

## GENETIC ENGINEERING



Genetic engineering is any process in which an organism's genome is intentionally altered. Genetic engineering does not encompass traditional breeding techniques because it requires manipulation of an organism's genes through cloning or transformation via the addition of foreign DNA. This process has five steps:

1. Isolation of the genes
2. Insertion of those genes into a transfer vector (a virus or a plasmid used as a conduit)
3. Transfer of the vector to the organism to be modified
4. Transformation of that organism's cells
5. Separation of the genetically modified organism (GMO) from
6. organisms that have not been successfully modified.

### Why Teach Genetics?

The contribution of hereditary factors to caries, periodontal disease, oral cancer, absent or malformed teeth, and other common oral disorders is becoming increasingly evident in dentistry, as are the implications of systematic genetic disease on oral health care. For example, the conventional preventive measure being followed for long time for the dental caries are not successful to the desirable extent due to their non availability in the rural areas, lack of awareness & inaccessibility of dental services. Therefore, the focus has now been shifted to submicroscopic level to ensure that these measures can be reached to the farthest areas & each & every member of the population is benefitted. Few of the measures taken are. i) Genetically modifying the *S. Mutans*; ii) Searching The antagonist peptides to work against the specific enzyme system (Glucosyltransferase) of *S. Mutans*. iii) Changing the oral environment by those Genetically modified organisms that will produce bases (instead of acids) & these bases provides a milieu

favoring remineralization.<sup>[1]</sup> Not all genetic anomalies are evident at birth. Dental professionals have a unique opportunity to observe the development of preadolescent and adolescent patients during periods when important growth and development changes occur. After preadolescents have completed their vaccinations (by age three), they are often seen infrequently by their physician unless specific health concerns arise.<sup>[2]</sup> Hence, Dentists should be prepared to discuss genetic factors as well as genetic tests for susceptibility to common oral health concerns and structural oral-facial anomalies and the impact of genetic disorders on oral health care. An improved understanding of genetic susceptibility, lifestyle, and oral health risk factors allows a family's dentist to offer effective preventive and treatment strategies for oral diseases.

### BIBLIOGRAPHY

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