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| **Name:** |
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| 6A-1 |
| **Basic Science Question:** |
| What is the histology of the PDL? |
| **Report:** |
| The periodontal ligament (PDL) is an aligned fibrous network that anchors the root of a tooth to the alveolar bone. The structural strength of the PDL is mainly provided by Type I collagen fibers with minor contributions from Type III, IV, V, VI, and VII collagen fibers. These fibers interact in organized units that are subdivided into dentinogingival, transseptal, and alveolodental ligament. The dentinogingival fibers extend in an oblique-cornal manner from the cementum to the gingiva. The transseptal fibers extend from the cementum of a tooth across to the cementum of an adjacent tooth. Lastly, the alveolodental ligament, which makes up the bulk of the PDL, consists of alveolar crest fibers, horizontal fibers, oblique fibers, apical fibers, and in multirooted teeth, interradicular fibers. The organization of these fibers allows for three-dimensional support and protection against forces of mastication (De Jong et al., 2017).  The PDL is composed of a diverse array of cells including bone cells, cementum cells, epithelial rests of Malassez, endothelial cells, neural cells, and fibroblasts. These cells are responsible for the maintenance and dynamic nature of the PDL (De Jong et al., 2017). Specifically, the epithelial rests of Malassez play an important role in tooth root formation and in the maintenance and regeneration of periodontal tissues. These cells are derived from Hertwig’s epithelial root sheath (HERS) and can become entrapped during the formation of granulation tissue and can proliferate, forming a cyst (Keinan & Cohen, 2013). |
| **References:** |
| De Jong, T., Bakker, A. D., Everts, V., & Smit, T. H. (2017). *The intricate anatomy of the*  *periodontal ligament and its development: Lessons for periodontal regeneration. Journal of Periodontal Research, 52(6), 965–974.* doi:10.1111/jre.12477  Keinan, D., & Cohen, R. E. (2013). *The Significance of Epithelial Rests of Malassez in the Periodontal Ligament. Journal of Endodontics, 39(5), 582–587.* doi:10.1016/j.joen.2013.01.004 |