FOOD AND PSYCHOLOGICAL DEVELOPMENT

Hanuš Papoušek, M. D. Sc.D.
Research Associate, Professor of Development Psychobiology
Max-Planck Institute for Psychiatry
8-Munich-23, Kraepelinstr. 10
West Germany

In this discussion I would like to invite the audience to look into the world of human infancy to which I have devoted the last two decades in research. Infancy: the stage in life where a steep gain in body weight is observed, where a full and balanced diet is needed to meet the demands of growth, and where the complex preverbal cognitive processes have been shown to be affected by the quality and quantity of nutrition during this period.

For the infant, food's primary purpose is to meet the demands of his body to assure growth; but food and eating also comprise part of the infant's relationship and adaptation, via his central nervous system, to both his internal environment (IER) and his external environment (EER). Adaptation to the external environment utilizes information coming from the telereceptors and depends on a fine and fast analysis of time and space, whereas regulations of the internal environment utilize information from the internal receptors and are less concerned with time and space.

The mutual relationship of these two types of regulation is derived from five aspects:

 Both types of regulation depend on external environmental factors. Therefore, a change in these factors can lead to disturbances in both regulations

D. N. Walcher et al. (eds.), Food, Man, and Society
simultaneously, e.g., excessive heat, microbial invasion, or intoxication.

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The state of nutrition (an IER outcome) influences the level of EER in cognitive development and in learning. This aspect is frequently studied in the relation between nutrition and psychological development.

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Internal metabolic demands activate the behavior oriented toward the external environment. For example, the infant's play changes with the degree of hunger, and this exploratory behavior is then replaced with oral activities.

Koch, a member of our Prague team, analyzed the biorhythmical changes in the level of the infant's learning and found regular fluctuations related to the times of feeding and sleep.

In relation to hunger the infant's performance in conditioning experiments first improved, reached an optimum approximately 60 minutes after feeding, and then decreased (1).

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Vice versa, the demands resulting from the adaptation in the external environment may activate autonomic processes through IER.

Observation of a four-month-old baby exposed to an attractive but not easily attainable toy demonstrated that simultaneously with the activation of his attention and exploration a larger metabolic reserve was brought to his muscles. For 20 to 30 minutes the baby engaged in very vigorous gymnastics which involved all parts of his body until he became tired.