THE EFFECT OF EARLY VITAMIN DEPLETION ON
THE CAPACITY OF ANIMALS TO GROW AND
DEVELOP DURING LATER LIFE*

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Albino rats of the same sex and age and approximately the same
weight were divided into groups of three. The first animal of each group
was given a diet deficient in either vitamin A or B. The second animal
which served as a control was given the same diet supplemented with the
lacking vitamin but the amount of food allowed was restricted to that
voluntarily consumed by the first animal. The third animal received the
same diet as the second but was allowed to eat ad libitum. After a period
of three or four weeks during which time the first two animals had lost
considerable body weight the lacking vitamin was added to the diet of
the first animal and all three animals were allowed to eat ad libitum.
During the next few weeks the first two animals regained much of their
lost weight and established a fairly constant rate of growth. All three
animals were then transferred to a stock diet and observations made of
their ability to grow, reproduce and survive unfavorable conditions during
the next few months.

Graphic representation of the results not presented here bring out
the fact that following a period of vitamin A or B depletion or simply
forced fasting as in the case of the second animal in each group, the
animals regained their lost weight at a rate greater than the rate of
growth of normal animals. In most instances they attained the size and
weight of normal animals of the same sex and age. This was particularly
true of the males. The females were able to reproduce and raise their
young although several of the depleted animals remained undersized and
appeared especially susceptible to infections of the nasal tract. Several
of the animals which had been depleted in vitamin A but which had been
returned to a normal diet and were making consistent gains in weight
died during a period of hot weather. Their controls survived.

The results indicate that in most instances, avitaminosis produced by
withholding either vitamin A or B over a reasonable period of time has
little influence on the capacity of animals to grow and develop during
later life.

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