

Nutritional value of cooked and sous-vide beef: mineral compounds content

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Abstract

Meat, including beef, is a rich source of minerals in the human diet^(1,2). However, different thermal treatments might affect minerals concentration in beef and thus its nutritional value. The aim of the study was to determine the degree of coverage of the demand for minerals by consuming 100 g of steam-cooked and sous-vide beef. Material for the study were *semimembranosus* muscles (n = 12), cut into 2.5 cm thick steaks, which were subjected to steam cooking to obtain 75°C in geometric centre and sous-vide treatment at 60°C for 4 h. The content of minerals was analyzed by flame atomic absorption spectrometry method (flame:acetylene-air). Percentages of the recommended daily allowance (RDA) of Ca, Cu, Fe, Mg, Zn and the adequate intake (AI) of Mn, K, Na in 100 g of thermal processed beef were determined for adults (males and females, aged 19–50 years) and for children (aged 4–8 years) based on the Institute of Medicine, National Academies, recommendations. The concentration of Ca, Fe, Zn, and Cu was higher in steam-cooked beef, whereas Na and K in sous-vide beef. Thermal processes beef was very good source of Zn and Fe; 100 g of steam-cooked beef satisfied 119% of Zn RDA for children, 54% for males and 74% for females, whereas sous-vide beef 101%, 46% and 63%, respectively. A portion of steam-cooked beef provided 32% of Fe RDA for children, 40% for males and 18% for females, whereas sous-vide beef 21%, 26% and 11%, respectively. The steam-cooked meat was also relatively good source of Cu and provided from 12% RDA (males and females) to 25% (children), whereas sous-vide beef from 10% to 20%, respectively. Thermal processed beef was moderate source for Mg (from 4 to 13% of RDA) and K (from 7 to 9% of AI) and poor source of Ca (up to 0.5% of RDA), Mn (up to 0.3% of AI) and Na (up to 3% of AI). Daily requirements for minerals were satisfied to higher degree by a 100 g portion of steam-cooked beef, which was caused by lower cooking loss than sous-vide samples.

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Conflict of Interest

There is no conflict of interest

References

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