.

Duration of treatment:

Duration of each treatment in minutes, related to the size of area being ~~treatment~~ treated.

Minimum treatment times are considered to be 1-2 min.

Maximum treatment time - 0-15 min and the average would be in the region of 5 min.

It is also suggested that chronic lesion benefited from longer treatment.

Treatment Repetition:

Once or twice per day for acute lesion, less frequently for chronic.

Dangers of US therapy :

1. Burn: If a continuous beam is used and is allowed to remain stationary, excess heat accumulate in the tissues and can lead to burn.
2. Cavitation: Tissue damage could result from transient cavitation.
3. Overdose: Excessive treatment may cause on of the symptoms.
4. Damage to equipment: If the treatment head is hold in the air while switched on, reflection of the beam back into the treatment head may set up standing waves which could damage the crystals.
5. Blood cell stasis and endothelial damage:
May occur if there is standing wave formation.