

The impact of the 'Western Diet' on emotional, social and cognitive behaviours as revealed by a study on conventional and serotonin transporter-deficient mice

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Propositions

1. The Western diet suppresses social interactions, impairs cognition, induces impulsive and depressive-like behaviours, which are, together, all reminiscent of symptoms of autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD) (*this thesis*);
2. The Western diet-induced abnormalities are associated with signs of oxidative stress, microglial activation, decreased gene expression of serotonin transporter in the prefrontal cortex as well as metabolic impairments (*this thesis*);
3. Complete genetic serotonin transporter inactivation exacerbates metabolic, molecular, and the behavioural consequences of the Western diet in aging mice (*this thesis*);
4. Mice with partial genetic serotonin transporter deficiency display a ‘rescued’ phenotype in dietary-induced abnormalities in glucose tolerance, neuroinflammation and hippocampus-dependent behaviour (*this thesis*);
5. Invention of a specific diet might provide relief for patients with co-occurring metabolic and neuropsychiatric disorders, which will decrease costs associated with disability and health management (*this thesis, valorization*);

6. Diet might impact on the pathogenesis of other neuropsychiatric disorders not considered in this thesis (for example, psychosis);
7. Other diets such as Mediterranean diet is likely to be protective in adulthood in cases of ADHD/ASD;
8. Gut microbiota has an important role in the interaction between diet and brain dysfunction;
9. “In food excellent medicine can be found, in food bad medicine can be found; good and bad are relative” (*Hippocrates, “De Alimento”, 5th-4th century BC*);
10. “Dilettante gardeners love the spring and summer; real gardeners also love the winter” (*Anne Scott-James, “Down to Earth”, 1971*);
11. “Today’s philosophy questions are tomorrow’s precision science experiments” (*Jorge Cham and Daniel Whiteson, “We Have No Idea: A Guide to the Unknown Universe”, 2017*).