

when Collins, Harper, Schreiber and Elvehjem<sup>6</sup> demonstrated a very low vitamin B<sub>12</sub> content, the major deficiency in infants with goat's milk anemia is probably folic acid. In view of the known interrelationship between vitamin B<sub>12</sub> and folic acid, the folic acid requirement may be increased in infants fed the vitamin B<sub>12</sub> low goat's milk diet. This then would explain the occurrence of the more severe goat's milk anemia which responds to folic acid therapy.

"Goat's milk anemia" is a macrocytic hyperchromic megaloblastic infant anemia which responds to folic acid therapy.<sup>8</sup> Historically, goat's milk anemia is more severe than a similar cow's milk anemia. It is probable that the difference is the result of an increased folic acid requirement in such infants due to the relative vitamin B<sub>12</sub> deficiency found in goat's milk.

RICHARD A. COLLINS, PH.D.  
*Department of Pathology  
 Evangelical Deaconess Hospital  
 Milwaukee, Wisconsin*

## REFERENCES

1. GYÖRGY, P. Beitrag zur Pathogenese der Ziegenmilchanämie. *Ztschr. Kinderh.*, 56: 1, 1934.
2. ROMINGER, E., MEYER, A. and BOMSKOV, C. Anämie-studien am wachsenden Organismus. I. Mitteilung. Über die Pathogenese der Ziegenmilchanämie. *Ztschr. ges. exper. Med.*, 89: 786, 1933.
3. KOHLER, G. O., ELVEHJEM, C. A. and HART, E. B. Goat's milk anemia. *Am. J. Physiol.*, 113: 279, 1935.
4. ORTEN, J. M. and SMITH, A. H. Goat's milk anemia. *Yale J. Biol. Med.*, 8: 637, 1936.
5. COLLINS, R. A., SCHREIBER, M., ELVEHJEM, C. A. and HART, E. B. Vitamin B<sub>12</sub> and folic acid in milk diets. *J. Nutrition*, 49: 485, 1953.
6. COLLINS, R. A., HARPER, A. E., SCHREIBER, M. and ELVEHJEM, C. A. The folic acid and Vitamin B<sub>12</sub> content of the milk of various species. *J. Nutrition*, 43: 313, 1951.
7. LUHBY, A. L. Megaloblastic anemia in infancy. III. Clinical considerations and analysis. *J. Pediat.*, 54: 617, 1959.
8. GASSER, C. Folsäure bei perniciosiformer Ziegenmilch-Anämie. *Helvet. Paediat. Acta*, 3: 301, 1948.

## Teaching and Training in Nutrition

Dear Dr. Waife:

In response to Paul György's editorial, and your request for comments, I would like to mention the lack of nutrition education at the undergraduate college level.

As a result otherwise intelligent college-educated Americans derive much of their nutrition information from the backs of breakfast-food cartons, from vitamin advertisements and from special interest advertisers. Small wonder so many of them fall prey to the yoghurt vendors, evangelists for wonder foods and (in a search for health) are taken in by alfalfa mixes and malted milk tablets sold as protein "supplements." In talking with such deluded enthusiasts, they readily admit their lack of knowledge and view nutrition con-men as genuine experts.

Surely, college is one place to provide nutrition information and to give emphasis on worldwide problems of nutrition and the whole area of nutrition research. Courses in biology and chemistry need not be the only contributors to nutrition education. Psychology, sociology and cultural anthropology can help to describe the many problems relating to food preferences and food practices.

Without insisting on a proliferation of formal undergraduate courses on nutrition (remember the old freshman courses on "hygiene"), it would seem to be appropriate to establish special training programs for college teachers interested in nutrition both as a natural science and a social science. There is adequate precedence in the summer training programs in social gerontology, sponsored by the National Institutes



of Health. These programs were not designed to produce academic specialists on aging, but were quite effective in assisting college teachers concerned with biological, social or economic aspects of the aging process.

Certainly there are biology teachers who would like to offer more information on nutrition. Nutrition fits well with both general and specialized courses in organic chemistry and biochemistry. In psychology, there has been a great interest in the whole subject of taste, food preferences and food aversions. And anthropologists' interests in cultural practices and problems of nutrition, particularly with respect to culture change, are well known.

I would suggest, therefore, a summer training program in nutrition, with equal concentration on the cultural and physiological aspects of the problem, with attention to nutrition-deficiency diseases in various parts of the world, and with considerable emphasis on nutrition frauds and fakes. Certainly the problem is too great to leave to graduate education alone, and such a training program would help to generate interest.

There are summer programs for mathematics and physics, anthropology and sociology, gerontology and so forth. Why not a summer program in nutrition, aimed at a variety of college people and with today's students and tomorrow's adults in mind?

STANLEY M. GARN, M.D.

*Chairman*

*Department of Growth and Genetics*

*The Fels Research Institute*

*Yellow Springs, Ohio*

Dear Dr. György:

The editorial which you prepared and which appeared in *The American Journal of Clinical Nutrition* for January has come to my attention. I should like to endorse heartily the thesis which you developed, favoring increased nutrition education for students in the medical sciences. A knowledge of nutrition would appear to be such an innate part of the discipline which is focused upon the well-being of

the individual, that it is difficult to understand why this science is so inadequately treated in many medical schools even now. Certainly it cannot be because of paucity of material of appropriate academic caliber. Many carefully designed research programs developed by able scientists have produced an ever increasing body of well documented facts.

The editorial further raised the question of the most efficient means for making available additional nutrition teaching for medical students. It was indicated that in the past nutritional knowledge has been disseminated through Departments of Home Economics and Animal Husbandry. It is true that the science of nutrition has been of prime concern to Home Economics from the time of the earliest development of the field.

I would, therefore, suggest that for medical schools which are located on the same campus, or closely adjacent, to Schools of Home Economics, they may find a solution to the problem of the teaching of normal nutrition to medical students by seeking the cooperation of Faculties of Home Economics. Inspection will frequently show that within Departments of Foods and Nutrition experienced teachers are already offering substantial basic courses in nutrition. These teachers are well qualified having obtained the Doctor of Philosophy degree in nutrition and/or biochemistry. Their teaching is usually enriched by the research programs which they have designed and are currently directing.

Since the first need of the medical student (or any other) is to master the fundamentals of the science—in this case, nutrition—before progressing on to conditions presented by abnormal situations; and since in some universities, the necessary subject matter is already being offered, it would seem a needless duplication to set up additional courses. I am sure that faculty members of any well established Department of Foods and Nutrition, within Schools or Colleges of Home Economics would welcome the opportunity to describe the available nutrition course offerings to members of the Medical School