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| **Name:** |
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| **Group:** |
| 2A-1 |
| **Basic Science Question:** |
| What is the etiology of the dental caries process? |
| **Report:** |
| Dental caries is the term for a microbial disease in which there is a disporption and increased pathogenicity of resident oral microorganisms in response to a change in environmental conditions. Children acquire Streptococcus mutans, as well as many other microorganisms, from their mother early in life while they are establishing their microbiome. S. mutans is largely though to be the primary causative microorganism that is responsible for initating the process of carious lesions. As environmental conditions change, such as dietary factors, the composition of the residential oral microbiota changes which can increase the risk of dental caries. The most established correlation between a change in dietary factors and an increased risk of dental caries is the increased intake of dietary sugar. Certain oral microorganisms, such as S. mutans secrete acidic compounds as they digest sugars which can lead to an acidification of dental plaque. The acidification of dental plaque roughens the surface of the affected tooth by demineralizing the tooth structure which can produce a noticeable cavity over time.  Host salivary factors can also have a significant effect on the risk of dental caries. Decreased salivary flow, also known as hyposalivation, is one of the strongest indicators of an increased risk of dental caries. Furthermore, it should be known that the process of carious lesions is a dynamic one in which there can be periods of demineralization and remineralization. |
| **References:** |
| Zero, D. T., Fontana, M., Martínez-Mier, E. A., Ferreira-Zandoná, A., Ando, M., González-Cabezas, C., & Bayne, S. (2009). The Biology, Prevention, Diagnosis and Treatment of Dental Caries. The Journal of the American Dental Association, 140, 25S-34S. https://doi.org/10.14219/jada.archive.2009.0355 |