The human microbiome has a widely recognised role in maintaining optimal human physiological functions. Furthermore, an association between the microbiome changes, impairment in immune system function and excessive hygiene could also be exploredThe microbiome relates to the compilation of different communities of bacteria, archaea, fungi and viruses whose composition is dynamic and influenced by environmental conditions.57 Disturbances to a healthy microbiome (dysbiosis) has been extensively linked with systemic diseases such as depression,58 Inflammatory Bowel Disease (IBD)59 and age-related neurological diseases such as Alzheimer's disease amongst others.60 Gut and oral microbiome dysbiosis have also been extensively linked with an increased risk of infection including microbial translocationMN7 and bacteraemiaMN8.8,61,62 Two well-established opportunistic infections caused by microbiome dysbiosis are these induced by Clostridium dificile (colitis) and Candida albicans (candidiasis).63,64 Additionally, the gut microbiome contributes to the maintenance of the intestinal wall. A study conducted in a Hindlimb Unloading (HU), Dextran Sulphate Sodium (DSS) colitis induced mouse model in simulated microgravity conditions revealed an overall predisposition to colitis.67 When compared to the ground control mice, the mice exposed to microgravity had an associated early onset of colitis, a fourfold increase of segmented filamentous bacteria, more than a twofold decrease in regulatory T cells (Treg) absolute numbers as well as a reported twofold increase in colonic IL-1?It needs to be highlighted that, so far human based microbiome studies during spaceflight have a very limited sample .size (n = 4-9) and therefore statistical inference is difficult

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