



Weight management*

Modern lifestyle characterized with permanent lack of time results both in consumption of a highly processed foods rich in fat, salt or/ and sugar and poor physical activity which do not have any beneficial effects on our health: overweight, hyperglycemia, insulin-resistance, hypercholesterolemia.



WELL-BEING



Naticol® has demonstrated its role as natural ingredient for weight management.

ANIMAL MODEL STUDY - PROTOCOL AND RESULTS

This in vivo study was conducted by INSERM-I2MC (National medical Research institute, France) and carried on male mice C57Bl/6 (9 weeks old) for 9 and 18 weeks. The study objective was to evaluate the effects of an oral intake of Naticol® fish collagen peptides (daily diet containing 2,5% of Naticol®) on body weight composition, serum insulin, glycemia and cholesterolemia of mice fed with a high-fat diet (HFD). When fed a High Fat Diet (HFD), energy content of the diet was (percent kilocalories): 20% protein, 20% carbohydrate, 60% fat.



› Body weight composition

In the HFD group, Naticol® supplemented diet demonstrated a significant lower increase in body weight as soon as the week 12 of treatment (figure 1). Additionally, a lower increase in fat mass in High fat fed mice supplemented with Naticol® at both 9 and 18 weeks of treatment was observed (figures 2: 2a, 2b, 2c).

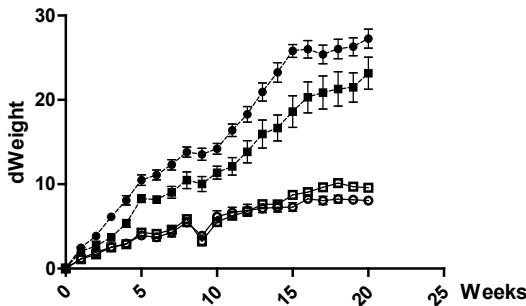


Figure 1 : Variation in body weight time course of either chow (empty symbols) and high fat (full symbols) fed (CD and HFD respectively) mice supplemented with Naticol® (circles) or not (squares). Data are presented as mean±sem (n=6).

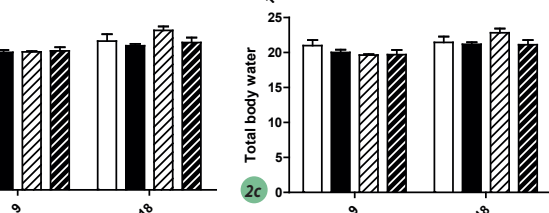
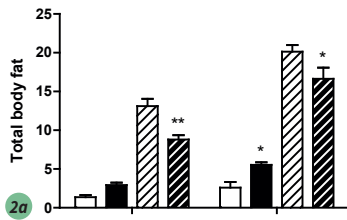


Figure 2 : Assessment of body composition in mice (hatched bar when high fat fed) supplemented 9 and 18 weeks with Naticol® (black bars) or not (white bars). Fat stores (Fig 2a), lean mass (Fig 2b) and total water (Fig 2c) are presented as mean±sem (n=6).

› Glycemia

Regarding carbohydrate parameters, figure 3 shows a lower rise in plasma glucose levels in HFD groups when Naticol®-supplemented (see Fig 3a), a slight but not significant decrease in insulinemia was found in the same groups.

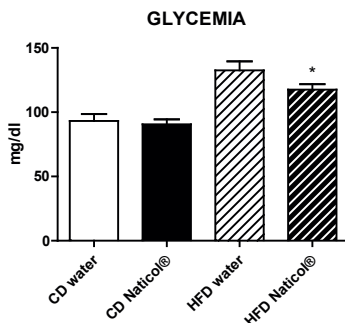


Figure 3: Blood carbohydrates in mice (hatched bar when high fat fed) supplemented 20 weeks with Naticol® (black bars) or not (white bars). Plasma glucose (Fig 4) is presented as mean±sem (n=6).

› Cholesterolemia

In HFD, a clear decrease in plasma cholesterol levels was observed for the Naticol®-supplemented group (Figure 4 a).

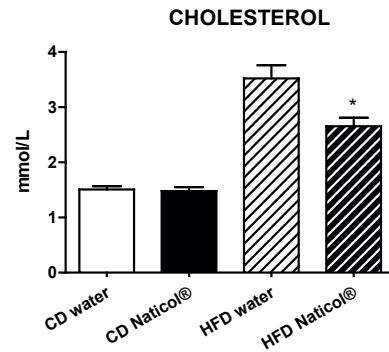


Figure 4: Blood lipids in mice (hatched bar when high fat fed) supplemented 20 weeks with Naticol® (black bars) or not (white bars). Plasma cholesterol (Fig 4) is presented as mean±sem (n=6).

› Inflammatory cytokine levels: IL-1β/ IL-6

IL-1 and IL-6 are pro inflammatory cytokines. In Naticol®-supplemented groups, the inflammation-related genes, IL-1β and IL-6, were decreased in HFD groups.

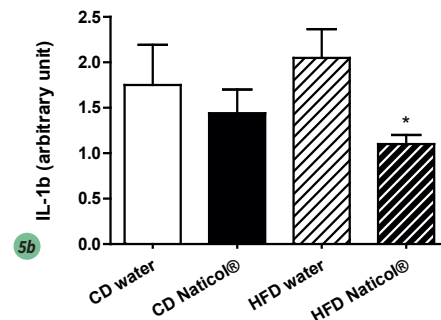
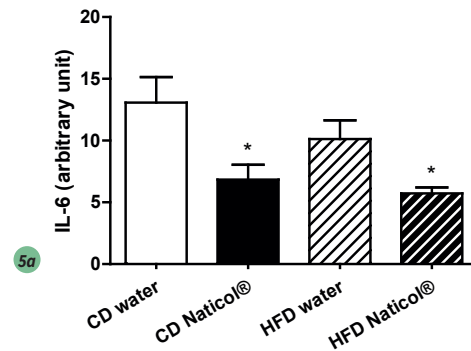


Figure 5: Gene expression profile in mice (hatched bar when high fat fed) supplemented 20 weeks with Naticol® (black bars) or not (white bars). Interleukin-6 (Fig.5a) and Intelleukin-1β (Fig 5b) are presented as mean±sem (n=6).

› Conclusion

The results of oral ingestion of Naticol® on a daily basis, showed that regular intake of Naticol® Fish collagen peptides may improve the cholesterol levels, help to support normal blood glucose and weight management..

In this study, Naticol® has demonstrated its role as natural ingredient for weight management .

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.