

The buds branching from the ducts of the theelin-injected animals did not appear macroscopically to be increased in number compared with the parenchymal tissue of control animals. It is quite probable that larger doses over a longer period of time might show a marked effect.

The epithelium of the nipples in all of the injected animals was thicker than in the controls.

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Growth of Mammary Gland in the Rhesus Monkey.*

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From the Carnegie Institution of Washington.

Thirty-one females and 3 male rhesus monkeys of a wide range of body weights were used. All were kept under observation for at least 4 months. No animal dying from a protracted illness or used for other experimental purposes was included. The area of the mammary tissue was measured and compared with the weight of the kidneys and ovaries. Since the mammary tissue in the macaque grows in length and width rather than in thickness, a measure of the area of the gland gives an index of the change in size.

In 12 animals the skin surrounding the mammary tissue was tattooed, a pattern was traced, the gland with the skin was cut along the tattoo marks, dissected free of muscle, and stretched on a flat piece of cork the exact size of the pattern. The skin from the center of the tissue was removed, leaving the gland surrounded by a frame of skin. After fixation and staining the size of the gland was compared to the size of the pattern. An average shrinkage of 7% was found. Since all glands were treated in the same way this shrinkage would not affect the comparison.

After the tissue was mounted a tracing of the gland was made. The tracing was taken as if a wheel of a half-inch diameter was run about the periphery, the pencil only marking the deeper indentations. The average difference between the areas of the right and left glands from the same animal was not significant. Where only one gland had been preserved its area was multiplied by 2. In order to determine the error in the method, 2 tracings were made from 10

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glands and 2 readings with the planimeter were made from every tracing of all the glands. The average size of the first tracings taken from the tissue was 0.525 and from the second tracings was 0.532 sq. decimeters respectively. The m.v. of the individual variations was 0.015. The differences between 2 successive readings from the same tracings were 0.219 and 0.173 ± 0.003 sq. decimeters.

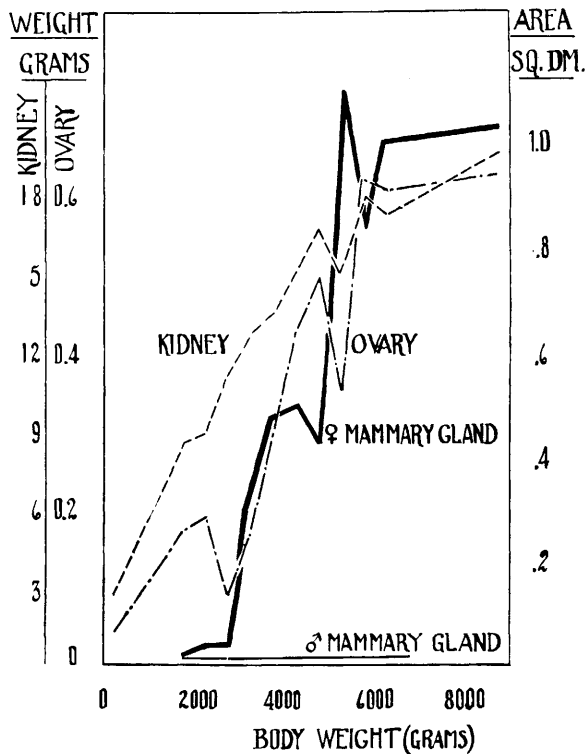


FIG. 1.

Fig. 1 shows the area of the mammary gland, together with the weight of both ovaries and both kidneys plotted against the body-weight. The kidneys show a constant rate of growth from birth; the ovaries and mammary glands show the highest rate of growth at puberty. The mammary glands are about the size of those of the male until the animal reaches 2500 gm. Then the female gland increases rapidly in size. In a group of 15 monkeys, kept in the laboratory for a year, the first menstruation occurred when the body-weight had reached 3000-4000 gm. The mammary gland continues to grow after menstruation up to a body-weight of about 5000 gm. All the animals above 4000 gm. were menstruating more or less regularly. The average area of the glands of three 2500-gm. monkeys

was 0.04 sq. decimeters. The area of the seven animals of 5000 gm. and over averaged one sq. decimeter. Thus practically the entire growth of the gland occurs while the animal is acquiring this intermediate 2500 gm.

The amount of parenchymal tissue varies widely in prepuberty as well as in mature animals. Some prepubertal glands contain chiefly ducts, with a few buds; others, although small in area, are as dense as the fullest adult glands.

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