Non-thermal effects :-

Cavitation: It is the formation of tiny gas bubbles in the tissues as a result of ultra sound vibrations. These are of two types :-

- Stable
- Transient

Stable cavitation: It occurs when bubbles oscillate to and fro within the ultrasound pressure waves but remain intact. It has therapeutic effect.

Transient cavitation (collapse cavitation): Occurs when the volume of bubble changes rapidly and than collapse causing high temperature and pressure changes resulting in gross damage in the tissue.

Acoustic streaming (micro streaming): As a result of cavitation there is localised unidirectional fluid movement around the vibrating bubbles. These very small fluid movements also occur around cells, tissue fibres and other boundary this is called microstreaming.

This microstreaming exerts stress on the cell membrane and thus may increase cell membrane permiability. This causes ion diffusion that is therapeutically benificial.

Standing Waves: They are due to reflected waves being superimposed on incident wave. The result is standing or stationary waves with high pressure. This pressure pattern causes stasis of blood cells in the vessels.

- The endothelium of blood vessels exposed to standing waves can also be damaged leading to thrombus formation.

- If the transducer head moved during the treatment standing waves are unlikely to form.

Micro Massage: The waves of compression and rarefraction may produce a waveform that which can reduce oedema.