The Effects of Bilateral Sectioning of the Chorda Tympani and the Greater Superficial Petrosal Nerves and the Submaxillary and Sublingual Salivary Glands on the Daily Eating and Drinking Patterns in the Rat

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as recently reported that rats, after bilateral sections of both the chorda tympani and the greater superficial petrosal nerves (GSP), showed a decrease in food intake and an alteration in the pattern of drinking and eating. Bilateral sectioning of CT alone resulted in a pattern of intake that was profound, but different from the observed with combined CT and GSP sections. The CT nerve innervates the submaxillary and sublingual salivary glands (SML) and as the anterior tongue. Stricker has shown that sectioning of the CT alters the behavior of deprived rats in short-term feeding tests in a manner similar to the behavior after removal of the SML glands. Therefore, it seems possible that alterations in drinking and eating patterns observed by Krinn et al. in animals with bilateral CT sections could be the result of partial desalivation. In order to better understand the effects of desalivation on the 23-hour daily drinking and eating behavior of deprived rats, comparisons were made between rats with the CT nerves bilaterally sectioned and rats that had the SML glands removed. The apparatus allowed monitoring of drinking and eating by the rat during consecutive 30-second periods of a 23-hour day. Bilateral sectioning of CT resulted in changes in food, but not water, intake patterns. For example, the average time the rat's head was in the food increased even though there was no increase in food intake. Strip-chart records in intact rats, a CT-sectioned rat, and a rat with the SML glands removed can be seen in Figure 1. We could not distinguish CT-sectioned rats from desalivated rats in terms of the water and food intake patterns. Furthermore, when CT-sectioned rats were subsequently desalivated, no additional changes in eating patterns occurred. Digestive patterns followed bilateral sections of only the GSP nerves were also observed resulting in significantly fewer water and food boun and less water and consumption. The pattern of licking of GSP-sectioned rats was more interrupted that seen with CT-sectioned rats. They spent significantly less time out of each supported in part by a grant from NIA (5R01AG04932).
30-second period drinking and eating. When GSP sections and desalivations were performed in the same rat, an intake pattern emerged that was different from that previously seen with CT + GSP sections. A quantification of drinking and eating bouts for five of the surgically manipulated groups can be seen in Table 1.

REFERENCES