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**The experimental production of thyroid hyperplasia in dogs.** By  
EDWARD MELLANBY and MAY MELLANBY. (*Preliminary Communi-  
cation.*)

In making an examination of the thyroids of dogs used by us in connection with work on rickets and the production of defective teeth respectively, several facts came to light which promised to be of interest. As the investigation has been up to the present almost entirely statistical, only those points which stand out prominently can be mentioned with any certainty.

1. When puppies received cod liver oil as the only fat in the diet, the thyroids were small and normal in appearance. With other fats the appearance and size of the glands varied, but there was always some hyperplasia as compared with those of the cod liver oil puppies. When butter was the fat eaten, the hyperplasia of the thyroid glands was especially large. The average weight of the thyroids of 12 puppies receiving cod liver oil was 0.586 gram, while that of 8 butter-fed puppies was 2.77 grams, *i.e.* a fivefold increase. The increase in size was accompanied by equally striking changes in histological appearance. These latter were not constant, the hyperplastic changes in some cases affecting to a greater extent the secreting cells of the alveoli and in other cases the intervesicular cells.

2. Increasing the fat of the diet from 10 to 20 grams per diem intensified, often to a remarkable degree, the hyperplasia of the thyroids. Five animals receiving 20 to 25 grams of fat per diem developed thyroids whose weights were 4.181, 7.043, 6.929, 13.388 and 10.538 grams respectively, *i.e.* on the average over 14 times the weight of those of the cod liver oil puppies. It may be added that the size and weights of the puppies with these large thyroids were not above the normal, nor were they older than the other animals.

3. The size and appearance of the thyroid gland varied with the energy of the food eaten and the opportunity the animal had of getting rid of this energy by mechanical effort or by living out of doors. Thus confinement and living indoors, together with a large diet, especially one containing abundant fat (other than cod liver oil), produced great hyperplasia of the thyroids. Reducing the diet and especially the fat quota, affording the opportunity for running about in the open air and so increasing energy expenditure relatively to the intake, produced smaller and more normal glands.

The experiment was conducted in the following manner:  
The subjects were divided into two groups, each consisting of ten subjects.

In the first group, the subjects were given a series of tests designed to measure their ability to discriminate between different patterns of light and dark. The results of these tests were then compared with the results of the tests given to the second group.

The results of the tests given to the first group were as follows: The subjects were able to discriminate between different patterns of light and dark with a high degree of accuracy. The results of the tests given to the second group were also very good, but not quite as good as those of the first group. This suggests that the subjects in the first group were better able to discriminate between different patterns of light and dark than those in the second group.

The results of the tests given to the first group were also compared with the results of the tests given to the second group. The results of these comparisons were as follows: The subjects in the first group were able to discriminate between different patterns of light and dark with a high degree of accuracy. The results of the tests given to the second group were also very good, but not quite as good as those of the first group.

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