

A MIXTURE OF GOS/FOS® ADDED TO A LOW CALCIUM (Ca) DIET IMPROVED Ca, PHOSPHORUS (P) AND MAGNESIUM (Mg) ABSORPTION: EXPERIMENTAL MODEL IN NORMAL GROWING RATS

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Introduction:

If Ca intake (Cal) is inadequate, a mixture of Galacto-oligosaccharides (GOS) and Fructo-oligosaccharides (FOS) (®) added to the diet could be an optimal tool to improve Ca, P and Mg absorptions and , thus promoting bone health.

Objective:

The effect of feeding a low Ca diet containing a mixture of GOS/FOS® (usually added to infant formula) was evaluated in an experimental model of normal growing rats to demonstrate: 1) changes in intestinal pH, 2) enhances in the absorption of Ca, Mg and P, 3) increases in bone mineral density and content (BMD and BMC, respectively).

Materials and Methods

At weaning, Wistar male rats (36±5g) were fed one of three experimental diets to 40 days of age. The groups were the following :

A5: AIN93G containing 0.5% Ca

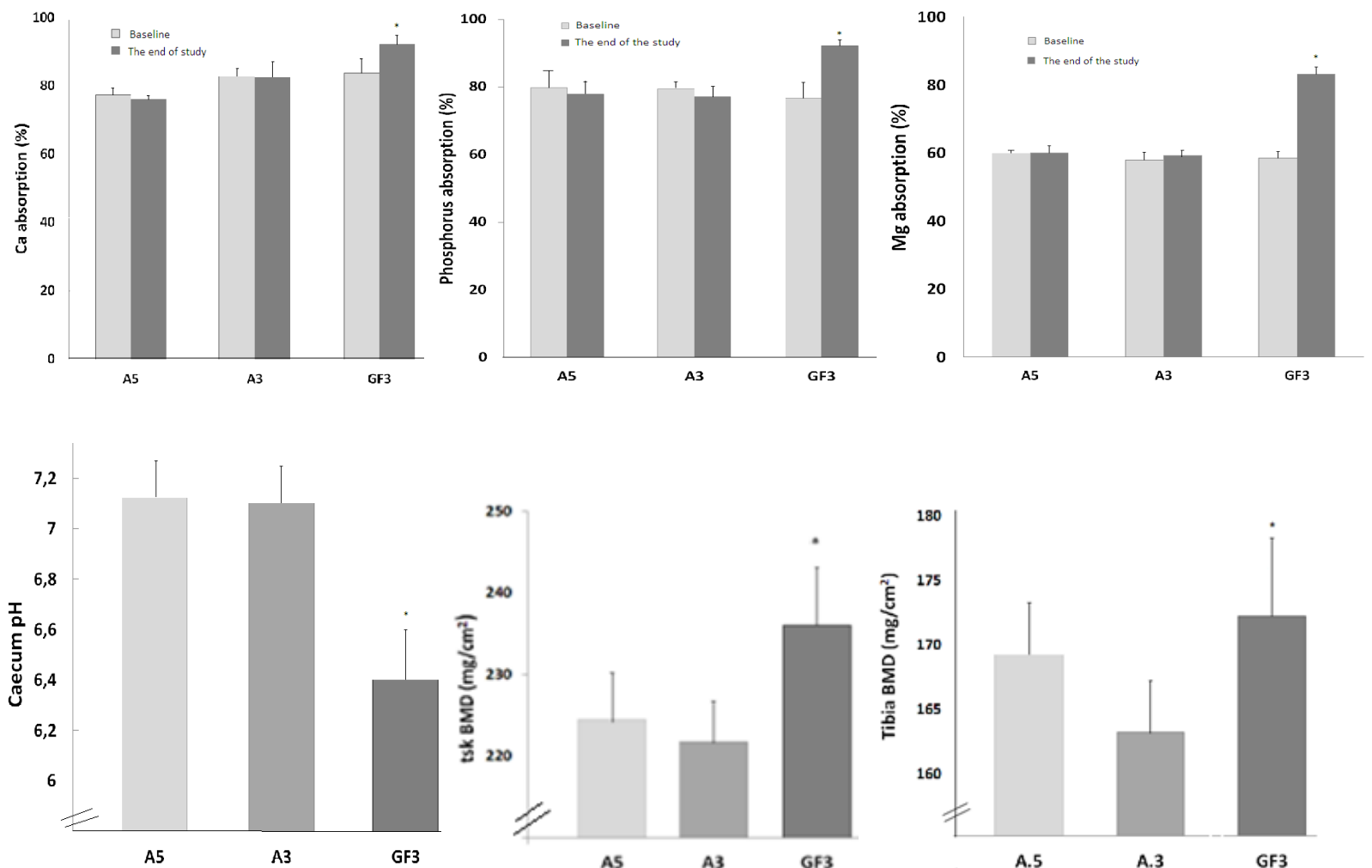
A3: AIN93G containing 0.3% Ca

GF3: AIN93G containing 0.3% Ca and 5.3% GOS/FOS®.

Food consumption and body weight (BW) were recorded 3 times/week. Ca, Mg and P absorption percentage was determined at weaning (T=21) and during the last 3 days of the study (T=40). At the end of the study caecal pH was measured and total skeleton (tsk) BMD, and tibia BMD were evaluated by DXA

Results

At T=21 d: No differences in pH, Ca, P and Mg absorptions and tskBMD or tibia BMD were found. Through the study, no differences in BW increase was observed among groups.



(*): P<0.01 compared to GF3 at baseline and compared to A5 and A3 at the end of the study

CONCLUSION:

Discussion: These results evidence a decrease in caecum pH and an increment in Ca, Mg and P absorption percentage by feeding the low Ca diet containing GOS/FOS®. These greater absorption induce an increase in BMD both at cortical and trabecular level suggesting an increment in bioavailability.

Conclusion: These results confirm the benefic effect of GOS/FOS® in bone health during normal growth.

Grants: UBACyT 20020100100320/11, PIP 002/11. © N.V. Nutricia