RECEPTOR AND FEED BACK LOOPS IN THE REGULATION OF FOOD INTA

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Each regulation is concerned with the input-output relationship : there has to b exchange. The exchange is monitored by sensors, received by the controller (CNS), com with the preferred 'set point' of the system and appropriate messages sent to alter the o through the effectors system. The effector system has a device—the feed back loop, by w output can modify output.

It is proposed to discuss in terms of feed back loops, the role of the peripheral rece (oro-gastrointestinal receptors) involved in the exchange of energy balance. One finds there are a variety of signals (mechanosenstive, chemosensitive, osmometric etc.) arising the gastrointestinal tract which can influence food ingestion. The afferents project to and modify the activity of well defined regions of the limbic-hypothalamic complex. example, gastric distension, a condition simulating a fed state, increases the activity of ve medial nucleus of the hypothalamus. Similar increase in activity has been obtained from in orbito-caudatal regions of the brain on gastric distension. Stimulation of these ce nervous structures produce behavioral responses inhibiting food intake. Thus there an interaction between the peripheral sources of information and the central processing mec isms which regulate feeding behaviour. The 'distension' and 'tension' receptors have localised in esophagus, stomach, duodenum, jejunum and small intestine.

Analysis of gustatory afferents and intestinal chemosensitive impulses (responding gut perfusion with glucose and single aminoacid) suggest that though there is some overla the response pattern obtained, glucose and aminoacids seem to affect different fibre gro The relatively specific features of the response may be predicted but it is difficult to estab a specific pattern for the particular substance used. The central effects of gastrointes perfusion with nutrient substances are indicative of involvement of structures in limbic-hy thalamic region. The responses are, however, obtained in unanaesthetised preparations and are vaguely defined.

The consequences of food ingestion—to increase or decrease further food intake, dep upon the state of energy balance of the individual on the one hand, and on the sensory (ta olfaction, texture, flavour, etc.) and the nutrient (SDA, protein, fat, carbohydrates, etc.) qu ties of the diet, on the other. The behavioral and electrophysiological studies reveal that state of energy balance biases the system for the priority of afferent signals: sensory quali of diet are more critical during energy deficit and nutritional qualities during surfeit.