The Drugless Approach in Prevention and Treatment

by Libuse Gilka

ABSTRACT/RESUME

Une alimentation équilibrée est essentielle à un sain développement général. Elle est la base de la santé émotive et physique et de la prévention ou de la réduction de la sévérité d'une maladie. Au Canada, au cours de la dernière décennie, la consommation d'aliments frais locaux ou préservés par des méthodes de conservation simples, a connu une baisse régulière et elle est remplacée par la consommation d'aliments souvent transformés, transportés sur de longues distances et emmagasinés pour de longues périodes de temps. Il est maintenant clairement établi que le procédé de transformation des aliments ne fait pas qu'habituellement abaisser la valeur nutritive des aliments mais aussi, pour un grand nombre d'individus, les allergènes (dissimulés sous forme d'arômes, de colorants, d'agents de conservation, d'excépients, d'antioxydants, de stabilisants, d'émulsifiants, etc.) utilisés dans les aliments peuvent être la cause d'une grande variété de réactions hypersensibles, y inclus les changements de comportement, l'hyperactivité, l'hyperirritabilité et les problèmes de dépression-concentration.

Il a été également observé que la concentration et l'hyperactivité, ainsi que le comportement délinquant peuvent être bénéfiquement affectés par une alimentation équilibrée et par un supplément de vitamines. Une autre approche qui promet dans le traitement de l'hyperactivité et de l'hyperirritabilité, y inclus le comportement violent et les problèmes d'apprentissage, est celle du GABA (acide gamma-aminobutyrique) qui, dans des conditions normales, est produit en grande partie dans le cerveau humain.

L'analyse des données de l'Enquête Nutrition Canada indique que l'état alimentaire des Canadiens, spécialement celui des femmes et plus particulièrement celui des adolescentes, fait piètre figure. Des mesures doivent être prises pour remédier à cette situation.

Une approche préventive, basée sur une saine alimentation, pourrait avoir comme conséquence une amélioration marquée de l'état de santé des Canadiens, ainsi qu'une importante réduction des coûts reliés aux soins de santé. Une des raisons pour le peu d'intérêt et pour la pénurie de recherches dans le domaine de l'alimentation est la tendance de l'establishment médical et scientifique, traditionnellement mâle, à ne voir dans la diète, les vitamines et l'alimentation que des mesures d'une approche dite "de cuisine."

Nutrition is fundamental to the proper physical development of both men and women. It is also closely related to emotional health and the prevention or reduction in the severity of disease. The "need to know" has steadily increased over the past decade because of the tremendous changes in the nature of the national food supply and in the eating habits and life style of Canadians. The consumption of local fresh foods and foods subjected to simple preservative processes has steadily declined and been replaced by foods shipped over long distances, stored for long periods and frequently processed by the extremely complex methods developed by modern food technology. It has now been definitely established that processing not only usually decreases the nutritional value of foods but causes problems for many individuals, because of hidden allergens in the form of flavourings, colourings, preservative agents, excipients, antioxidants, stabilizers, emulsifiers, etc. When used in foods and drugs. These additives can cause a wide variety of hypersensitivity reactions, including changes in behaviour, hyperactivity, depression, concentration problems and hyperirritability.(1)

At present, many thousands of low molecular chemicals are used in the production of food, beverages, cosmetics and pharmaceutical drugs. For example, Table 1 shows the composition of Premarin which is a drug commonly prescribed to millions of North American women, and the composition of mascara (an eye cosmetic).(2)

Norway, in January 1978, became the first country in the world to impose a total ban on artificial colouring in foodstuffs. In most western countries,however, including Canada, many varieties of additives to foods, drugs, and cosmetics are permitted. In Canada no data is available--not even from the Food and Drug Directorate--regarding the exact number of chemicals allowed for human use or pounds of artificial colourings, flavourings and other chemicals which are added each year to our food supply. Nor do we know how many pounds of these chemicals are being consumed by our children annually in their foods. However, we do know that these chemicals can induce hyperactive behaviour

TABLE 1

The composition of two products containing low molecular chemicals;

A. Premarin (commonly prescribed drug) 1.25 mg. (including excipients)	B. Mascara (eye cosmetic)
Methylcellulose 15 cps.	Water
*Talc Triturate	Petroleum distillate
Lactose	Carnauba
*Magnesium Stearate	Candelilla Wax
Polyethylene Glycol 20,000	PEG-20 sorbitan beeswax
Glyceryl Monooleate	TEA-Lanolate
*Shellac	Ammonium acrylates copolymer (may irritate skin)
Calcium Sulfate	
Titanium Dioxide	Talc (repeated inhalation can irritate lungs)
Stearic Acid	
*Edible Black Ink (Food Grade)	Beeswax
Canada Wax	Hydrolyzed animal protein
Sucrose	Polysorbate-60
Gum Acacia	Propylene glycol
Talc	Potassium octoxynal-12 phosphate
*Sodium Benzoate	Sodium lauryl sulphate (may cause skin rashes)
Gelatin	
Tween 60	Nonoxynol-10
*Propyl Paraben	Quaternium-15 (irritates skin and mucous membranes: oral doses larger than one ounce can be fatal)
*FD&C Yellow #5	
Calcium Carbonate	
Tricalcium Phosphate	
Solka Floc (Cellulose Type Material)	Polysorbate-20
Sodium Acetate	Methylparaben (can cause allergic skin reactions)
Sodium Chloride	
Neutral Steroids	Propylaraben
*Estrogens	P-hydroxyanisole
	Trisodium EDTA
	Phenyl mercuric acetate (can irritate skin: oral doses larger than a taste can be fatal.)
*Potential Sensitizers	

and concentration problems in some children; and sometimes in adults, depression and hyperirritability. We also know that a number of children labelled as hyperactive and/or as having learning disabilities is steadily increasing; and that 80-90% of juvenile delinquents have had a history of learning disabilities.(3) We also know that the powers of concentration of children with learning disabilities as well as the behaviour of juvenile delinquents have markedly improved when their diet was changed from so-called junk foods such as pastries, cookies, chocolate, sugar, colas, etc., to a diet with high protein food, fresh fruits and vitamins.(4)

Apart from a dietary regimen and supplementation with vitamins and minerals, a further promising approach to the treatment of hyperactivity and hyperirritability, including violent behaviour and learning problems, is GABA (gamma-aminobutyric acid).(5) Under normal conditions GABA is produced in the human brain in high quantities and might be considered to be a natural tranquilizer. GABA levels are increased by the administration of vitamin B6 and also by Valium, the most widely prescribed tranquilizer in North America. Formation of GABA is decreased by certain chemicals including chlorine. Keeping children on pure water free from chlorine frequently results in their calmer behaviour. GABA has been known to decrease hyperirritability in neurotics, as well as the tendency to violence in juvenile delinquents. Many other disorders, such as hyperactivity and behaviour problems, learning disabilities and mental retardation, cerebral palsy, strokes, epilepsy and hypertension also respond favourably to treatment with GABA.(6)

In Europe, GABA is obtainable without a prescription and is used as a safe sleeping pill by pregnant women and old people. It is also used to treat children with behaviour problems and learning disabilities. The human organism can tolerate dosages of GABA as high as 50,000 mg. per day without any serious side effects. Unfortunately, GABA is not available at the present time in Canada.

The need for comprehensive information on the nutritional status of Canadians has been recognized for many years. The widely held assumption that Canadians are well nourished has been questioned in scientific literature. Recent changes in life style and accompanying changes in food habits have intensified the need to analyse nutritional health on a national scale It was for this purpose that Nutrition Canada was born. Nutrition Canada conducted a national survey designed to determine the nutritional status of Canadians according to region, population type, income, age and sex group. The survey involved the collection of approximately 28 million individual pieces of information. Over 19 thousand individuals of all ages had

medical, dental and anthroponetric examinations and dietary interviews. The vast majority of the individuals had blood and urine analyses done.

The analysis of survey data indicates that the nutritional status of Canadians, especially of women, is nearly disastrous. For example, a dietary evaluation of adolescent girls 10-19 years old has shown that in this group 48 per cent have insufficient intake of vitamin A. The intake of vitamin B1 is insufficient in 38.1 percent; of B2 vitamin in 32 per cent; of vitamin C in 79 per cent; the intake of vitamin D is insufficient in 85.1 per cent; of calcium in 62.2 per cent; and iron in 78.2 per cent.

Vitamin A is essential in the formation and maintenance of healthy skin and membranes, including respiratory, gastrointestinal and respiratory tract and is an important component in the biochemical reaction that enables vision in dim light. Excessive vitamin A is deposited in the liver. The level of serum vitamin A is maintained at the expense of this reserve. Therefore, low serum vitamin A levels can be related to extremely low liver stores. Low reserves can be caused by inadequate intakes over an extended period of time or by interference with the absorption and storage of the vitamin. In a deficient diet, these reserves can be depleted within four months in children and within a year in adults, resulting in clinical signs of deficiency.

Clinical signs suggestive of vitamin B1 (thiamin) deficiency are observed in an appreciable proportion of adults; in higher proportions in older adults, and again more frequently in aging women than in men. Vitamin B1, vitamin B2 (riboflavin) and vitamin B3 (niacin, niacinamide) are involved in energy metabolism. Vitamin B3 is also involved in metabolism of fats, carbohydrates and amino acids.

One of the most common deficiencies in North America is vitamin B6 which affects mainly middle-aged and postmenopausal women. It causes "numbness" and "tingling" of fingers and hands, most noticeable when the hands are at rest, and particularly upon retiring to bed at night. With a progressing vitamin B6 deficiency the numbness and tingling is changed into pain in hands, fingers, arms and shoulders. Fingers that once tingled become stiff--particularly upon "awakening in the morning, and later become swollen and painful. Pain can radiate also from the shoulder towards the chest. The hands become "puffy" as do the ankles and feet. Later the women in advanced cases have difficulty in grasping or clutching small objects like needles and can get leg and foot cramps, mainly during the night time. Also premenstrual retention of water is

the result of vitamin B6 deficiency. Although B6 given by mouth can normalize in several weeks those abnormal findings, these women are usually treated with various drugs like aspirin, diuretics ("water pills"), or even with Valium or just kindly assured, "You are not 20 any more, my dear."

Folic acid, another vitamin from the B group, has several important functions in metabolism, namely metabolism of protein and cellular growth. It is also important for formation of red blood cells and proper function of the gastrointestinal tract.

Vitamin C (ascorbic acid) is needed for proper bone and teeth formation. It is important for formation of connective tissues and capillary walls. It also functions in the utilization of folic acid and in amino acid metabolism. Vitamin C also increases resistance to infection.

Iron is vital for the formation of red blood cells. It is also important for functioning of certain enzyme systems and muscle and protein metabolism. The demand for this mineral is highest during the years from nine to sixteen and during pregnancy. With commencement of menstruation, this increased requirement continues in women until menopause, whereas after adolescence, men's need for iron is decreased.

The shortage of iron in the diet of Canadian children and adolescents is marked and widespread. Almost half of the infants and toddlers and a third of older children in the population surveyed have dietary iron below adequate levels. The prevalent figures for adolescents having insufficient intakes of iron are again higher for girls (over 70%) than boys (50%). The iron shortage in the diet at these ages makes it difficult for body stores of iron to be built up to normal levels later in life. About three quarters of young and middle-aged women and one-half of senior women do not have a desirable intake of iron.

Calcium is fundamental in bone and teeth formation, and is particularly important for skeletal growth during childhood and adolescence. Dietary intakes must be higher than actual body needs to overcome the low absorption of this mineral by the body.

Nutrition Problems During Pregnancy

Pregnancy is a period of increased nutritional needs. In the course of pregnancy, an adequate supply of nutrients must be provided to meet the demands of the developing fetus as well as those of the mother. It is crucial therefore that food intake be of sufficient quantity and nutritional quality to meet all the nutritional needs of pregnancy.

The results of the Nutrition Canada Survey show that 50 per cent of pregnant women have an insufficient intake of iron. These findings are particularly crucial because iron deficiency occurs during pregnancy. Since so many women have an iron deficiency during pregnancy, many babies are born with low iron stores and are not likely to attain normal tissue storage of iron especially if iron intake subsequently remains marginal. The shortage of iron in the diet may be due to an increased consumption of refined foods. The use of aluminum and stainless steel cookware rather than iron vessels also eliminates a valuable source of iron from cookware. There is no doubt that our food supply is generally low in iron and that, in certain foods, the iron has a low degree of bioavailability.

The total serum protein levels were decreased in about 30 per cent of the pregnant women examined. The root of this protein deficit is probably the unsatisfactory eating practices among adolescent and adult women.The result is a disadvantaged child of low birth weight and with nutritional deficiency of a multiple nature.The weight deficiency observed in some infants and children may be similarly explained. The maintenance of adequate protein and adequate nutrition is crucial during fetal development as well as during the growing years.In infancy the tissues are increasing in both composition and size.In older children and in adolescents,the demands for growth continue but at a somewhat slower rate. The nutritional needs of these age groups are necessarily higher per unit body weight than in adults. Poor nutrition can have far-reaching adverse effects on health. To make the situation still worse the teenage girls and young women who are the group whose nutrition was found the worst are commonly prescribed birth control pills, because it is generally expected that the burden of contraception should be carried mainly by the woman herself, even now in times when there are available such alternatives as reversible vasectomy. The administration of birth control pills further aggravates vitamin deficiencies, mainly B6, B12 and folic acid, which can lead in many women to such problems as hyperirritability and depression and frequently also to a lack of interest in sex.

Birth control pills have been found to cause migraine headaches, both in women previously susceptible to these headaches and in those who have never experienced them before. There is a general agreement that the use of oral contraceptives can increase weight and blood pressure. Birth control pills can also lead to increased incidence of the occlusion of vessels by blood clots and higher tendency to heart attack, especially in those women who smoke.

Abortion is another situation which negatively affects women's emotional

and physical health. The most frequent short-term complications of abortion are laceration of the cervix, hemorrhage, infection and perforation of the uterus; possible long-term effects involve a reduction in future fertility and difficulty in carrying a pregnancy to term.

Long-term complications also include possible rupture of the uterus in subsequent pregnancy, delivery or curettage as a result of the perforation of the uterus during the abortion, premature delivery due to excessive curettage. For example, Hungarian experience suggests that premature delivery due to problems of the cervix are three times higher than average in women who have been aborted.

Even without complications, abortion causes profound effects in the woman's body as it is forced to adapt to sudden hormonal, circulatory and biochemical changes. Apart from that, the results of new studies show that a foetus from the very beginning has a completely developed sensitivity to pain and, perceives the full intensity of the pain during the abortion, even if the mother is anesthetised.

In spite of the alarming findings, the authors of Nutrition Survey feel that results of Nutrition Canada probably present an optimistic view of the nutrition problem in Canada.(7) In surveys of this magnitude, the persons selected who do not take part are often the ones with nutritional or other health problems. Those who participate are usually aware of the importance of nutrition and are likely to be fairly well nourished.

The problems revealed by the survey can have varying results; a lowering of the quality of life, mild or serious illness, or even death. When prevalence and severity (e.g., the proportion of the population under risk) are high, the consequences are serious; when the population is particularly vulnerable as during pregnancy or fetal development, the problem becomes even more serious. Nutrition Canada has documented specific nutrition problems. Corrective measures are therefore required to deal with these problems. Furthermore, attention should be given to the early detection of such problems and to the development of preventative programs for the future.

Nutrition standards for foods in Canada should set minimum levels of appropriate nutrients to be contained in foods, in order to ensure that foods devoid of nutrients are not marketed to the unsuspecting public. Present enrichment and fortification programs need to be re-evaluated in the light of the findings of Nutrition Canada. Revision of enrichment and fortification programs should specify the form of the nutrients to be added as well as the quantity, in order to take into consideration the bioavailability

and stability of the nutrient. Apart from that the basis of proper nutrition should be taught in Canadian schools as well as in premarital and prenatal classes. It is also necessary to promote research dealings with the role of nutritional factors in the prevention and treatment of various diseases. There is a growing evidence that the correction of nutritional deficiencies especially in connection with desensitization is usually followed by an improvement and frequently the normalization of both the physical and the mental condition of the patient.

There is an apparent flaw in the existing philosophy of health care. It implies that in order to qualify for treatment, you first have to be sick. Until recently little consideration has been given to other factors leading to health problems, such as environment, nutrition and diet. It is not surprising therefore, that the practice of drugless and preventive medicine recently has been gaining recognition and acceptance. Nevertheless, a nutritionally-oriented preventative approach is still not sufficiently recognized and used by most of the medical professions, although such an approach may lead to a marked improvement in the health of Canadians as well as substantial cut in the cost of health care.

For example, a study on the cost of schizophrenia in the USA based on 1968 National Institute Mental Health (NIMH) data (a similar Canadian study is not available) has estimated that schizophrenia costs the American society about 11.6 to 19.5 billion annually.(8) The authors of this study have estimated that the cost might be considerably higher if better figures were available on the cost of maintaining patients in the community. In the absence of more effective treatment, the savings from the current trends toward shorter hospitalization cannot be expected to decrease and may actually increase the overall cost of schizophrenia to society. In focusing on the economic cost of schizophrenia--the most common severely incapacitating mental disorder--we must not overlook the more important factor--human suffering which affects the patient and the patient's family.

It was shown by Hoffer many years ago that many schizophrenics improve or even regain their mental health if they are given long term high doses of vitamin B3 (niacin, niacinamide). However, because of the lack of explanation as to how vitamin B3 does in fact work and the lack of economic interest of the pharmaceutical companies in promoting compounds such as vitamins or other natural substances appearing in the human body such as GABA (because they cannot be patented), this type of treatment has not become widely used by most psychiatrists. Nevertheless, recent clarification of schizophrenia as a

spectrum of biochemical disorders leading to a decreased production of niacin, together with an accumulation of psychotomimetic compounds helps to explain how niacin, expecially in connection with a low tryptophan and a low methionine diet can normalize the metabolism of schizophrenics and thus their mental condition. (9)

Another reason for the slow acceptance of, and the lack of nutritional research and the use of the vitamins in preventative treatment is a certain tendency of the male dominated, drug orientated, scientific and medical establishment to see nutrition and dietary approach, as well as vitamins, as a "kitchen approach." Clearly such a narrow vision must be corrected.

NOTES

1. Stephen D. Lockey Sr., "Reactions to Hidden Agents in Food, Beverages and Drugs," Annals of Allergy, Vol. 29 (1971), pp. 461-466.

2. Carol A. Kinzlers, "Cosmetics: What the ads don't tell you." (New York: T.J. Crowell (1977).

3. Rosemary Underwood, "Learning Disability as a Predisposing Cause of Criminality," Canada's Mental Health, Vol. 24, No. 4 (1976), pp. 11-16.

4. Barbara Reed, Hearing before the Select Committee on Nutrition and Human Needs of the United States Congress, 22 June 1977.

5. S. Tani, "The Effect of GABA on Feeble-minded and Delinquent Juveniles," Gammalon (1958), pp. 37-44; M. Yamamura, "The Effect of Aminobutyric Acid for Feeble-minded and Delinquent Juveniles," ibid., pp. 19-36; M. Zucchi, "Osservazioni in merito alle attuali possibilita di trattamento farmacologico delle anomalie di comportamento di tipo caratteriale del bambino e del ragazzo," Minerva Medica, Vol. 614 (1970), pp. 4542-50; F. Fabiani, P. Martini, F. Franceschi-Biagiotti, "Osservazioni cliniche psicometriche sull'effetto terapeutico di un'associazione gaba-glutammina aspartati-piridossalfosfato in un gruppo di psiconevrosici neurastenici, Riv. Neurobiol., Vol. 15 (1979), pp. 35-62.

6. L. Gilka, GABA and its Use, pp. 1-84, for press.

7. Nutrition Canada--National Survey, 1970-72.

8. J.G. Gunderson and L.R. Mosher, "The Cost of Schizophrenia," American Journal of Psychology (1975), pp. 132-139.

9. L. Gilka, "Schizophrenia, A Disorder of Tryptophan Metabolism," Acta Psych Scand Suppl (1975), p. 258.