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Abstract

Can consumption of diatomaceous earth improve intestinal health?

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Abstract: The consumption of diatomaceous earth (DE) as a food supplement has healthy effects such as detoxifying the body, controlling parasites or improving joint and bone health. However, its effects on intestinal health have not been demonstrated. The aim of this study was to analyze the adaptive morphology changes at the intestinal level derived from the consumption of DE in rats. Animals were treated daily by oral gavage for one week without (C, control group) or with DE (2 mg/kg b.w) (DE group). The villi absorption area, the renewal and differentiation of the epithelium and the integrity of the barrier of the small and large intestine have been studied. DE-supplemented group showed similar results to C group with respect to villi width, crypt depth, and occludin, and the number of PAS goblet cells along the intestinal tract. As an adaptive response to DE, there was an increase in the villi area and absorption surface due to the higher index of cell proliferation in the duodenum and ileum. Furthermore, the percentage of AB goblet cells increased in the crypts of jejunum, ileum and proximal colon, improving the acidic mucus layer of the mucosa. The number of intraepithelial lymphocytes was in healthy range values, although, in all sections of the intestine, DE rats showed a tendency to increase, improving the defense system. DE consumption may be recommended to improve intestinal health by increasing the absorption area and maintaining the integrity of the intestinal mucosal barrier.

Keywords: Diatomaceous earth; supplementary food; gut morphology; small intestine; colon; intestine barrier.

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