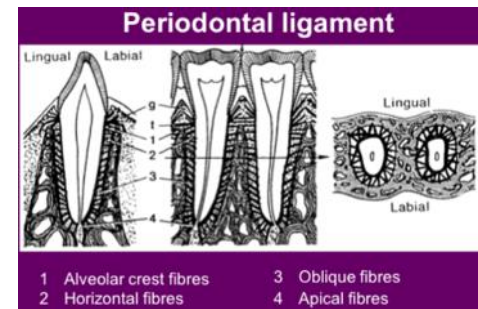


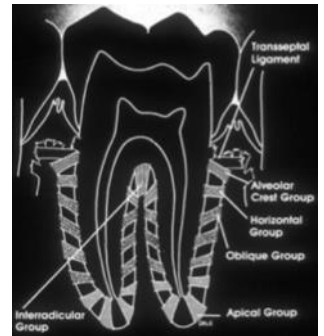
PDL Fibres:

- Only 5 fibres in PDL.
- **Alveolar crest fibres** – near alveolar crest.
 - The anchoring of tooth in alveolar bone is accomplished via dento-alveolar fibres of PDL.
- **Horizontal fibres** – placed horizontally.
- **Oblique fibres** – come at an angle.
 - Occlusal forces are absorbed by oblique fibres which course from bone to cementum.
- **Apical fibres.**
- **Interradicular fibres.**
- Remaining fibre bundles counteract tipping and rotating forces.



PDL Innervation:

- 2 groups of nerve fibres: sensory and autonomic.
- Autonomic nerves are associated with the blood vessels in the PDL; they control regional blood flow in ligament.
- PDL sensory nerves register PAIN and PRESSURE.
- Free nerve endings of pain fibres are plentiful in PDL nearest to cementum.



Clinical Importance:

- Able to detect lightest of tooth contacts and the smallest of particles between the teeth eg. Pressure/pain.
- PDL width increases with increasing functional loading eg. Traumatic occlusion, occlusal wear and decreases with age.
- Adaptability of the tissues ie. ability to vary rate of turnover to various mediators (Cytokines).
- Important in healing eg. Following injury or after mechanical periodontal therapy (SRD).
- **No PDL in implants, important to prevent risk of failure due to occlusal overload.**

Alveolar Bone (AB):

- Alveolar process consists of:
 - i) Alveolar bone
 - ii) Trabeculae bone
 - iii) Compact bone (known as lamina dura on x-ray).
- Alveolar bone is divided into:
 1. Alveolar bone proper
 2. Supporting alveolar bone (has same components as alveolar bone + nerves + vessels + lymphatics + cells + fibres + intercellular substances).
- AB proper (also called **bundle bone**, as Sharpey's fibres are inserted here) lines the tooth socket and is composed of compact bone.
- Alveolar crest is most cervical rim of AB proper and compact bone (about 1.5-2mm apical to CEJ).
- The alveolar crest blends into the cribriform plate of the alveolar bone proper which forms the alveolar wall (about 0.1-0.4mm).
- It is perforated with numerous small canals (Volkman's canal) through which vessels and nerve fibres enter into and exit the PDL space.
- Supporting AB consists of:
 1. Cortical bone (consists of compact bone on facial/lingual surfaces of AB).
 2. Trabeculae bone (consists of cancellous bone between AB proper and plates of cortical bone).

