of stretching are required in order to produce a degree of tension equal to that obtained by less distention in untreated, ovariectomized rabbits. Hence, an appropriate amount of tension appears to be an essential condition for uterine enlargement to take place as a result of distention. In oestrin-treated rabbits, however, the distention-growth response is much reduced.[3] This has been attributed to impairment of the blood supply about the sites of distention, resulting from the great increase in tonicity of the myometrium due to oestrin. Thus distention appears to be an adequate stimulus for uterine growth when a small degree of tension is produced, but not if the tension is so great as to interfere with the nutrition (blood supply) of the tissues.

9269

## Failure to Obtain in Immature Rabbits Uterine Growth by Chronic Distention.*

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In the course of studying the local growth which takes place in chronically distended uteri in both untreated, ovariectomized rabbits and in progestin-treated rabbits,[1-4] 12 immature rabbits were employed. In the untreated ovariectomized rabbits, 6 separate distention sites were studied, and compared with undistended areas of the same uteri. Lack of sexual maturity was evidenced by the presence of infantile uteri and small, flat ovaries without macroscopic Graafian follicles. It was found that growth resulting from distention was not obtained in any instance, even though the degrees of distention were similar to those which yielded large growth responses in mature rabbits.[2, 4]

In the 9 progestin-treated immature rabbits, 14 distention sites

[3] Reynolds, S. R. M., PROC. SOC. EXP. BIOL. AND MED., 1937, **36**, 453.

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[2] Reynolds, S. R. M., PROC. SOC. EXP. BIOL. AND MED., 1937, **36**, 453.

[3] Reynolds, S. R. M., and Allen, W. M., PROC. SOC. EXP. BIOL. AND MED., 1937, **36**, 455.

[4] Unpublished data on the rate of the distention-growth response.

were available. These rabbits received 200 r.u. of oestradiol in oil subcutaneously, and a total of 6.6 rb.u. of progestin in 10 days commencing the third day after the oestradiol was given. Despite the fact that the endometrium in each of these rabbits was well proliferated (proving that the oestrin and progestin were effective) the distention sites failed to show appreciable enlargement as compared with the undistended portions of uterus. The degrees of distention were comparable to those which yielded growth responses at 13 distention sites in a total of 7 mature progestin-treated rabbits.[1]

These results show that local uterine growth, which takes place with suitable degrees of chronic distention in sexually mature rabbits, depends upon some factor or conditions associated with maturity. It is not dependent, however, upon influences of the known ovarian hormones since oestrin and progestin administered to immature rabbits were effective, causing endometrial proliferation without inducing the distention-growth response.

## 9270

## Action of Synthetic Vitamin $B_1$.

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The antineuritic vitamin, $B_1$, has been crystallized by different groups of investigators,[1-6] but it remained for Williams and his associates[7] to arrive at a correct structural formula, confirmed by successful synthesis.[8]

For some time, the crystalline vitamin $B_1$, both the natural and the synthetic, has been available in the form of the hydrochloride in our

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[3] Windaus, A., Tschesche, R., Ruhkoff, H., Laquer, F., and Schultz, F., *Z. f. physiol. Chem.*, 1932, **204**, 123.

[4] Seidell, A., and Smith, M. I., *J. Am. Chem. Soc.*, 1933, **55**, 3380.

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[7] Williams, R. R., *J. Am. Chem. Soc.*, 1935, **57**, 229; 1936, **58**, 1063.

[8] Williams, R. R., and Cline, J. K., *J. Am. Chem. Soc.*, 1936, **58**, 1504; 1937, **59**, 216.