



Effects of nutrient-enriched water on water intake and indices of hydration in healthy domestic cats fed a dry kibble diet¹.

Objective

Water is considered an essential nutrient; however, no consensus exists in terms of defining an adequate hydration and optimal water intake volume for cats.

While healthy cats are able to self-regulate the total water they require through drinking, a difference in the daily water-to-calorie intake ratio is observed depending on the type of food ingested. In general terms, cats drink less water when fed dry food, whereas when eating wet food, they ingest water through dietary moisture instead. In both cases, the total water intake meets their daily requirements, however, cats eating wet food have a higher water-to-calorie intake ratio resulting in higher diuresis.

These differences in water consumption may be relevant in cats suffering from **Lower Urinary Tract Disease (LUTD)** who would benefit from an increased total water intake and urine output.

The main objective of the present study was to evaluate the effects of drinking **Nutrient-enriched Water (NW)** on water intake and indices of hydration.

Study design

A study was conducted in 18 healthy adult domestic shorthair cats fed an ad libitum dry kibble diet for 56 days. Firstly, during a one-week baseline period, all cats were offered tap water (TW) as their only water source. Following the baseline week, 9 cats were offered only NW for 10 days and afterwards, were offered both TW and NW in separate bowls and alternating locations, for water preferences, until the end of the study. The remaining 9 cats were offered only TW during the whole length of the study (Figure 1).

During the study period, blood and urine samples were collected, and qualitative magnetic resonance imaging was performed to assess total body water, lean body mass and fat mass at intervals throughout the study.

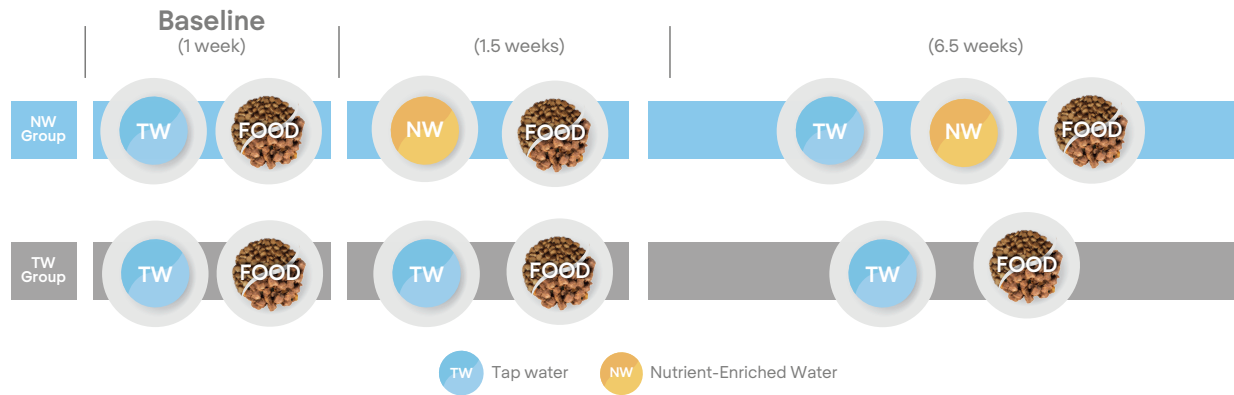


Figure 1. Timeline describing feeding and timing protocols for the study design.

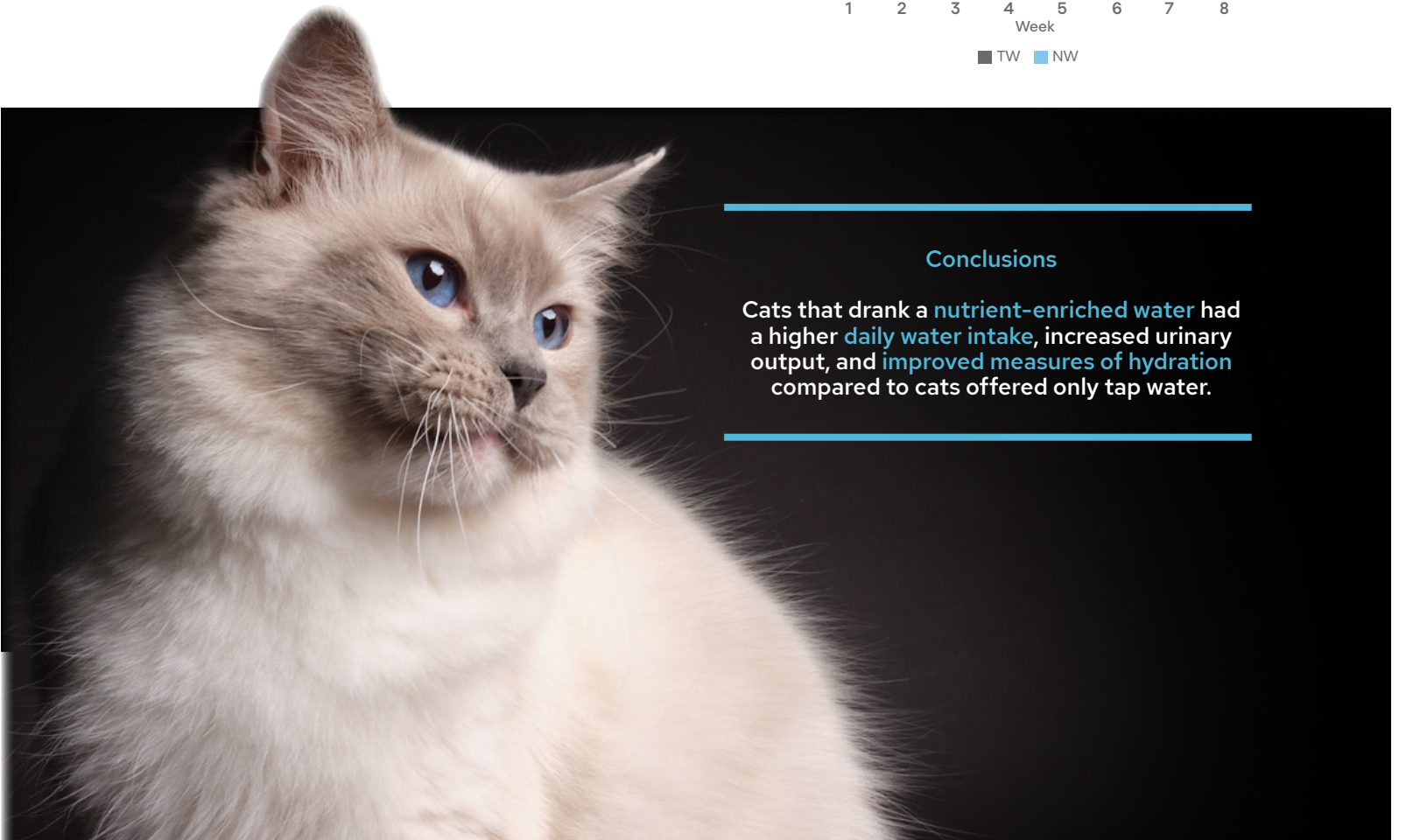
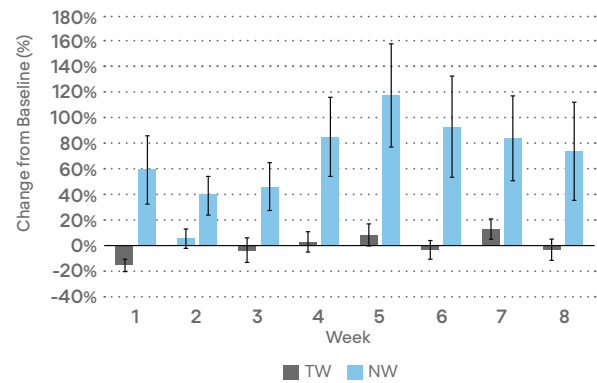
Results

Cats offered both TW and NW preferentially drank NW, and the higher liquid intake helped maintain more dilute urine over the 2-month study. Comparing with baseline, during the first week of the study, liquid intake increased about 60% for the NW group, which continued to have significantly greater liquid intake for the remainder of the study (Figure 2).

The consumption of NW significantly affected urine parameters, which reflected greater hydration status, such as decreased urine specific gravity (33% lower); decreased urine osmolality (30% lower); light urine color; and lower urinary concentration of phosphate, creatinine and urea nitrogen relative to baseline.

Although replacement of TW with NW during the study was associated with a marked increase in liquid consumption for the NW group, no significant differences were observed for food intake. Therefore, measures of body weight did not differ between groups.

Figure 2. Mean weekly liquid intake (vs. baseline). Tap (TW) vs Nutrient Enriched water (NW).



Conclusions

Cats that drank a **nutrient-enriched water** had a higher **daily water intake**, increased urinary output, and **improved measures of hydration** compared to cats offered only tap water.