

# Dietary polyamines in Mediterranean diet and their health benefits

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## Dear editor

I would like to contribute to the discussion of a publication entitled “Mediterranean diet and polyamine intake: possible contribution of increased polyamine intake to inhibition of age-associated disease” by Binh et al.<sup>1</sup> Polyamines (putrescine, spermidine, and spermine) are abundantly found, low-molecular-weight amine molecules which are positively charged under physiological conditions.<sup>2,3</sup> Homeostatic control of intracellular polyamines level is achieved by regulating the synthesis, catabolism, and transport of these molecules.<sup>2-4</sup> The said article suggested that the Mediterranean diet has been associated with increased longevity and also been shown to have anti-inflammatory properties.<sup>1</sup> The authors claimed to have found an evidence that continuous and increased polyamine intake prolongs murine lifespan.<sup>1</sup> Because polyamines are contained in most foods in widely varying concentrations, the authors found epidemiologic evidence that supports an association between the Mediterranean diet and increased polyamine intake. Their data indicate a possible association of the dietary polyamines abundant in the Mediterranean diet and prolongation of human life.<sup>1</sup>

There is increasing evidence that dietary polyamines may correlate with greater longevity and delays the onset of age-associated health deterioration as reviewed in a study by Tjandrawinata.<sup>5</sup> Putrescine contents are commonly found to be the highest among polyamines in nature, and this fact correlated well with the average total polyamine daily intake by adult subjects. Spermidine contents in plant foods are commonly higher than spermine levels. In this regard, spermidine imposes its antiaging effects via a pathway which involves the process of autophagy.<sup>6</sup> Likewise, spermidine may target some pathways which lead to the process of autophagy.<sup>6</sup> However, it is inferred that the spermidine modulation may not involve SIRT1, the mTOR pathway as well as AMPK.<sup>7</sup> Thus, there is good evidence to suggest that polyamines may assist with healthy aging. More research is to be conducted before recommendations on optimal and safe polyamine intake can be made. Specific epidemiological studies must be carried out across the different geriatric populations using different foods and food items known to contain high polyamine levels.

## Disclosure

The author reports no conflicts of interest in this communication.

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