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| **Name:** |
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| 4A-2 |
| **Basic Science Question:** |
| What is the ferrule effect? |
| **Report:** |
| Prior to discussing the ferrule effect, I think it is important to remember the basic functions of our teeth. These functions include esthetics, phonetics, and mastication. Through the teeth’s functions, it is easy to see that pressure is constantly being applied on our teeth. This is seen from actions of grinding while eating pizza or someone clenching their teeth while under pressure. Therefore, it is essential for endodontic patients to receive treatment that results in a restoration that is secure and resistant against everyday pressures and forces.  So how do we maintain proper biomechanical action of these restored teeth? By preventing fracture and crown displacement. Something that assists in this is the ferrule effect. A ferrule tooth structure is provided by a tooth’s parallel dentinal walls from the cervix of the crown coronally. A ferrule is a metal collar that completely encircles the dentin extending coronally. This provides protection for the endodontic treatment from occlusal pressures, thus creating the ferrule effect. This effect is achieved greatly with a 1.5-2mm ferrule as seen in several studies, and it particularly helps with resistance form. In layman terms, a ferrule is how much tooth structure (crown, root, and gum tissue) is needed so when a crown is placed it does not break off under masticatory pressures. This is because with the ferrule effect, there are two main changes regarding the distribution of stress. One includes decreasing the compressive stress within the labial cervical dentin and the other is increasing the tensile stress in palatal cervical dentin (increasing the ability to withstand load). With these factors, it can be seen that under daily pressures, a crown will be less likely to fracture or displace.  |
| **References:** |
| Juloski, J., Radovic, I., Goracci, C., Vulicevic, Z. R., & Ferrari, M. (2012). Ferrule effect: a literature review. *Journal of endodontics*, *38*(1), 11–19. https://doi.org/10.1016/j.joen.2011.09.024 |