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Bone Broth Unlikely to Provide Reliable Concentrations of Collagen Precursors Compared With Supplemental Sources of Collagen Used in Collagen Research

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Abstract

Intake of dietary sources of collagen may support the synthesis of collagen in varying tissues, with the availability of key amino acids being a likely contributor to its effectiveness. This study analyzed commonly consumed preparations of bone broth (BB) to assess the amount and consistency of its amino acid content. Commercial and laboratory-prepared samples, made with standardized and variable (nonstandardized) protocols, were analyzed for key amino acids (glycine, lysine, proline, leucine, hydroxyproline, and hydroxylysine). The main finding of this study was that amino acid concentrations in BB made to a standardized recipe were significantly lower for hydroxyproline, glycine, and proline (p = .003) and hydroxylysine, leucine, and lysine (p = .004) than those provided by a potentially therapeutic dose (20 g) of reference collagen supplements (p > .05). There was a large variability in the amino acid content of BB made to nonstandardized recipes, with the highest levels of all amino acids found within the café-prepared varieties. For standardized preparations, commercial BBs were lower in all amino acids than the self-prepared varieties. There were no differences (p > .05) in the amino acid content of different batches of BB when prepared according to a standardized recipe. If the intake of collagen precursors is proven to support the synthesis of new collagen in vivo, it is unlikely that BB can provide a consistently reliable source of key amino acids. Research on the provision of key amino acids from dietary sources should continue to focus on the standard sources currently being researched.

Keywords: gelatine; glycine; ligament; proline; protein; tendon.

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