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Functional Medicine

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## LA PRODUCTION DE SÉROTONINE ET LE RÔLE DE L'AXE INTESTINAL-CERVEAU

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### Influence of Tryptophan and Serotonin on Mood and Cognition with a Possible Role of the Gut-Brain Axis.

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#### Abstract

The serotonergic system forms a diffuse network within the central nervous system and plays a significant role in the regulation of mood and cognition. Manipulation of tryptophan levels, acutely or chronically, by depletion or supplementation, is an experimental procedure for modifying peripheral and central serotonin levels. These studies have allowed us to establish the role of serotonin in higher order brain function in both preclinical and clinical situations and have precipitated the finding that low brain serotonin levels are associated with poor memory and depressed mood. The gut-brain axis is a bi-directional system between the brain and gastrointestinal tract, linking emotional and cognitive centres of the brain with peripheral functioning of the digestive tract. An influence of gut microbiota on behaviour is becoming increasingly evident, as is the extension to tryptophan and serotonin, producing a possibility that alterations in the gut may be important in the pathophysiology of human central nervous system disorders. In this review we will discuss the effect of manipulating tryptophan on mood and cognition, and discuss a possible influence of the gut-brain axis.

**KEYWORDS:** gut-brain axis; mood and cognition; serotonin; tryptophan

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*"La production de sérotonine centrale ne représente que 5% de la synthèse totale de sérotonine, la grande majorité de la sérotonine étant produite en périphérie. La synthèse périphérique se produit dans des tissus tels que les os, les glandes mammaires, le pancréas, mais l'épithélium gastro-intestinal est de loin la plus grande source. Les cellules entérochromaffines de l'épithélium gastro-intestinal représentent ~90% de toute la synthèse de sérotonine." Les souris exemptes de germes affichent des comportements moins anxieux que leurs homologues colonisés.*

*Ces effets n'ont pas été trouvés chez des souris vagotomisées, identifiant le vagus comme une voie de communication modulateur majeure entre les bactéries intestinales et le cerveau."*