

An Approach to the Reduction of the Most Common Western Cancers

The Failure of Therapy to Reduce Disease

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In a therapeutically oriented medical climate, a highly unacceptable fact that is rarely considered yet indisputable is that with rare exceptions of some highly contagious infections, there is no evidence that the incidence of any disease was ever reduced by treatment. Infective disease was conquered by reduction in exposure to infective agents by improved hygiene and protection against infective agents by immunization and improved nutrition. Improved therapy did much to reduce mortality but not to reduce incidence.¹ The inability of therapy to reduce incidence of disease applies totally in the realm of noninfective disease, and particularly with regard to cancer.

However, the vast majority of effort and facilities devoted to cancer research is directed to advances in treatment, with the second priority given to screening programs attempting earlier diagnosis. Is there any evidence that the incidence of any form of cancer has ever been reduced by improved treatment or by early detection? Early diagnosis can certainly reduce mortality rates in cancer sufferers. Medical services have a profoundly beneficial effect on sick people, but have little, if any, on the number of people becoming ill.

McKEOWN'S CLASSIFICATION OF DISEASE CAUSATION

It has always been customary to classify diseases according to the structures, organs, or tissues involved, with the possibility of cure as the aim. McKeown² has suggested a much simplified classification from an entirely different orientation, with prevention as the ultimate goal. He classified diseases according to causes, and divided them first into prenatal and postnatal diseases, the former being largely due to genetic defects and the latter, which includes almost all disease, he recognized to be due to three major and fundamental causes.

He described the largest section as hazards, which denoted all noxious elements in the environment, whether microorganisms, trauma, temperature, radiation, poisons, or any kind of dangers.² The two other causes were deficiencies that were mostly nutritional and the manifestations of maladaptation, which included all the diseases, both benign and malignant, that are largely limited to modern western culture. The last section includes the cancers that are common only in economically developed populations.

CANCER AND ENVIRONMENT

Studies of cancer distribution patterns geographically, socioeconomically, chronologically, or following emigration have forced the conclusion that the vast majority of cases of cancer must be due primarily to environmental factors.³ This compels the conviction that the only logical approach to the reduction of any form of cancer must be a search for responsible environmental factors followed by efforts to reduce or eliminate them. A striking example of environmental influences is supplied by the figures published by the American Cancer Society suggesting that two thirds of all cases of cancer in the United States are caused by only two factors: smoke inhaled and food ingested.⁴ Doll and Peto⁵ came to the same conclusion in Great Britain.

If an engine repeatedly stops as a consequence of being exposed to the elements, it is of limited value to rely on the aid of mechanics to detect and remedy the fault. Examination of all engines would reveal that those out in the rain were stopping; but those under cover were running well. The correct approach would then be to provide protection from the offending environment. However, considering the failing engine as the ailing patient, this is seldom the priority of modern medicine.

THREE RECENT OBSERVATIONS OF MAJOR SIGNIFICANCE

Three observations of major importance to health have been made during the last few decades, yet the majority of

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Contrasts Between Paleolithic, Third-World, and Modern Western Diets*			
	Paleolithic	Third World	Modern West
Starch, % of energy intake	60	60	20
Sugar	Minimal	Minimal	20
Protein, % of energy intake	20	15	15
Fat, % of energy intake	20 (most unsaturated)	15 (most unsaturated)	45 (most saturated)
Fiber intake, g/d	50-100	50-100	>20
Energy density	Dilute	Dilute	Concentrated

*Figures are approximate.

The diseases that are characteristic of and generally accepted as resulting from modern Western life-style include the three most common cancers of men in most affluent societies—lung, large bowel, and prostate—and the three most common cancers in women in these societies—lung, breast, and bowel. These are part and parcel of the same family of diseases from a causative, as against an anatomic or histologic, classification. The list contains such major health hazards as coronary heart disease, diabetes, gallstones, appendicitis, diverticular disease, hiatus hernia, varicose veins, hemorrhoids, and obesity, which are some of the disorders that have been related to specific changes in diet that resulted from the industrial revolution.^{9,10} There are other diseases of obscure etiologic factors that have been observed to be uncommon in communities still living in a relatively traditional manner, such as multiple sclerosis, ulcerative colitis, Crohn's disease, deep vein thrombosis, and autoimmune disease, to mention a few. It is of particular interest that the forms of cancer that are consistently more common in industrialized populations appear always to be associated with life-styles far removed

from that to which we are genetically adapted. These tumors are as follows: lung cancer, attributed to smoking; colorectal cancer which is almost certainly diet related, since excess fat is considered causative and dietary fiber believed to be protective; and breast cancer, in which fat is considered promotive^{11,12} and fiber probably protective. An extensive search through the forest of figures for the incidence of various cancers in different populations¹⁴ emphasizes with monotonous regularity a consistent inverse relationship between the incidence of both colon and rectal cancers and the life-styles associated with modern Western culture. There is also a constant though less dramatic relationship between economic development and breast cancer. Although striking, it is less dramatic since many factors in addition to diet are involved, such as age at menarche, age at first pregnancy, parity, and period of lactation.

It is more difficult to trace the geography of prostatic cancer because figures are less available, but it appears to be rare in third-world populations. Because it is a hormone-dependent cancer, diet and fat, in particular, have been implicated in its causation. It has been shown that quite independent of the fat or fiber content of the diet, excessive energy intake increases the prevalence of both large-bowel and breast tumors in animals.^{15,16}

The relationships not only between those characteristically Western neoplasms, but also between them and the whole list of other Western diseases, requires explanation. The concept that they are all manifestations of maladaptation to a new environment is consistent with the evidence available, and I am aware of no other postulated explanations that fit the facts. Consistent with these observations is the evidence now available that Seventh Day Adventists, who are nonsmoking vegetarians with lower consumption of animal fat and almost double the dietary fiber intake of average Americans, have significantly lower rates of many Western diseases and also of lung, bowel, breast, and prostate cancer.¹⁷

DIETARY CHANGES

The major dietary changes that have been incriminated in the origin of Western diseases are those that contrast current Western diets with those of our paleolithic hunter-gatherer ancestors. Similar changes, though much less marked; distinguish hunter-gatherer from peasant agriculturalist diets. The most dramatic contrasts between paleolithic and modern Western diets are as follows (Table): (1) a reduction in the amount of energy we derive from starch foods by one half to two thirds; (2) a reduction of dietary fiber intake by about 75%; (3) the proportion of energy derived from fat has been more than doubled; (4) salt intake has been increased fivefold; (5) sugar, which in the past was consumed in a pure form (honey), now accounts for one fifth of our total energy intake; and (6) the diet of our distant ancestors was energy dilute whereas ours is energy dense.

PUTTING THE WRONG FUEL IN THE TANK

We all possess Stone Age bodies. Our genes have not significantly changed in thousands of years, but the environment in which we live has altered rapidly and radically. Putting modern junk food into our Stone Age bodies is comparable with putting high-grade gasoline into engines designed to run on diesel fuel.¹⁵

CONCORDANCE AND DISCORDANCE

If the cogs of two wheels are of equal size and are equally spaced, the cog wheels will synchronize with one another and revolve smoothly in unison. This is concordance. If, however, the cogs of one wheel are altered in shape, size, or position, the cogs of the two wheels will no longer intermesh and there will be discordance, disruption, and even destruction. The cogs on our genetic wheel have remained unchanged, whereas those on our environmental wheel have changed drastically. The only way to achieve a return to some semblance of concordance is to modify our environmental cogs, our life-style.

SHARED CAUSE IMPLIES COMMON PREVENTION

It is not yet generally appreciated that almost precisely the same precautionary measures, particularly in eating habits, are being recommended by specialists in different branches of medicine for patients under their care. Not only do cardiologists, diabeticians, gastroenterologists, and nutritionists recommend their patients to reduce their fat and increase their fiber intake and to reduce energy intake in general, but oncologists are also incriminating excessive fat and excessive energy intake as probable causative factors in both colorectal and breast cancer and consider adequate fiber intake to be protective against large-bowel cancer and probably also against breast cancer. If doctors in different specialties could

appreciate that the measures they recommend for the prevention of specific diseases in their particular specialty might also be effective against other diseases, it could significantly increase patient compliance.

THE BOX OF RESEARCH

Medical research can be likened to a box with a number of pipes attached to one side, one or more of which carry some substance that is converted to another substance within the box and emanates from the pipe attached to the other side of the box. To prevent the flow from the exit pipe, it is necessary to determine which of the pipes attached to the entering side is carrying whatever is responsible for the exit flow and then close the pipe or pipes concerned. This is all that is required to deal satisfactorily with the problem. The entering pipe or pipes correspond to the cause or causes of disease. Discovering and removing the causes prevents the disease. It is unnecessary to understand the mechanisms whereby the content of the entering pipes is converted within the box to the content of the exit pipe—the disease-causing factor. Medical history abounds with examples to underline this principle, yet the vast majority of research, particularly in the field of cancer, is devoted to what goes on within the box, endeavoring to understand the mechanisms of causation.

THE CLIFF OR THE AMBULANCE

If people are falling over the edge of a cliff and sustaining injuries, the problem could be dealt with by stationing ambulances at the bottom or erecting a fence at the top. Unfortunately, we put far too much effort into the provision of ambulances and far too little into the simple approach of erecting fences.

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