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NEW INSIGHTS INTO THE MECHANISMS INVOLVED IN CARCINOGENESIS

It goes without saying that exposure to chemical carcinogens can increase the risk of development of cancer. Numerous epidemiological and laboratory studies bear witness to this. However, this does not mean that the majority of cancers that arise in ageing humans and ageing animals are attributable to exposure to environmental carcinogens. Nor does it mean that cancer as a disease could be abolished simply by cleaning up the environment.

During the last few years it has been increasingly widely recognised that there is a close association between ageing and risk of cancer development and that common causative mechanisms are implicated. During the quite normal processes involved in the conversion of food to energy oxidative radicals are produced which damage both cell proteins and nucleic acids, and although body cells are well equipped with DNA-repair enzymes and although the body has an enormous capacity to replace damaged cells by new ones, there is a tendency for unrepaired damage to accumulate with time. In the case of damage to DNA, this means that with increasing age there is a slow accumulation of mutations and of the risk of cancerous mutations. Moreover, the rate of accumulation of mutations increases with the consumption of unneeded calories and with exposure to irritants which cause inflammation and/or increased rates of cell turnover. Thus, exposure to environmental mutagens is not a prerequisite for cancer development. Damage caused by endogenously-generated mutagens can lead to both ageing related diseases and cancer.

All too often one is dismayed by the length of the lead time between the evolution of new concepts and their acceptance by National and International regulatory bodies. I was, therefore, agreeably surprised to see a book entitled "**Principles for Evaluating Chemical Effects on the Aged Population**" prepared by a Planning and Task Group convened under the auspices of WHO's International Programme on Chemical Safety (Environmental Health Criteria 144 pp 1-159). The contents of this book published in 1993, are remarkably enlightened and up-to-date and encompass the new insights outlined above. Accordingly, I thoroughly commend it for general reading to all who are concerned with the relationship between any aspect of the environment and any aspect of ageing or cancer causation.

The book (ISBN 92 4 157144 6) costs 19 SwF in developed countries and only 13.30 SwF in developing countries.

Francis J C Roe