both DA and GLU in the NTS after treatment with CCK-8. [3H]MK801 binds with high affinity to the caudodorsal part of the medial NTS, the terminal region of the gastric branch of the subdiaphragmatic vagus nerve, which mediates the effect of CCK-8 on ingestive behavior. Because CCK-8 and DA agonists suppress i.o. intake in rats in which the brain stem has been disconnected from the forebrain, it seems possible that an interaction between DA and GLU in the NTS mediates the inhibitory effect of CCK-8 on consummatory ingestive behavior.


Lesions involving the gustatory zone of the parabrachial nucleus (PBN) disrupt a variety of taste-guided behaviors including the acquisition of conditioned taste aversion (CTA), sodium appetite, and to varying degrees, preference and aversion for suprathreshold sapid stimuli. Using a conditioned-shock-avoidance task, we tested detection thresholds for sucrose and NaCl in rats with electrophysiologically-guided electrolytic or excitotoxic lesions in the PBN. Roughly one-third of these rats had normal or only moderately elevated thresholds, one-third had substantially elevated thresholds, and one-third failed to perform competently in the task. In prior experiments, all of these rats failed to acquire a CTA. Those with excitotoxic lesions were also tested for and failed to express a depletion-induced sodium appetite. Although PBN lesions can interfere with taste-guided signal detection in some rats, these results indicate that compromising performance on one taste-related task may not presage comparable degrees of impairment on another.

The Effect of Soup on the Gastric Emptying of a Solid Meal. T. A. SPIEGEL, J. M. KAPLAN and A. ALAVI. University of Medicine and Dentistry of New Jersey and University of Pennsylvania, U.S.A.

In order to identify the source of inhibitory signals from the stomach or intestine that lead to satiation, the effects of 300-g tomato soup preloads on the emptying of a 134-g egg sandwich and on hunger and fullness ratings were studied in nine women, using radionuclide scintigraphy. Soup ingested immediately, but not 20 min, before the sandwich prolonged the lag phase (p<0.025) and the half-emptying time (p<0.001) of the sandwich compared to a condition with no preload. The mean ±SE half-emptying times for the sandwich alone, the sandwich eaten immediately after soup, and the sandwich eaten 20 min after soup, respectively, were 74.9 ± 6.9, 101.0 ± 6.4, 67.4 ± 6.4 min. Thus, soup affected the emptying of the sandwich when the volume of soup in the stomach was at a maximum. Passage of soup into the intestine over a 20-min period had no effect on emptying of the sandwich. Despite the different gastric/postgastric distributions of the soup and the sandwich in the two preload conditions, fullness and hunger ratings were not different.

Obesity Leads to Diminished Lipolytic and Increased Glycogenolytic Activity During Exercise in Rats. A. B. STEFFENS, A. J. W. SCHEURINK and B. BALKAN. Department of Animal Physiology, University of Groningen, PO Box 14, 9750 AA Haren, The Netherlands.

Rats provided with jugular vein and stomach catheters were rendered obese by forced feeding via the stomach catheter. After 12 days of overfeeding the rats were subjected to swimming
to which they were already habituated. Before, during and after swimming blood samples were withdrawn. In comparison to controls the blood glucose increase was exaggerated whereas the rises in plasma FFA and norepinephrine (NE) levels were attenuated during and after swimming. The increase in plasma epinephrine (E) did not differ from that in controls. It will be discussed that (1) the attenuated NE level is responsible for diminished lipolysis in addition to diminished sensitivity of obese adipocytes to NE, (2) the glycogenolytic response to E is increased. Thus exercise in obesity does not contribute to lipolysis and increased metabolic needs are covered by enhanced glucose utilization.

Fluid Intake and Renal Excretion After icv Atrial Natriuretic Peptide (ANP) in Rats. ALEXANDER G. STOYNEV, NINA Yu. BELOVA and BORYANA G. PIRYOVA. Department of Physiology, Faculty of Medicine, Sofia 1431, Bulgaria.

The effect of i.c.v. ANP or ANP-antibodies (ANP-AB) on fluid intake and renal excretion under ad libitum water intake or 1% NaC1 intake was studied. Male Wistar rats were implanted with cannulae into the lateral cerebral ventricle (ANP) or the third brain ventricle (ANP-AB injections). ANP (0.5 ktg in 5 µl saline), monoclonal ANP-AB (2 µl), or vehicle were injected i.c.v. and the fluid intake, urine volume and sodium excretion were measured during a 6-h period, i.c.v. ANP elicited no changes in water intake, urine output and sodium excretion. ANP-AB had no effect on water intake, while urine volume and sodium excretion increased. In rats drinking 1% NaCl the i.c.v. ANP fully suppressed the fluid intake, with no effect on urine output and sodium excretion. These results do not support a role for the central ANP in the regulation of water intake. The central ANP may participate in the regulation of sodium intake. Our data suggest independent effects of central ANP on fluid intake and renal water and sodium excretion.


In order to investigate time-dependent NPY effects on feeding, drinking and locomotor activity, NPY (1 µg) was infused into the PVN at different times during the light phase in rats. NPY caused similar increments of food intake at the beginning (B) and end (E) of the light phase. Compared to controls receiving synthetic CSF into the PVN, the extra food intake was compensated over the whole dark phase. In contrast to feeding at B, E feeding was associated with excessive water intake. Locomotor activity was similar in CSF and NPY infusions at all times of the daily cycle. When NPY was infused during E, the animals stayed significantly longer in their nestboxes during the dark phase than the CSF controls. These results suggest, that independent of locomotor activity, mechanisms underlying feeding and drinking behaviour change in sensitivity for NPY in the PVN during the light phase.


“Binge-eating disorder” is a newly delineated eating disorder characterized by the consumption of large amounts of food in a short period of time, accompanied by