CHAPTER VII

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This investigation was an attempt to determine the relation between dietary intake and milk secretion of vitamins in lactating women. The vitamins studied were ascorbic acid, thiamine, riboflavin, pantothenic acid, nicotinic acid, cyanocobalamin, biotin, pyridoxine and folic acid.

The milk levels of the above vitamins were studied in relation to the subject's (a) socio-economic status, (b) stage of lactation, and (c) dietary intake of the vitamin. Longitudinal studies were made of the effects of oral vitamin supplementation starting from initial low levels and increasing to progressively large doses. Finally, studies were made on some of the milk enzymes, viz., lactate and malate dehydrogenases and xanthine oxidase. The dehydrogenases were partially purified and characterised.

The vitamin content was found to show some changes with the progress of lactation, particularly within the first month. The contents were found to increase in the case of thiamine, biotin, and pyridoxine, and to decrease with regard to ascorbic acid, cyanocobalamin, folic acid, nicotinic acid, pantothenic acid, and riboflavin showed initial increases followed by a decline.

The milk levels of the vitamins studied were generally found
to be higher in the economically better off classes than in the poorer classes suggesting a relation between the nutritional status of the subject and vitamin levels in milk. This suggestion was confirmed by the high correlations obtained between dietary and milk vitamins in regard to all the vitamins studied.

Oral vitamin supplementation to subjects of low nutritional status was found to have beneficial effects on milk levels even at low levels of supplementation compared favourably with those reported by other investigators after massive doses of supplementation. The supplementation was also found to have a salutary effect on milk yield.

These studies also showed that the dietary vitamin intake of women in this region even in the better off classes was far short of the recommended levels. The diet was found to be inadequate in other respects as well. This appeared to be reflected in the low levels of milk yield and milk vitamins as compared to the values reported by Western investigators.

Ascorbic acid secretion in milk was found to be considerably greater than the amount consumed in the diet, as estimated by the methods employed. The implications of this finding have been discussed.

Thus the present investigations underline the dietary inadequacy in regard to vitamins in lactating women in this country.
and show the same to be reflected in low milk levels. They further show that the vitamin levels of milk can be increased to ceiling levels by oral vitamin supplementation for a prolonged period and suggest that, in subjects of low nutritional status, even small doses of supplementation may have a beneficial effect.