

NUTRITIONAL ASPECTS OF MICROPARTICULATED PROTEIN

N. KRETCHMER

The microparticulation of protein is a widespread natural process. The degradation of protein proceeds in all cells, in the digestive tract, and in the preparation of foods.

The microparticulation of protein merely changes the size of the macroparticle of a collection of protein to microparticle. This microparticle is the result of a physical change in size without any chemical change in the actual protein. The amino acid sequence and the intermolecular three dimensional structures and bondings remain in tact. What does change is that the solution of these microparticles is smoother than a solution of macroparticles. It is then possible to utilise the microparticulated protein in the construction of foods. The smoothness gives an impression in the mouth of fat, and consequently, the microparticulated protein can be used as a fat substitute when combined with other elements and flavours that would be associated with the foodstuff. since there is no chemical degradation of the protein, the nutritional quality and the antigenicity of the protein is preserved. At present either egg white or milk protein is used as the protein source.

Where microparticulated protein (MPP) is used as a substitute for fat there will be an anticipated increase in the protein content of the MPP-based food, compared with the traditional full-fat food. The nutritional and metabolic implications of this change will be considered. The micronutrient content of the MPP-alternative foods may differ from that of traditional foods. We do not have access to sufficient data in this area but it would seem that if there were any nutritionally important differences, they could be eliminated by supplementation, if this were desirable.

MPP-fat substitutes will significantly reduce the fat content and the energy density of applicable foods. Although we do not have conclusive evidence, we predict that there will be small changes in the profile of micronutrients and also of essential fatty acids when MPP-based and traditional foods are compared. Technically, supplementation would prevent any such changes from occurring but even this is an approach that is unlikely to be necessary from a nutritional or health standpoint.

The development of commercially viable MPP ingredients together with production and marketing of MPP-alternative foods is of considerable scientific interest and of practical importance for human nutrition and well-being.

KRETCHMER, N. (1990). *J. Amer. College Nutr.* 9: 371.

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Department of Nutritional Sciences, University of California, Berkeley, CA 94720 USA