

Virulence of oral cavity bacteria and microgravity: Aeronautic dentistry

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Abstract

Attachments of oral microbials, an etiological agents to dental caries, to enamel surfaces are influenced by production or flow of saliva in oral cavity. Unlike earth gravity, microgravity environment may change production or flow of, for example, parotid gland saliva. As a result, development of dental caries may be revealed to either up-regulation or down-regulation in the microgravity. The microgravity may affect flow of saliva and biofilm formation on the tooth surface in the oral cavity. It has been reported that bacteria become less susceptible to antimicrobial agents under conditions of microgravity, while humans suffer immunosuppression with prolonged space flight. In addition,

some bacteria grow more rapidly in the weightless environment of spacecraft such as oral bacteria. Hence, dental diseases became a really medical emergency. As a consequence, human life support systems planned for future long-term space flight missions will require high quality dental care to minimize the risk of oral infectious disease and system deterioration. Recent study suggested that attention to oral hygiene including special care may be required to diminish the risk of oral diseases in long time life for continued health of the pilots in the space station.

References

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