Dental caries reduction from dietary changes

Dear Sir:

Most contributions on caries prevention express enormous faith that huge decreases in prevalence are entirely feasible. It has been stated “I suggest that the elimination of caries as a public health problem, which even ten years ago was an optimistic hope, is now a realistic expectation. Few other contemporary health problems seem more certain to succumb to such an intensive, balanced, and tenacious scientific effort as that which characterizes caries research in 1973” (1). Another statement is “there is encouraging news . . . we are fairly certain that . . . morbid dental statistics can be reduced by at least 60 per cent and probably by as much as 75 per cent” (2).

In our view these sanguine opinions specifically in so far as they refer to the effects of dietary changes, are both unwarranted and unrealistic. They are unwarranted because neither the precise causes nor the effective dietary means of combating caries development are known with certainty. Moreover, on most aspects of the subject, evidence is controversial, and occasionally is downright contradictory (3). The opinions are unrealistic, because a really meaningful reduction in caries prevalence by dietary means in a large series of children has yet to be demonstrated. They are also unrealistic because there is an almost total lack of appreciation of what dietary changes the public will or will not be persuaded or frightened into adopting.

In current reviews it is usual to ignore the confusion of findings and the almost insuperable problems of implementation of recommendations. Most presentations on the dietary aspects include a description of experimental studies on animals, some in vitro studies, the war-time experience of some countries (although not Germany (4) where the evidence was contradictory), the Vipeholm study, recommendations that intakes of essential nutrients should be adequate, and pleas that consumptions of sugar-containing foods, especially those eaten between meals, should be drastically decreased if not eliminated.

As to levels on intakes of nutrients, we know of no unequivocal evidence on humans that high, compared with low, consumptions of protein, calcium, phosphorus, vitamins A, C, or D, promote “improvement in the chemical and structural quality of the teeth” (2). Actually, lower, compared with higher, consumptions of most nutrients are consistent with superior teeth. This is certainly the case with Africans (5). Moreover, in the Ten State Nutrition Survey, caries scores in children were much lower in the poor, compared with the well-to-do moieties (6).

Urges to “avoid as much as practicable” all sugar-containing foods, including honey and dried fruit, and to “absolutely forbid the between meal eating” (2) of sugar-containing foods, carry the implication that such restrictions or prohibitions would be abundantly rewarding. This message to the public is less than honest, since, as already indicated, no large-scale examples are aducible in support. In this connection, it must be remarked that the Vipeholm study (7), valuable though it was, in its dietary aspects bears very limited relation to the everyday diet of school children.

We would like to cite the case of another disease, which is of almost infinitely greater significance to health and life than dental caries, namely, coronary heart disease. Attempts at amelioration of mortality by changes, inter alia, in fat intake and composition have met with a varying degree of success (8). Nevertheless, even were the benefits obtained much more worthwhile, it must be faced, as was emphasized in an editorial in Lancet, that drastic reduction in serum lipids is likely to be “rarely achieved except in small numbers of almost fanatically determined patients” (9). Because controlled trials are extremely expensive, and because of the limited benefits accruing, Sir John McMichael (10) maintains “surely we should now call a halt to such costly exercises.”

While controlled trials to secure crucial etiological knowledge of course differ from
educational campaigns designed to disseminate information, we have often wondered—do the results of caries prevention campaigns really justify the work, the time, and expense involved? Is critical information in this regard available? Do children in cities or regions where regular campaigns are held really have lower caries scores than those of children who are less exposed to dental health recommendations?

In our view by far the principal thrust in caries prevention and reduction must be directed into fluoride ingestion, from topical sources or from drinking water.


South African Medical Research Council Human Biochemistry Research Unit, South African Institute for Medical Research, Johannesburg, South Africa

P. E. Cleaton-Jones, M.B., B.Ch., B.D.S., Ph.D.

Dental Research Unit of the University of the Witwatersrand and S.A. Medical Research Council, Johannesburg

Validity of 24-hr dietary recall

Dear Sir:

The validity of 24-hr dietary recalls as a research instrument has been amply debated in the nutrition literature and the limitations of this short-cut are generally recognized.

The article in the November issue (Am. J. Clin. Nutr. 30: 1242, 1977), by Guzman, Guthrie and Guthrie stretches credibility beyond its limits. Under “Methods” on page 1244 it is stated that “the Food and Nutrition Research Institute of the Philippines recognizes the 24-hr recall as an appropriate method of obtaining food intake data in the Philippines. Their recommendation was based on Quiogue’s finding of no significant differences in nutrient intake over a period of one week using either weighed intake data or 24-hr recall data.”

Many workers have found that if the two techniques are used simultaneously for a few days, as quoted here, the results may indeed be similar. This hardly validates the 24-hr recall by itself.

Guzman and associates state that a 24-hr dietary recall was obtained through individual interviews with each subject (8- to 10-year-old children!) by an “assistant” trained in nutrition. We are not told what this training was and what the background of these assistants was. The authors then proceed to list in their tables and to interpret in the paper a set of data that is not convincing.

The children in Victoria, the “rice-eating” community were identified as weighing an average of 22.5 kg (the middle value for

References