Twitter Thread by Robin Monotti FRSA ■



Robin Monotti FRSA ■
@robinmonotti

PROBIOTICS & VIT D: "The vitamin D receptor is highly expressed in the gastrointestinal tract where it transacts gene expression..These results support the underlying hypothesis that the human gut microbiome and vitamin D metabolism are integrally related"
https://t.co/15rVFa1fkk



"Men with higher levels of 1,25(OH)2D and higher activation ratios, but not 25(OH)D itself, are more likely to possess butyrate producing bacteria that are associated with better gut microbial health."

"Several studies suggest that gut microbiota alter intestinal vitamin D metabolism (VDM), and probiotic supplements can affect circulating vitamin D levels."

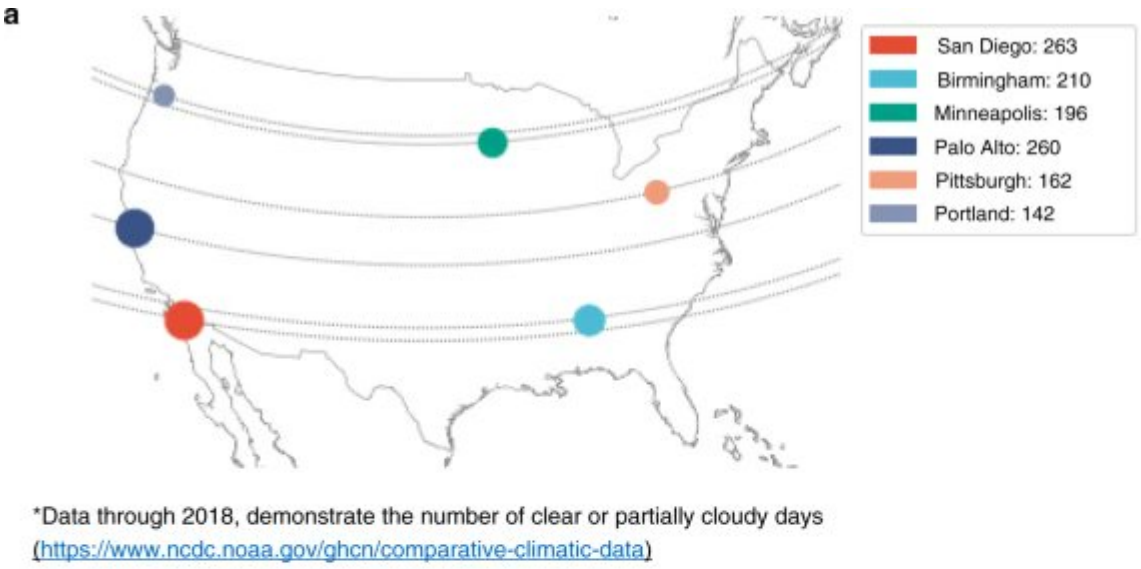
"Because the serum 25(OH)D correlates with overall vitamin D storage, it is the preferred clinical measure to assess vitamin D sufficiency."

"Clinically, serum 25(OH)D levels ≥20 ng/ml are considered adequate while 25(OH)D levels <20 ng/ml are defined as vitamin D deficiency."

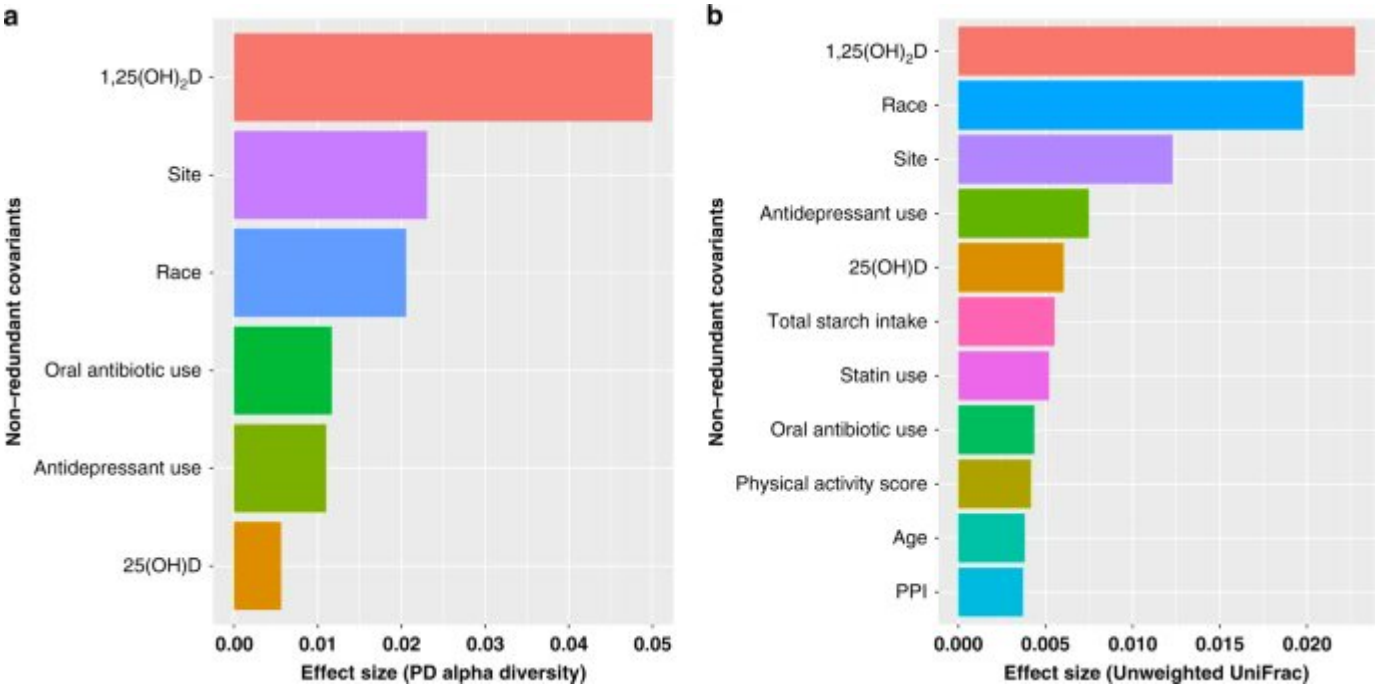
"However, it is the active form of vitamin D, 1,25(OH)2D, that interacts specifically with the vitamin D receptor (VDR) and transacts gene expression."

"Those men with the highest compared to lowest 1,25(OH)2D and activation ratios are more likely to possess butyrate-producing bacteria that are associated with favorable gut microbial health."

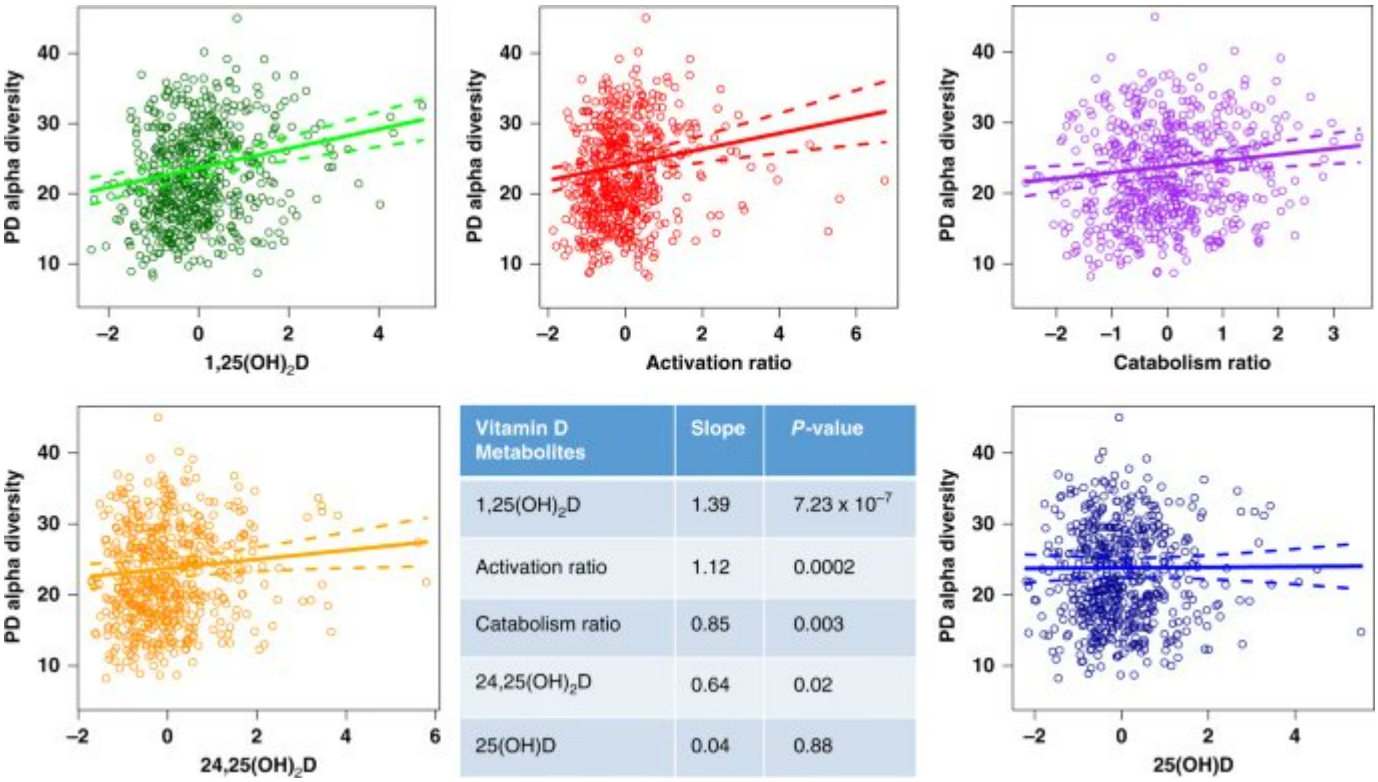
"25(OH)D levels vary with site and sun exposure, but 1,25(OH)2D levels do not follow this association."



"the serum 1,25(OH)2D was the factor that explained the highest proportion of the variance in α-diversity (e.g., bacterial species diversity within an individual) at just over 5%"

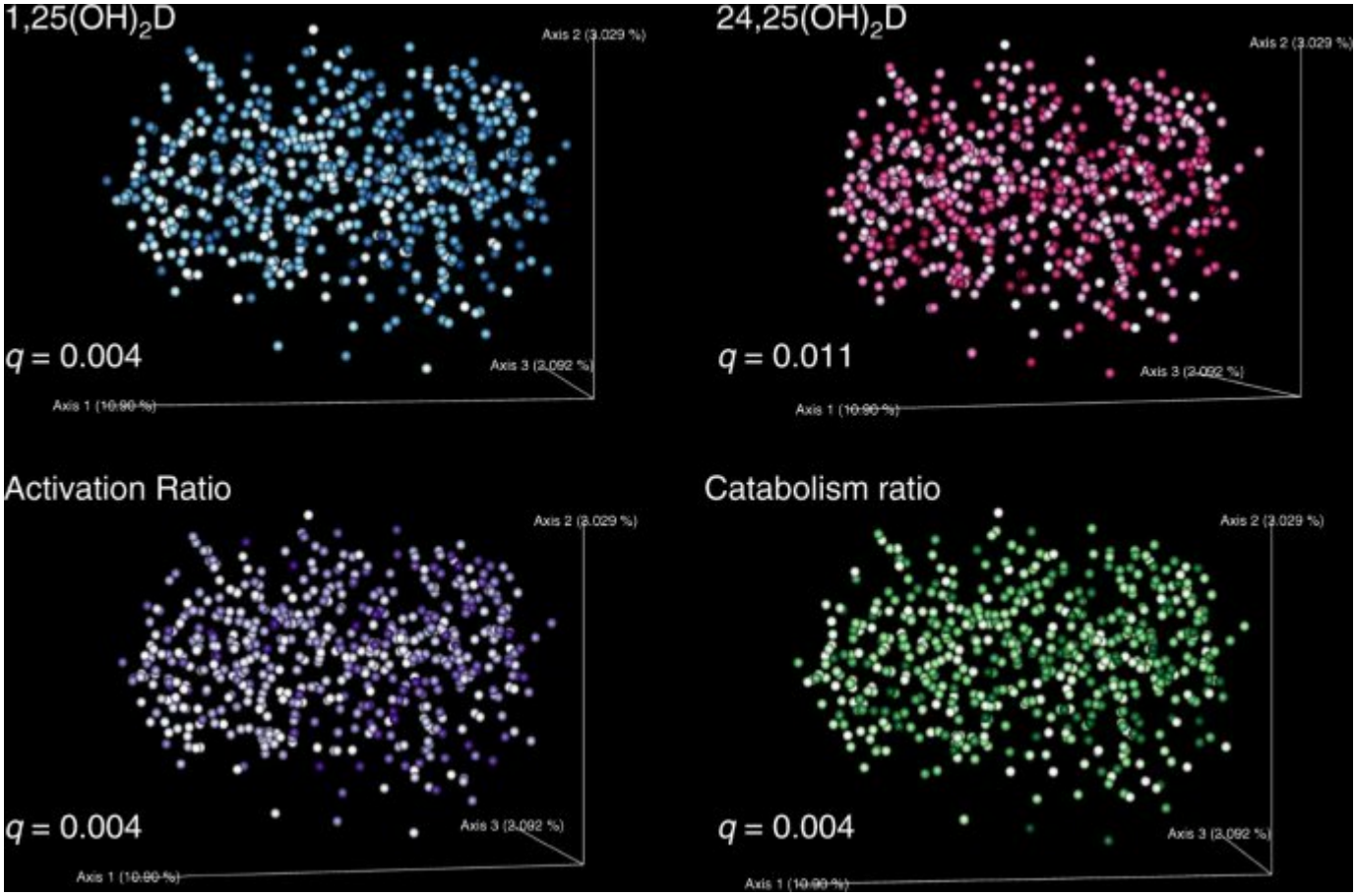


"Greater α-diversity [gut bacterial species diversity] is associated with higher 1,25(OH)2D levels and larger vitamin D activation and catabolism ratios."



Vitamin D Metabolites	Slope	*P*-value
$1,25(OH)_2D$	1.39	7.23×10^{-7}
Activation ratio	1.12	0.0002
Catabolism ratio	0.85	0.003
$24,25(OH)_2D$	0.64	0.02
25(OH)D	0.04	0.88

"Overall, apart from known correlates such as race and geographic locations, measures of vitamin D metabolic flux were remarkably associated with microbial β-diversity"



"We report robust correlations between the vitamin D metabolites, 1,25(OH)2D and 24,25(OH)2D, and the gut microbiome in 567 older men representing six geographic sites across the United States"

"Those men with higher levels of 1,25(OH)2D had greater α-diversity, even after adjusting for previously characterized determinants of microbial diversity including age, geographical origin, race, PPI, and antibiotic use."

"Serum 25(OH)D is the preferred clinical measure because it is representative of overall body stores of vit D; however, our results suggest it is the regulation of VDM, reflected by active hormone & metabolic ratios rather than body stores that have the most health implications."

"The positive association between diversity metrics and vitamin D activation and catabolism ratios suggests that physiologically normal vitamin D flux is more likely to occur in individuals with healthy microbiomes."

"In summary, we provide strong evidence of important interactions between host vitamin D signaling and the health of the gut microbiome in older men."