

Kibble size (diameter) and its effect on canine palatability

BACKGROUND

The objective of the research was to evaluate the potential effect on palatability that kibble size may have on canines of different sizes/breeds. Kibbles of varying diameters were extruded in the shape of a disc for this study. Each size had the same thickness/cut (4-5mm). The canine panels were broken down as follows:

- Small breeds/sizes (≤ 30 pounds)
- Medium breeds/sizes (30.1–54 pounds)
- Large breeds/sizes (> 54 pounds)

Material, equipment, and measurement were held constant for the three kibble sizes.

All three kibble sizes had the same moisture (7.0-8.0%) and bulk density (22 pounds per cubic foot). All kibbles were coated with the same lot and amount (5.0%) of poultry fat and with the same lot and amount (1.5%) of liquid palatability enhancer. For palatability testing, we used 40 dogs of each size, via two-bowl, paired comparison trial over a two-day period.

KEY POINTS

- **Kibble sizes (diameters):**
 - Small: 7-8mm
 - Medium: 11-12mm
 - Large: 15-16mm



The kibble used in the study measured 7-8 mm (small), 11-12 mm (medium) and 15-16 mm (large) in diameter.

- **The small and medium-sized kibbles** were equally preferred by all breed sizes when tested head-to-head.
- **Texture analysis of the kibbles** was correlated to the starch gelatinization and palatability.
- **Specific surface area (SSA)** showed that a higher SSA did not drive palatability. The large kibbles had a lower SSA value but had the highest overall palatability.

- **Each panel of dogs preferred** the large-sized kibble over the medium and small sizes when tested head-to-head against one another (Figures 1, 2 and 3).

Figure 1. Intake ratio of small dogs

Dogs less than 30 pounds in the study preferred the large kibble to the small or medium kibble.

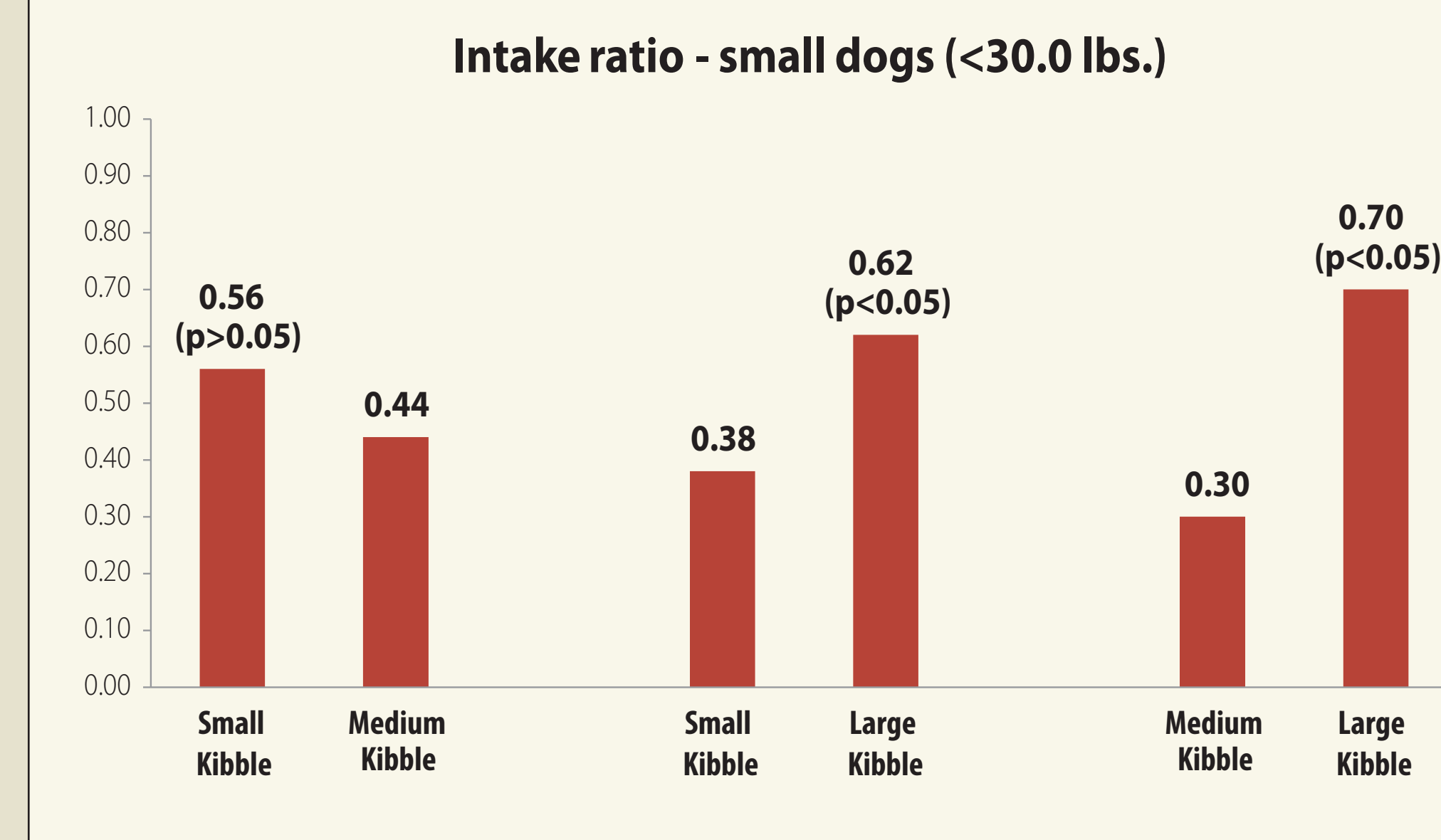


Figure 2. Intake ratio of medium dogs

Dogs weighing 30.1 to 53.9 pounds showed very similar preferences to that of the small dogs.

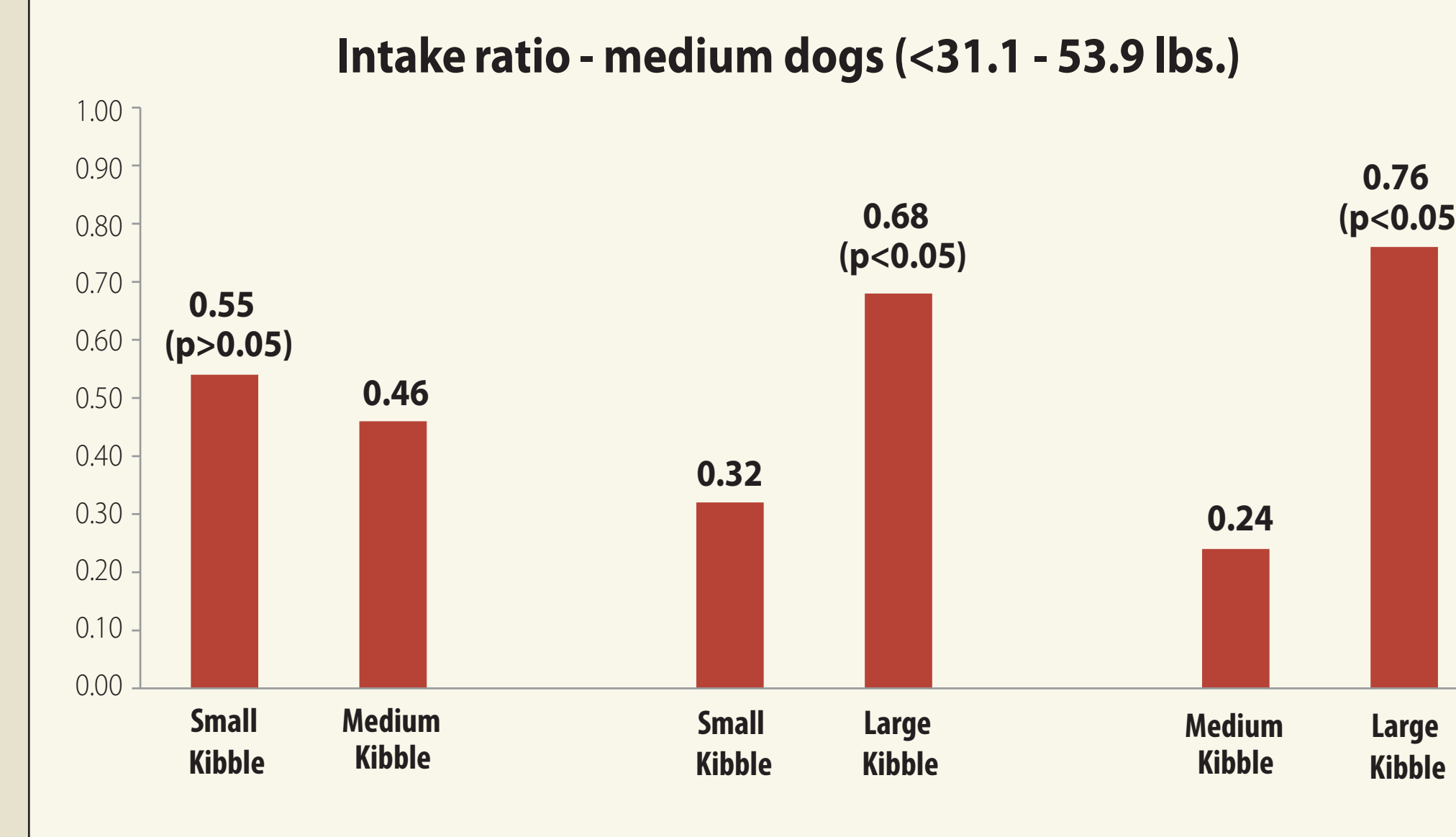
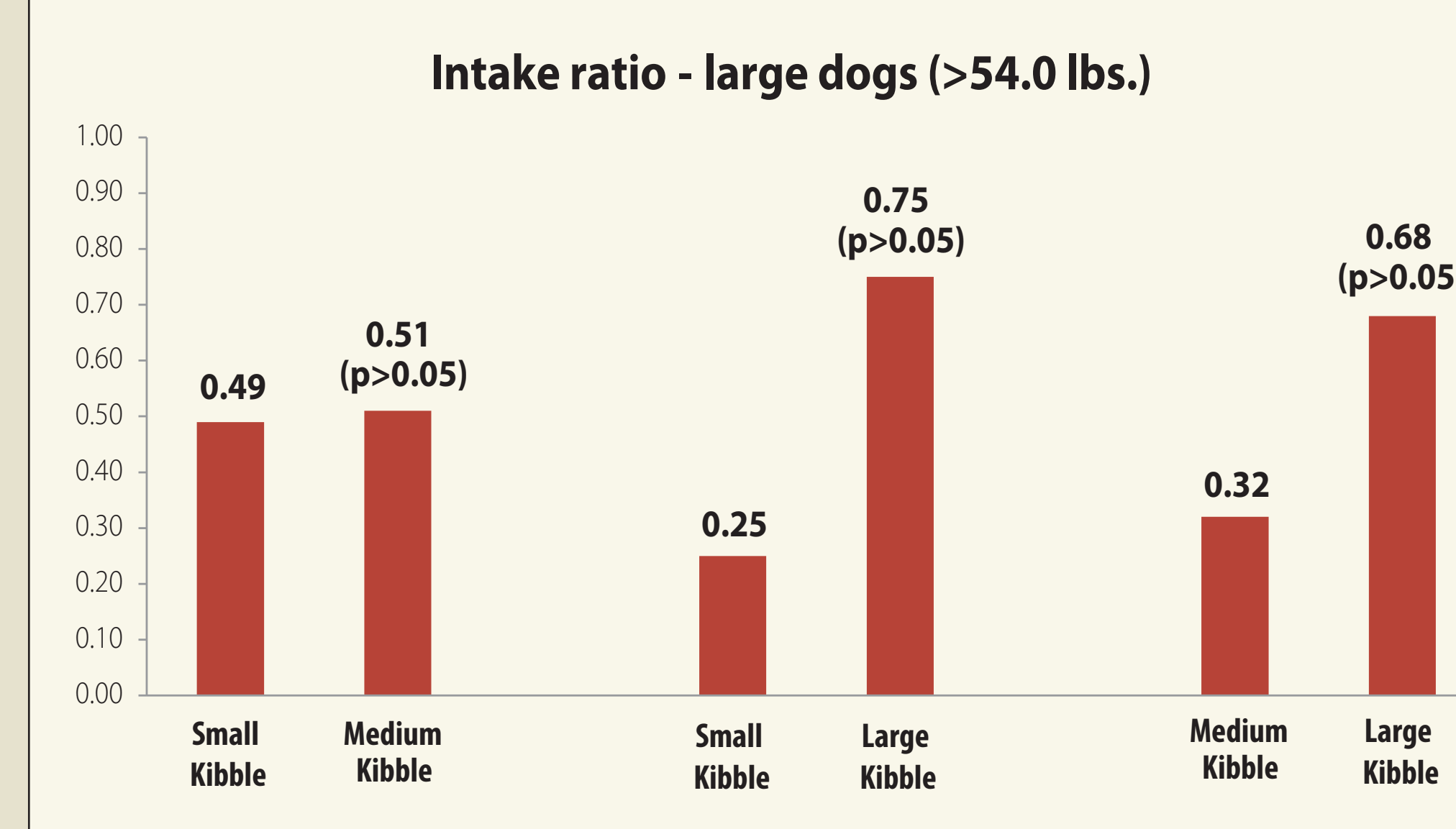


Figure 3. Intake ratio of large dogs

While large dogs (those weighing more than 54 pounds) also preferred large kibble, they preferred the medium kibble over the small.



SUMMARY

- **Kibble size has an effect** on canine palatability. Each of the three breed/sizes preferred the large-sized kibble over the medium and small-sized kibbles.
- **Based on this data, pet food manufacturers** may be able to reduce the number of SKUs they have to produce.
- **Similarly, pet food retailers** may be able to increase the variety of brands that they sell.