

Abstract

The microbial and macroscopic health levels in Astronauts have already been studied in a scrutinous manner. A common health scan prior to an astronaut leaving the earth would include blood pressure readings, lung and cardiovascular health checkups, and multiple blood tests. Astronauts are already being treated for potential viral and bacterial infections [2]. Now, the focus could include further examinations such as the bone health of astronauts prior to enduring space travel. Specifically, a cone beam computed tomography (CBCT) scan would provide an accurate depiction of the astronauts' gum health, bone structure, and dental composition [1]. In this way, all of the teeth in the astronauts' mouths will be measured from the bottom of the tooth root to the top of the crown before liftoff and upon returning home. Another CBCT scan will be taken every six months after returning home in order to determine whether or not the teeth are moving away from the peg and socket joint. This would be caused by the tooth's cementing substance losing integrity after a trip into space due to the loss of gravity. Through these comparative CBCT scans of all the teeth in the whole mouth, the likely outcome is that the teeth in the mandible will move more than teeth in the maxilla due to gravity no longer forcing these teeth downwards and securing them into their sockets. A solution for this problem is to fit all astronauts with a protective mouth guard for take off that will double as a retainer while in orbit that will resist teeth movement.

References

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- [2] Mermel Leonard A. Infection Prevention and Control During Prolonged Human Space Travel. *Clinical Infectious Diseases*. 2013;56(1):123–130. Accessed 16 Oct. 2020. *JSTOR*, www.jstor.org/stable/23482224