

## # Physiological Effects

1.) Metabolic Activity :- Metabolism increases with rise in temperature.

2. Viscosity :- It is temperature dependent, so raising the temperature lowers the viscosity.

3. On Collagenous tissues :- At temperature within therapeutically applicable range ( $40-45^{\circ}\text{C}$ ), the extensibility of collagen tissue will increase.

4. On Nervous System :-

- Afferent nerve stimulated by heat may have analgesic effect by acting on the 'Gate Control Mechanism'.
- Treating the muscle spindle and golgi tendons could



be the way in which muscle spasm is reduced by heating.

5. On Blood Vessels :- With heating skin surface reddens (erythema) is produced due to dilation of blood vessels.

The vasodilation is caused by several mechanisms :-

- i) By direct effect on capillaries, arterioles and venioles causing them to dilate.
- ii) By axonal reflex mechanism triggered by stimulation of polymodal receptors.
- iii) Increased metabolism will lead to release of carbon dioxide and lactic acid leading to greater acidity of heated tissues which tends to provoke dilation.
- iv) Further heating can damage proteins. This may initiate an inflammatory reaction, due to the release of histamine like substance which evoke vasodilation.



## # Therapeutic Effects of SWD

1) On Inflammation :- Vasodilation as a result of heat application results in an increased flow of blood to the area making available an increased supply of oxygen and nutritive material and also brings in more antibodies and WBC's.

Increased flow of blood to the area assist in the removal of waste products. This all effects help to bring about resolution of inflammation.

In acute stage of inflammation there is already marked vasodilation & increased in these process by heat application may aggravate the symptoms.

In subacute stage stronger doses may be applied which is considerable ~~but~~ benefits.

In chronic stage longer duration dose must be used to be effective.

SWD is particularly valuable for lesion of deeply placed



Structures like hip joint etc.