

Understanding the metabolic fate of different sweeteners

With continued efforts to find solutions to rising rates of obesity and diabetes, there is increased interest in the potential benefits of the use of low- and no calorie sweeteners (LNCSs) as a replacement for added sugars. Concerns about safety often deter the use of LNCSs as a tool in helping control caloric intake, even though the safety of LNCS use has been affirmed by regulatory agencies worldwide. In many cases, an understanding of the biological fate of the different LNCSs can help health professionals to address safety concerns and better interpret research study findings. This presentation will discuss the similarities and differences in the properties, chemistry, and biological fate (including absorption, body distribution, metabolism, and excretion) of the commonly used LNCSs: acesulfame potassium, aspartame, saccharin, stevia leaf extract (steviol glycoside), and sucralose. Understanding the biological fate of the different LNCSs is critical to assess whether reports of biological effects in animal studies or in humans are truly indicative of possible safety concerns. Illustrations will include use of biological fate data to determine actual systemic exposure to LNCS; to assess appropriateness and/or flaws of various research study designs; and the safety of use of sweetener combinations. Thus greater awareness of the extensive data on biological fate of sweeteners is needed, as when utilized to critically evaluate research studies, can lead to increased confidence in the safety of use of LNCS.