

Preparation techniques and their consequences in hard dental tissues.

Pressure

Vibration

Heating

Increasing of temperature in dental pulp – 5° is fatal.

Hand preparation

Pressure high

Vibration and heating no

Rotary preparation

Friction – heating

Rotation – vibration

Pressure

Electromotors:

Max 40.000 rpm, handpiece with gear to fast – till 200.000 rpm.

Gear to slow : 1:2,7, 1: 7,5

Pressure

Vibrations

Turbine handpiece -300.000 rpm

No pressure

Vibrations – very high, their perception disappears

Heating.

Water cooling – water spray

50ml/min.

Preparation trauma:

Enamel

Cracks in enamel

Less by preparation with diamonds

Dentin

Overheating causes burning of collagen in dentin.

Dental pulp

Pulpitis – inflammation

Necrosis

Prevention:

Careful preparation with interruption and sufficient water cooling.

Alternative techniques of preparation:

Ultrasonic or sonic instruments - higher effect in enamel, less in dentin, smoother borders of cavities, excavation of carious dentin insufficient.

Laser preparation

Selective preparation, can penetrate into dental pul. .

Kinetic preparation

Irregularities on surface, insufficient in soft (carious) dentin.