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DIET QUANTITY AND ENDOCRINE STATUS AS DETERMINANTS OF CANCER RISK IN LABORATORY RODENTS.

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Cancers in humans are mostly of epithelial origin and apt to cause death unless the patients bearing them can be successfully treated. Untreated rodents that constitute control groups in carcinogenicity tests are apt to develop large numbers of histologically benign tumours many of which are discovered incidentally at necropsy. Many of these spontaneously arising tumours are of endocrine glands and those that are not are, nevertheless, sex hormone-influenced or sex hormone-dependent (e.g. mammary and testicular tumours in rats, and malignant lymphoma, liver cell tumours and renal tumours in mice).

The incidence of virtually all kinds of neoplasms in rats and mice may be reduced by as much as 8-fold by simple dietary restriction. It is suggested that diet-restriction reduces tumour risk by normalising sex-hormone and general endocrine status and that *ad libitum*-fed life-long virgin, exercise-deprived caged animals with serum prolactin levels ten or more times the physiological level are inappropriate models for carcinogenicity testing purposes.

Research directed toward identifying conditions under which animals can be maintained into old age in a normal endocrinological status is urgently needed. In the meantime considerable caution is needed in the interpretation of long-term animal studies in respect of carcinogenicity and co-carcinogenicity and tumour-promotion.