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Is It Important to Know the Genetic Basis of Oral Health?

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Knowing the genetic basis can explain a wide range of oral diseases, including congenital anomalies, tooth decay, periodontitis, malocclusion, orofacial pain, cancer, and dental implant failure. Most of these conditions tend to be multifactorial or complex, involving more than one gene and environmental influences. Certain conditions are also inherited monogenically and may be part of teratogenic syndromes. A good understanding of this system is becoming increasingly important with the emergence of consumer genomics, including direct-to-consumer genetic testing. Dental professionals now need to understand why one person is predisposed to a particular oral health condition while their first-degree relatives do not have the condition or have a less severe form of it. Knowledge of how genes work in a susceptible host is essential if patients are to receive accurate advice about their risks. Knowledge of the genetic basis helps to provide effective personalised oral health care by optimising preventive strategies. It will allow the clinician to explain to what extent a patient's condition is a pure "failure", whether that failure can be reversed by behavioural choices and to what extent our behaviour is influenced by genes.