

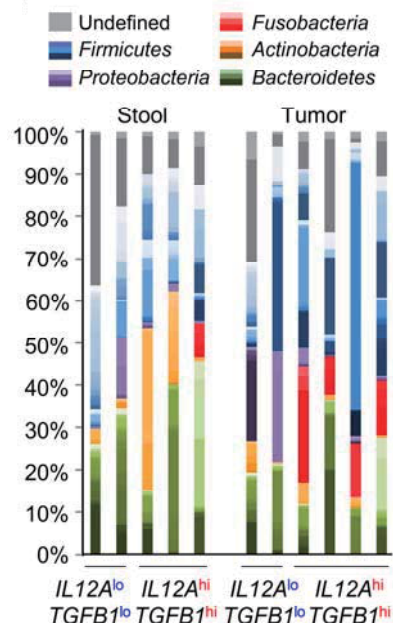
Evaluation system of human healthy by its microbiome

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The balance of human gut microbiota is changed by living environment, age, stress, diet, and has a big influence on health.



Downloaded from <http://gut.bmj.com/> on September 6, 2015 - Published by group.bmj.com

Gut microbiota

ORIGINAL ARTICLE

Exercise and associated dietary extremes impact on gut microbial diversity

Clarke et al, *Gut*, 2014

Athletes and controls differed significantly with respect to plasma creatine kinase (a marker of extreme exercise), and inflammatory and metabolic markers. More importantly, athletes had a higher diversity of gut micro-organisms, representing 22 distinct phyla, which in turn positively correlated with protein consumption and creatine kinase.

Two FOXP3+CD4+ T-cell subpopulations distinctly control the prognosis of colorectal cancers

Sequencing of bacterial 16S ribosomal DNA detected *Fusobacterium nucleatum* in IL12A^{hi}TGFB1^{hi}, but not in IL12A^{lo}TGFB1^{lo} CRC tissues or the stool of either type.

Saito T, Nishikawa H, Morita H, Honda K and Sakaguchi S, et al., *Nature Medicine*, in press

Top athletes had a higher diversity of gut microbiota

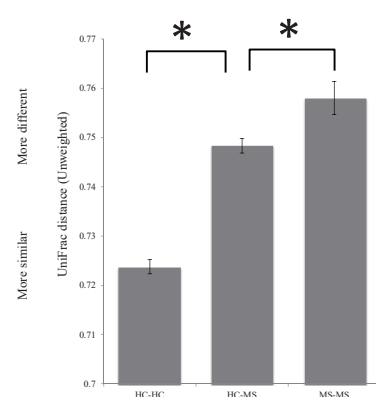
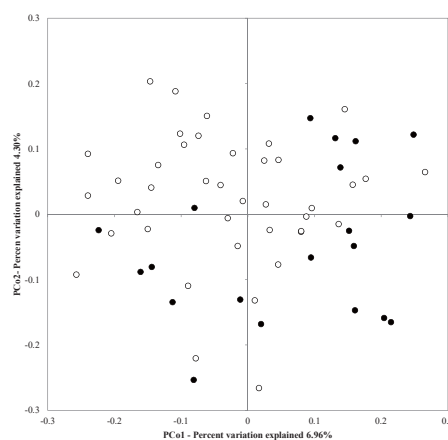
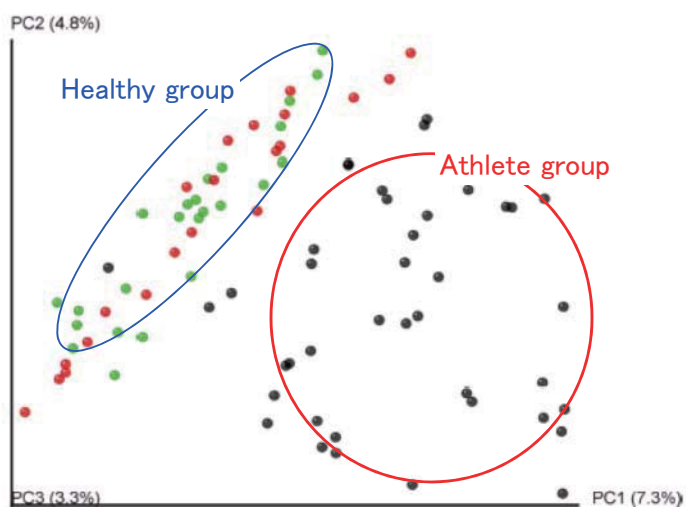
Gut microbiota of healthy persons

Dysbiosis of gut microbiota on various disease



Higher diversity of gut microbiota of top athletes

Dysbiosis of gut microbiota of multiple sclerosis (MS)



Unweighted UniFrac Principal Coordinate (PCoA) and UniFrac distance analysis for HC40(O) and MS20(●).

Miyake S, Morita H, Hattori M, Yamamura T, et al., *PLoS One*, 2015

Our health is kept to good condition by various metabolites, which were produced by gut microorganisms, derived from proteins, vitamins, minerals and sugars.