Chapter

Introductory Chapter: Sugar Intake and Global Chronic Disease

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1. Introduction

The incidence of diabetes has been predicted to increase to 21% by 2050. In various continents, the rise in the global diabetes epidemic has been associated with diseases of various organs related to obesity, diabetes and neurodegenerative diseases [1]. Type 2 diabetes is now connected to Type 3 diabetes that involves the brain early in life associated with various brain diseases such as stroke, dementia, and Alzheimer's disease. Sugar intake is now critical to healthy aging and determines mitochondrial survival [2] and the lifespan of diabetics in the developing and developed world (**Figure 1**). The risk of sugar (glucose, fructose) intake is associated with amyloid-beta aggregation and programmed cell death relevant to neurodegeneration and Alzheimer's disease. Insulin therapy and sugar intake are closely connected to the global non-alcoholic fatty liver disease (NAFLD) with insulin therapy inactivation associated with the induction of NAFLD [1]. Food quality [3] is critical to the global diabetes epidemic with recalculation of daily sugar intake essential to maintain the anti-aging gene and to reverse accelerated aging, NAFLD and neurodegeneration.

The guidelines on dietary sugar require critical recommendations [4] with relevance to functional food science. Food scientists indicate that functional foods contain biologically active compounds that have advantageous physiological effects that play an important role in the prevention of insulin resistance. Nutritional science provides functional foods with the required amounts of natural compounds [5] that prevent mitophagy and reverse programmed cell death. This book contains chapters that assist food scientists with relevance to sugar intake (risks and benefits) and are

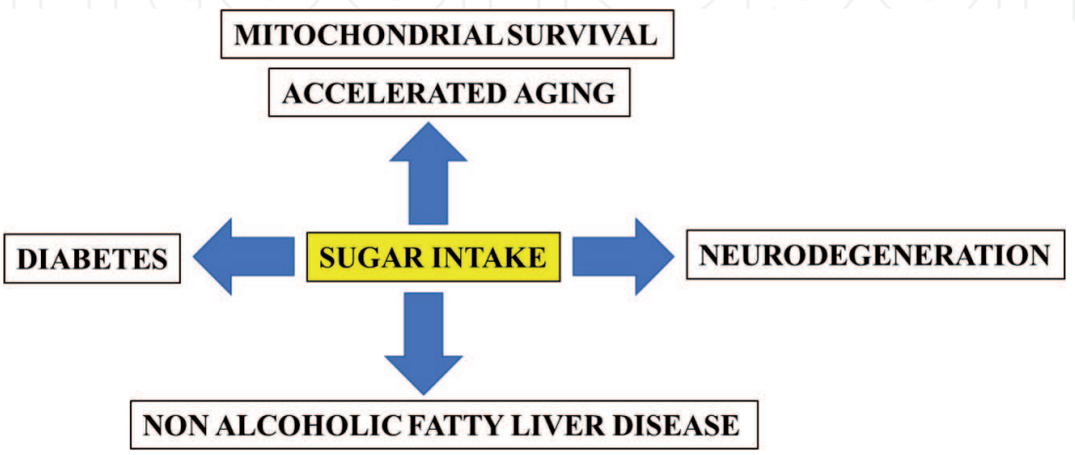

Figure 1.
The role of sugar intake is critical to mitochondrial survival that is connected to diabetes, NAFLD and Alzheimer's disease.

important to the critical role played by functional foods in the treatment of individuals from the global chronic disease. The chapters published in this book are from various authors around the world. These authors have written excellent chapters that maintain the high standards for the best book companies. The quality of the research contributed in chapters include research on the impact of sugar on vision, use of pedometer for the management of impaired glucose intolerance, fructose intake with relevance to metabolism and severity in chronic diseases. The role of organs involved in glucose metabolism and the effect of ad framing on the intention to control sugar intake is assessed. The biological responses to the consumption of non-nutritional sweeteners is assessed with the role of hyperglycemia and hyperlipidemia induced activation of human T lymphocytes and inflammation and inhibition by ω- 3 Fatty Acid. The research on critical elements of dietary carbohydrates and the metabolic syndrome with relevance to the sugars with the potential to prolong human life are discussed in this scholarly book. The research contributed in these chapters by the authors is of key interest to functional foods and the current global chronic disease epidemic. The role of anti-aging genes [6, 7] are of critical interest that when activated will reverse impaired glucose tolerance, improve vision, extend life and improve the metabolic syndrome in diabetes. The research mentioned in these chapters will improve the anti-aging gene release of anti-aging proteins [8] that are critical to longevity and reversal of the global chronic disease epidemic. The risk and benefits of sugar intake as outlined in this book may revolve around the activation and repression of the anti-aging gene that is critical to mitochondrial survival and if the question with relevance to risks and benefits of sugar intake remains unanswered it may lead to the predicted global increase in NAFLD, diabetes and neurodegenerative disease by the year 2050.

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