



# HMT Newsletter

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Turkey, Football, and Tryptophan. Everyone's favorite way to spend Thanksgiving Day. But why is Tryptophan so important?

Turns out, our propensity to nap after that big thanksgiving turkey isn't exactly because of an influx of tryptophan. Due to concentration and transport issues, there just isn't enough tryptophan in those few slices of turkey to cause the post meal "coma". Instead researchers conclude that it's more likely due to the stress of the hustle and bustle of the holiday itself. In fact, chicken contains more tryptophan than turkey.

But tryptophan itself is an extremely important amino acid. Here is a collection of some of our favorite papers. So this Thanksgiving, enjoy your post meal nap, but having your family ask for the 5th time when you're getting married and having kids may have more to do with your sleepiness than the turkey does.



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## HMT Publication Spotlight: Tryptophan

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Serotonin precursor influenced by type of carbohydrate meal

Lyons & Truswell. Am J Clin Nutr. 1988;47:433-39.

- Serotonin levels in rat brains was previously shown to be critically dependent on the bioavailability of its molecular precursor, tryptophan
- Here, the ratio of tryptophan to other large, neutral, amino acids (LNAA) in human plasma was shown to be increased after ingestion of carbohydrate-based meals, and decreased after ingestion of protein and fat-based meals
- This is hypothesized to be caused by an insulin mediated increase in LNAA transport into muscle tissue, while tryptophan escapes this effect by binding strongly to plasma albumin

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## The Effects of Dietary Tryptophan on Affective Disorders

Lindsberth et al. Archives of Psychiatric Nursing, Volume 29, Issue 2, 102 - 107

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### Key Points:

- Affective disorders, such as depression and anxiety, are becoming an increasingly common diagnosis worldwide
- While molecular and behavioral studies had been performed in rats and mice, the authors of this paper assessed how dietary tryptophan, a precursor of serotonin, affects mood and behavior in human patients
- While there was no correlation with negative behavioral affect among the volunteers, there was a significant inverse correlation between dietary tryptophan intake and levels of depression and anxiety

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## Dietary tryptophan links encephalogenicity of autoreactive T cells with gut microbial ecology

Sonner, J.K., *et al.*,  
*Nature Communications*. 2019, 10:4877

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### Key Points:

- Host microbiota have long been shown to be influenced by dietary intake
- Trp restricted diets modulated the autoimmune response in a mouse model of multiple sclerosis but this protective effect was abrogated in germ-free mice
- These results indicate that dietary trp intake can modulate encephalitogenic T-cell responses and this occurs via the gut-host axis rather than host sensing systems

## HMT Events

- Kidney Week, Washington D.C., Nov. 5th-10th

- Microbiome Movement, Boston, MA, Nov. 11th-13th

## Apply for the HMT Sponsored Young Leadership in Metabolomics Grant

Click [here](#) for details

***Applications Due November 29th***

HMT is a leading company providing metabolomic profiling based on unique and high performance CE-MS technology. We complete over 400 projects a year and our technology has contributed to the advancement of research in a variety of scientific areas.

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