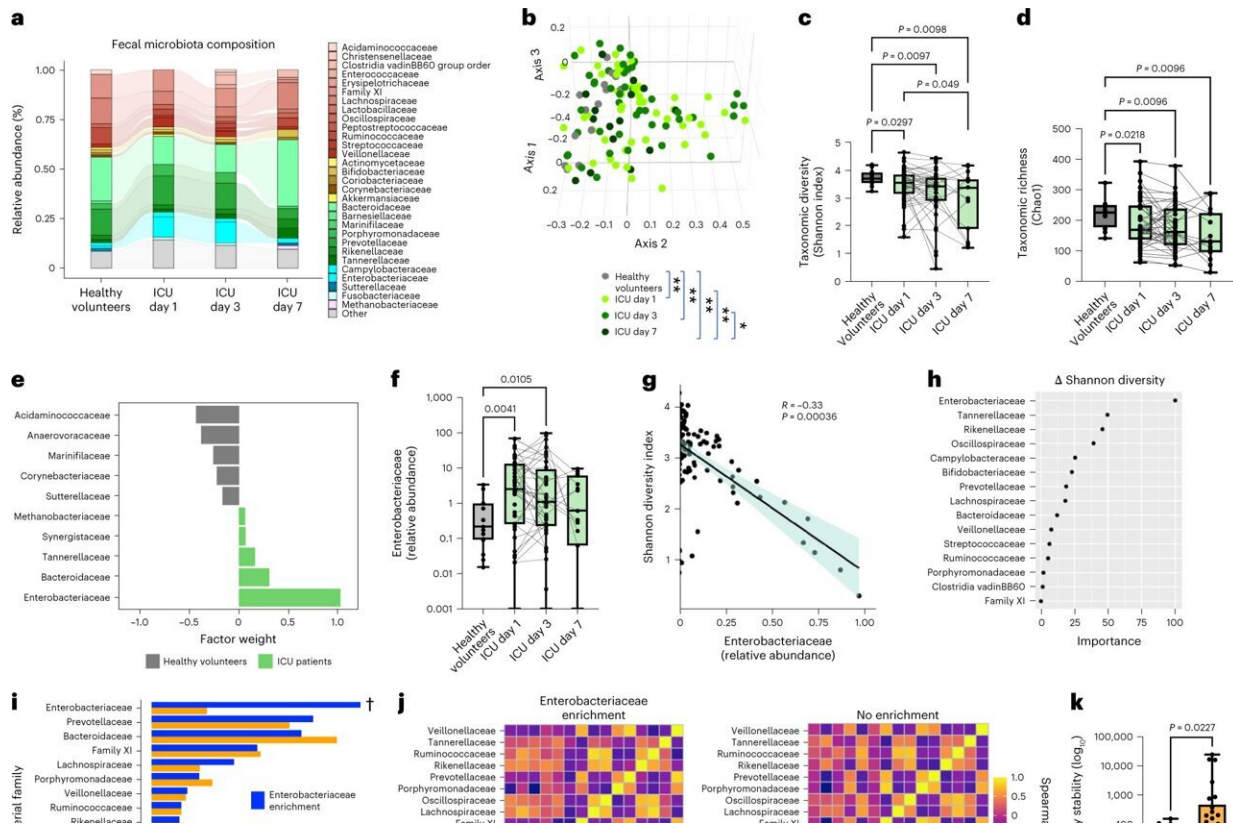


A healthy microbiome may prevent deadly infections in critically ill people

March 31 2023



Intestinal dysbiosis with progressive Enterobacteriaceae enrichment in critical illness is associated with nosocomial infections. **a**, Taxonomic composition by relative abundance of bacterial families. **b**, Three-dimensional principal-coordinates analysis (Bray–Curtis dissimilarity distances, genus level) analyzed by PERMANOVA. **c**, Shannon index. **d**, Chao1 index in rectal swabs from critically ill patients on day 1 ($n = 51$) and again from survivors who remained in ICU on day 3 ($n = 44$) and day 7 ($n = 15$), compared to healthy volunteers ($n = 15$). Dots represent individual patients, central line indicates median, box shows

interquartile range (IQR) and whiskers show range; analyzed by two-sided Kruskal–Wallis test (healthy versus ICU days) with pairwise comparisons of repeated measures across days using a mixed linear regression model with a post hoc Tukey’s test. **e**, MOFA of microbiota composition between healthy volunteers and ICU patients showing top ten taxonomic factors (families) and their relative contributions to explained microbiota variance (factor weight). **f**, Enterobacteriaceae relative abundance on days 1, 3 and 7 of ICU admission compared to healthy controls. Dots represent individual patients, central line shows median, box shows IQR and whiskers show range, analysis as per **c** and **d**. **g**, Correlation between Enterobacteriaceae relative abundance and Shannon index, analyzed using Spearman correlation test. Dots show individual patient samples, regression (line) and 95% confidence intervals (shaded area) are shown. **h**, Penalized ridge regression of the 15 most abundant bacterial families and their importance toward change in Shannon diversity from days 1–3 of ICU admission. **i,j**, Mean relative abundance (\dagger indicates P_{adj}

Citation: A healthy microbiome may prevent deadly infections in critically ill people (2023, March 31) retrieved 3 April 2023 from <https://medicalxpress.com/news/2023-03-healthy-microbiome-deadly-infections-critically.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.