

# Can consumption of diatomaceous earth improve intestinal health?



J. A. Issa<sup>1</sup>, R. Redondo<sup>2</sup>, M. Hernández-Martín<sup>1</sup>, C. Quevedo-Torremocha<sup>2</sup>, R. García-Fernández<sup>3</sup>, A. Garcimartín<sup>2</sup>, J. Benedí<sup>2</sup>, Aranzazu Bocanegra<sup>2</sup> M.E. Lopez-Oliva<sup>1</sup>

<sup>1</sup>Departmental Section of Physiology. Faculty of Pharmacy, Complutense University of Madrid, Spain.  
<sup>2</sup>Department of Pharmacology, Pharmacognosy and Botany. Faculty of Pharmacy, Complutense University of Madrid, Spain.  
<sup>3</sup>Animal Medicine and Surgery Department, Veterinary School, Complutense University of Madrid, Spain.

## INTRODUCTION:

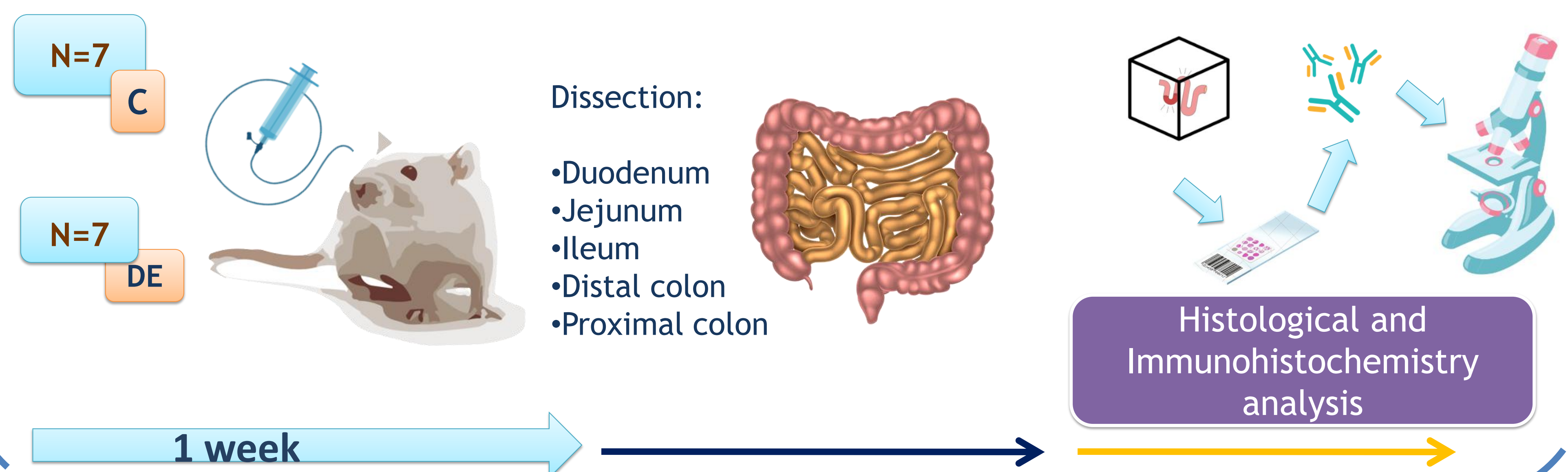
The consumption of diatomaceous earth (diatomite genus *aulacoseira*) (DE) as a food supplement has healthy effects such as detoxifying the body, controlling parasites or improving joint and bone health. However, its effects on intestinal health have not been demonstrated.

## OBJETIVES:

Analyze the adaptive morphology changes at the intestinal level derived from the consumption of DE in rats.

## METHODS:

- Animals were treated daily by oral gavage.
- One week treatment.
- Control group (C, just water), diatomaceous earth (2 mg/kg b.w) (DE).



## RESULTS

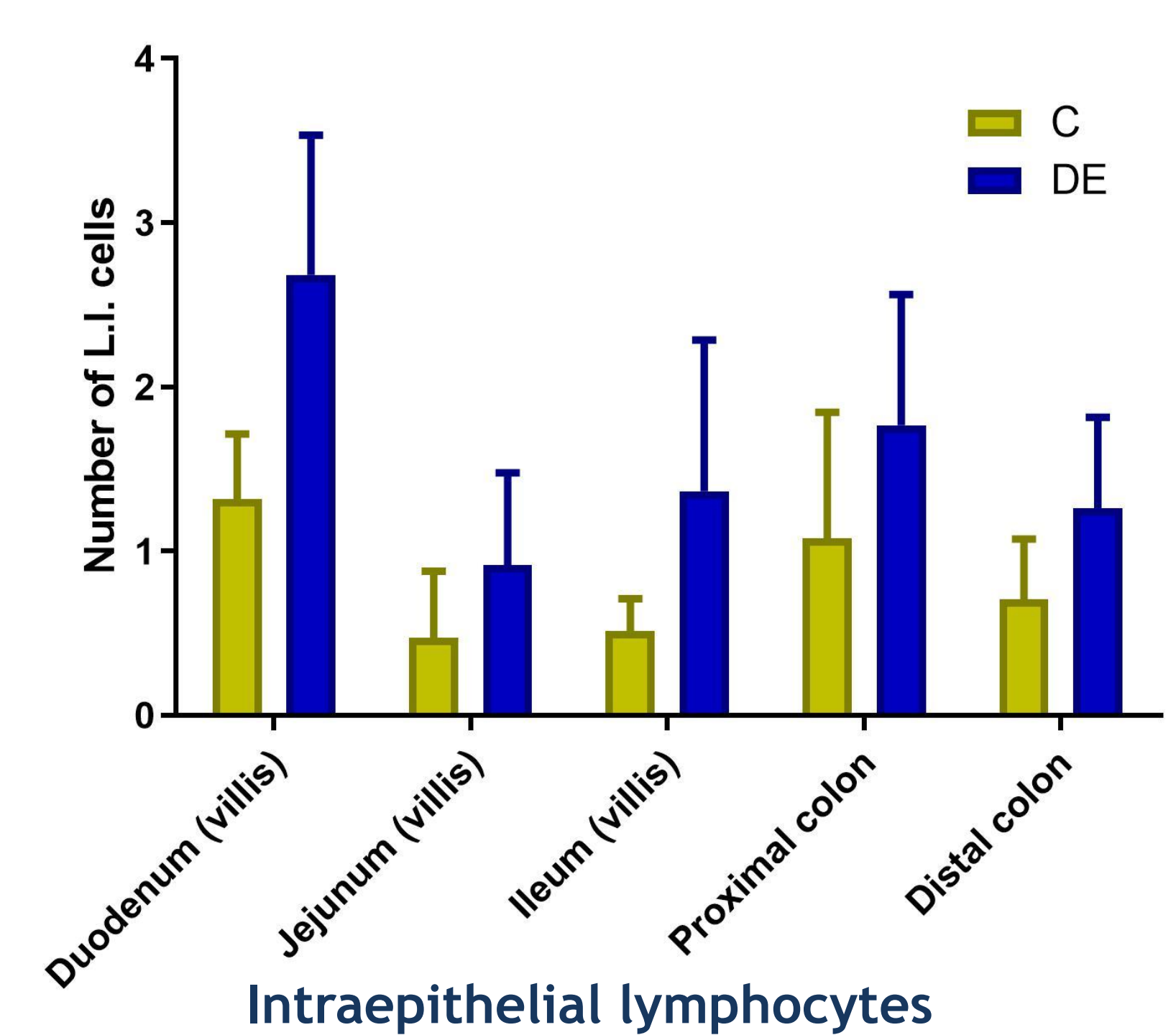
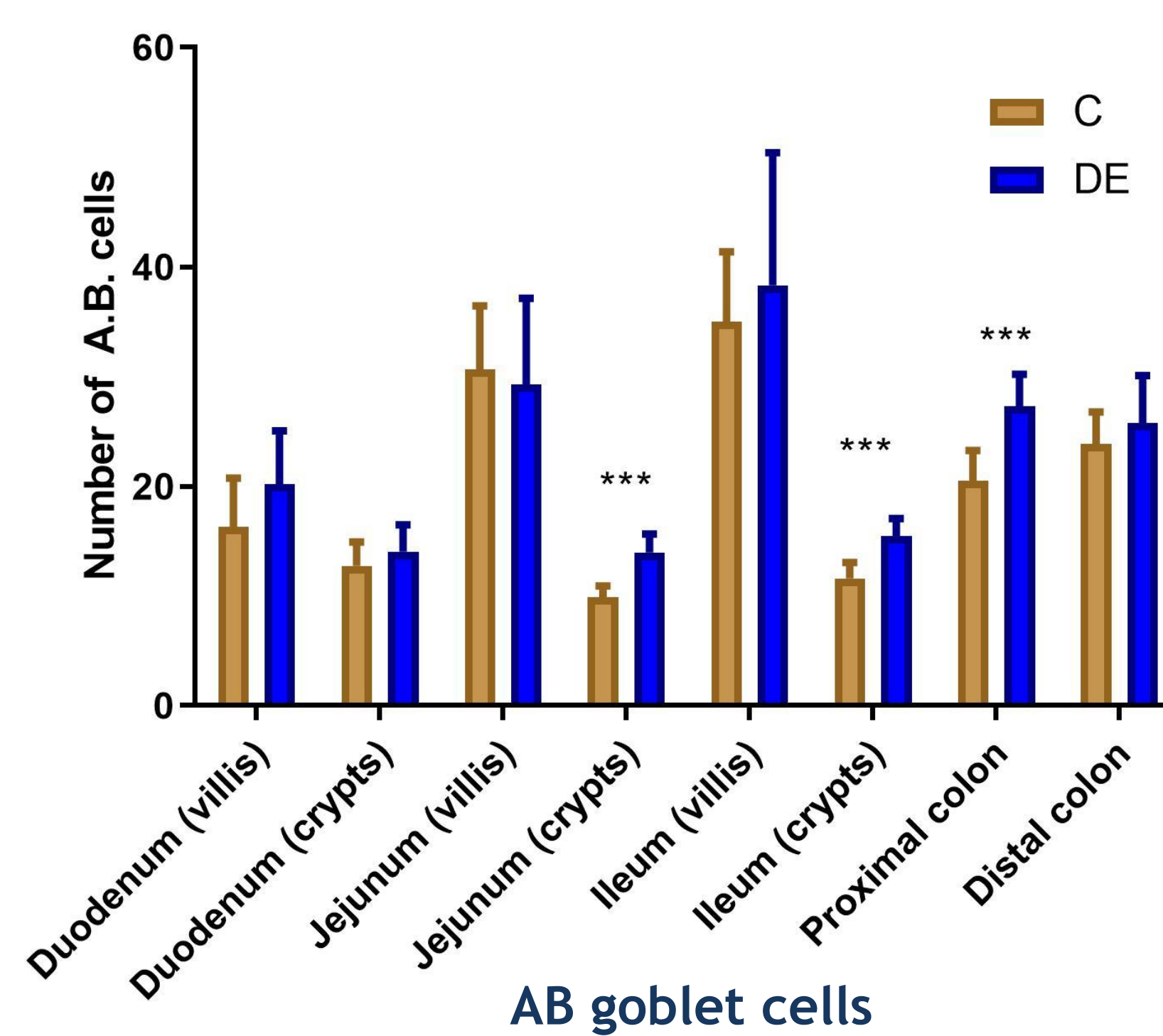
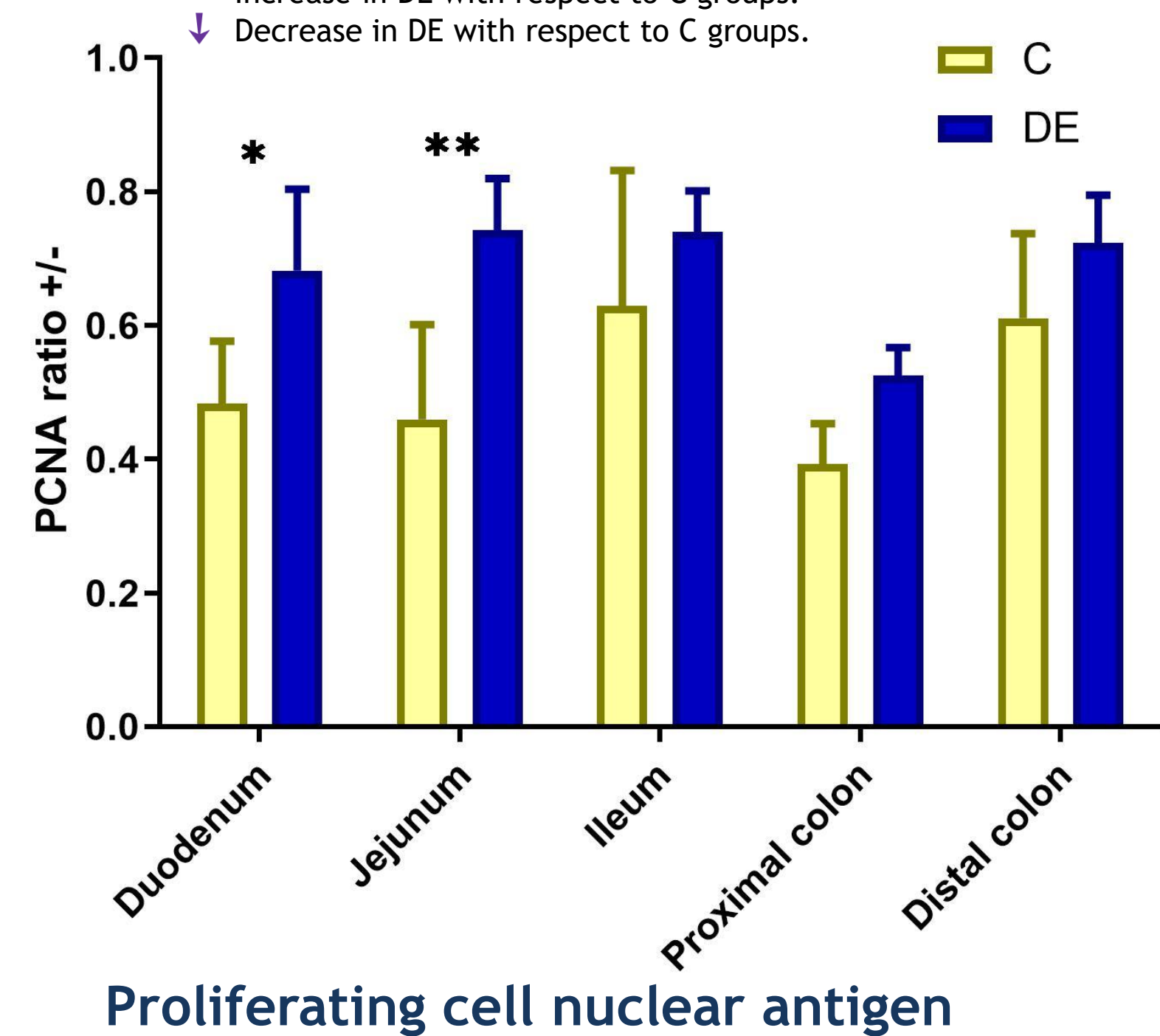
	Occludin	PAS	Villus area	Crypt depth	Villus height	Villus width
Duodenum	≈	* ↑	* ↑	≈	* ↑	≈
Jejunum	≈	≈	≈	≈	≈	≈
Ileum	≈	≈	≈	≈	≈	≈
Proximal colon	≈	↓	≈	≈	≈	≈
Distal colon	≈	≈	≈	≈	≈	≈

✓ DE showed similar results to C with respect to villi width, villi height, 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 a higher index of cell proliferation (PCNA) in duodenum.
- The percentage of Alcian blue (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 (IL) was in healthy range values, although, in all sections of the intestine, DE rats showed a tendency to increase.

≈ Results between C and DE approximately similar groups.  
 \* Existence of statistically significant differences between C and DE groups (ANOVA).  
 ↑ Increase in DE with respect to C groups.  
 ↓ Decrease in DE with respect to C groups.



Values are means ± Standard Error of the Mean (SEM). Asterisks indicate significant differences between groups, being p<0.05, \* p<0.001, \*\* and p<0.0001, \*\*\*. ANOVA (p<0.05).

## CONCLUSIONS:

DE consumption enhanced the absorption area and maintained the structure and integrity of the intestinal mucosal barrier. DE might be recommended as a nutritional supplement to improve intestinal health.

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