Sonic Scalers

- Runs off compressed air
- Hooks directly to handpiece line
- Water is necessary to cool tip
- 2500-7000 cps
- Tip movement is elliptical
- All side of tip are active

Ultrasonic instrumentation terms

- **Ultrasonic scaler**: mechanized device that produces vibratory motions of the instrument tip from 18,000 to 50,000 cycles per second
- **Ultrasonic insert**: a scaling and debridement instrument designed to fit into an ultrasonic scaling unit handpiece; which uses sound waves and water to remove stains, plaque and calculus
- **Cavitation**: characterized by the formation and explosive collapse of microscopic bubbles in a flowing liquid resulting from forces acting on the liquid
- **Acoustic microstreaming**: occurs near any objects in oscillatory motion in liquid, including ultrasonic scaler tips and cavitation bubbles, and is characterized by a vigorous swirling motion of fluid

Ultrasonic debridement mechanisms of action

- **Mechanical**: vibratory action of the oscillating blunt tip against the deposit disrupts or ablates the deposit from the tooth surface
- **Irrigation**: lavage action of water flowing over tip flushes biofilm from the tooth surface and debris from the treatment site
- **Cavitation**: removal/disruption of biofilm by shock waves resulting from the implosion of bubbles
- **Acoustic Microstreaming**: removal/disruption of biofilm by turbulent currents of water surrounding the tip

Magnetostrictive Systems

- **Elliptical stroke pattern** along with varied power dispersion offers versatility in technique
- **Insert**: stack of thick nickel strips soldered together
- Power dispersion of tip:
    1. Point
    2. Concave front side
    3. Convex back side
    4. Lateral surfaces