

Milk Tests in Lanarkshire Schools.*

THE Department of Health for Scotland has recently issued a report on the investigation into the effect of the addition of milk to the diet of school children. The data have been compiled and annotated by Dr. Gerald Leighton, Medical Officer (Foods), and Dr. Peter L. McKinlay, Medical Officer (Statistics).

Twenty thousand children were concerned in the experiment, 10,000 being given a daily ration of milk and a like number being used as control subjects. All the milk used was Grade A (Tuberculin Tested). Half of the milk was given in the raw state and half was pasteurised.

The schools selected for the tests were all situated in the densely populated industrial part of the county. While no account was taken of the distress prevalent in these localities in the selection, it has been estimated that one-third of the children came from homes in which there was unemployment, complete or partial. The ages of the subjects ranged from five years to twelve years. The sexes were balanced in each age group.

The teachers showed great interest in the experiment, and their "remarks" on the various subjects are often enlightening. One teacher noticed that "in the playground buoyancy and pugnacity developed to an alarming extent". Another states that a little girl increased in vitality to such an extent that she boasted to her teacher of her ability to fight her big brother.

While the physical benefits of the experiment made themselves fairly obvious, it was not easy to estimate the mental improvement. However, many teachers have reported great improvements in mental alertness, especially among the younger children. Others say that some of the children became drowsy. One boy, who hitherto was very backward in reading, improved greatly and became very smart in reading, arithmetic, and history. Another child, formerly very morose and sullen, has become bright and talkative.

There are complete records of the progress of 17,159 children. These records are in three parts—(a) Controls, (b) children fed with raw milk, (c) children fed with pasteurised milk. These are further subdivided according to age and sex.

Tables were prepared in such a way that not only the average increase in height or weight for the whole group, but also the average increase in height or weight for children of a given initial height or weight could be calculated. In view of the fact that there were definite differences of weights and heights in the controls compared with 'feeders' at the beginning of the experiment, it was considered advisable to inquire whether the amount of growth within this period was affected to any appreciable extent by original physique: that is, whether the heavier or taller child added more or less to its height or weight than the lighter or shorter child. For this purpose coefficients of correlation between original weight and original height and change in height were calculated for the control group. From these results it was inferred that there was no uniform tendency for gain in weight or height to be influenced by original weight or height.

The conclusions may be summarised as follows:

(1) The addition of milk to the diet of school children is reflected in a definite increase in the rate of growth, both in weight and height.

(2) There is no obvious or constant difference in this respect between the sexes. There is little evidence of definite relation between the age of the children and the amount of improvement. The results do not support the popular belief that the younger children

INCREASE IN WEIGHTS (IN OUNCES) IN THE THREE GROUPS.

Age.	Boys.			Girls.		
	Control.	Raw Milk.	Pasteurised Milk.	Control.	Raw Milk.	Pasteurised Milk.
5	11.64	14.88	15.65	7.00	14.50	6.62
6	13.75	13.51	9.96	11.21	10.61	10.05
7	11.17	14.85	15.55	8.90	11.22	12.94
8	11.38	14.21	15.21	9.77	13.40	13.37
9	9.53	13.43	11.83	7.87	13.81	12.52
10	7.10	13.53	10.39	9.51	15.08	18.96
11	6.14	12.74	11.05	12.62	24.92	17.08

INCREASE IN HEIGHTS (IN INCHES) IN THE THREE GROUPS.

Age.	Boys.			Girls.		
	Control.	Raw Milk.	Pasteurised Milk.	Control.	Raw Milk.	Pasteurised Milk.
5	0.75	0.95	0.94	0.86	0.64	0.87
6	0.80	0.87	0.87	0.80	0.86	0.84
7	0.76	0.87	0.82	0.75	0.84	0.81
8	0.74	0.82	0.79	0.71	0.81	0.78
9	0.69	0.80	0.74	0.66	0.76	0.78
10	0.68	0.76	0.68	0.71	0.79	0.72
11	0.69	0.74	0.70	0.77	0.86	0.81

derived more benefit than the older children. As manifested merely by growth in weight or height, the increase found in younger children through the addition of milk to the usual diet is certainly not greater than, and is probably not even so great as, that found in older children.

(3) In so far as the conditions of this investigation are concerned, the effects of raw and pasteurised milk on growth in weight and height are, so far as can be judged from this experiment, equal.

Dr. J. P. Kinloch, Chief Medical Officer of the Department of Health for Scotland, says, in a prefatory note, that the scheme was made possible by a grant of £5000 from the Empire Marketing Board, which approved its purpose and the selection of Lanarkshire for the experiment. The Distress in Mining Areas (Scotland) Fund financed the experiment also, by a grant of £2000. Individuals and firms interested in the dairying industry contributed £477. The results, states Dr. Kinloch, demonstrate that the addition of milk to the children's diet results in improved physique and mental alertness. They also suggest that, apart from its own food value, milk enables the other constituents of the ordinary diet to be fully utilised as growth factors.

It is significant that, by powers conferred by the Education (Scotland) Act, 1930, local authorities may make a ration of milk available for school children. The exercise of these powers would, Dr. Kinloch states, affect 800,000 children in Scotland, and, by improving their physical and mental well-being, would have a powerful influence in improving the quality of the Scottish race.

JOHN TAYLOR.

* Department of Health for Scotland. Milk Consumption and the Growth of Schoolchildren. By Dr. Gerald Leighton and Dr. Peter L. McKinlay. (Edinburgh and London: H.M. Stationery Office, 1930.) 3d. net.