

GROWTH AND WEIGHT OF INFANTS IN RELATION TO FEEDING.*

From the "Nursing Mirror."

The very essence of an infant's life lies in its powers of digestion. From birth to the period of weaning the digestion of milk dominates the whole physiology of growth. Its mother's milk is readily absorbed by the infant, because that food is of the same natural constitution as the tissues which are to absorb it. This process of absorption becomes more complicated when the feeding is artificial. The digestive glands have to work at high pressure to do abnormal work, and when cow's milk is used this excess of effort is almost double that needed for breast milk. Hence the great need of careful feeding and selection of food. After weaning the digestive powers become stronger. It has been demonstrated by means of the x-rays that breast milk remains in the stomach about two hours, and cow's milk about three hours, and that when the digestive processes are complete the exit from the stomach opens and the whole mass passes out *en bloc*. Thus there is a sound scientific reason for the three hours' interval now universally advised between feeds. Absorption is completed in the intestines.

Whether an infant is properly assimilating his food may be judged from studying his length and weight. He should be measured and weighed at regular intervals, the results noted on a specially prepared chart and compared with average tables of length and weight. If normal he will be found to have grown in length three-quarters of an inch during the first ten days of life and four inches in the first three months, and a total of nearly eight inches during the first year. His weight will decrease during the first two or three days from 5 to 7 oz., but afterwards increase until he weighs about 11 lb. at three months and 22 lb. at one year. It will be found, however, that whereas weight is always an inconstant and variable factor, the length cannot decrease, being governed by the bony skeleton, so it follows that growth in length more accurately represents the development of the body. Too much stress is frequently laid on the desirability of regular weighing and too little on the equal importance of regular measurement of the infant's length. The normal infant grows regularly both in length and weight, but not so the pathological or abnormal child.

In the atrophic, or "wasting," baby, the origin of the atrophy may be hereditary, or purely gastro-intestinal, from improper feeding, but if its condition is estimated by weight only mistakes are liable to be made. For example, take an atrophic-looking infant of twelve months, having a length of about 25½ inches and a weight of 11 lb. Comparing this with the average table of healthy infants we find its length corresponding to that of a seven-months' old normal child and its weight only to that of a three-months' child, so if you only consider the weight you get a false idea of the degree of atrophy from which it is suffering, which in reality is not so severe as might at first sight appear, seeing that the length is much greater than that of a child of three

* Summary of lecture by Dr. Finlay (Assistant M. O. H. for Edinburgh) to the Edinburgh Branch of the Scottish National Association of Women Health Visitors and Women Sanitary Inspectors. Given recently in the City Chambers, Edinburgh.

months. To feed such an infant according to his weight alone will be underfeeding, and no success will follow. The case may be one of simple loss of flesh, not true atrophy, and you can give him much larger feeds without any untoward results. Thus one can almost say in general terms that a child has the age of its length rather than the age of its weight, and the weighing-machine alone is inadequate to give a true interpretation of infant development.

In the case of a baby who is atrophic, because underfed, vomiting is usually a constant symptom, and a misleading one, for it leads to its quantity of food being still further reduced in the effort to stop the vomiting; but in reality vomiting is as common an occurrence in the underfeeding as in the overfeeding of infants. In the latter case it is due to the overloading of the stomach with food, in the former to the spasmodic contraction of a stomach with too small a feed to digest.

When the cause of atrophy is other than improper feeding it is primarily due to such conditions as syphilis, tubercle, and congenital debility generally. In these cases both length and weight are below normal, and for the proper development of such an infant its feeding needs extreme care. It will be pale, languid, and often have a prominent abdomen. Such symptoms as chronic vomiting, diarrhoea, and gastro-intestinal fermentation are usually present, and the child will show a marked diminution in its power of resistance to disease. Both for normal and atrophic infants the feeding during the first year of life is the most important, and if they reach their second birthday with a length and weight in a normal ratio to one another there will have been built up for that child a resistance to disease which will be of incalculable benefit to him in subsequent years.

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