this study, the enzyme appears to specifically aid in the hydrolysis of both α- and β-monoglycerides. Since several investigators, Reiser *et al.*(17) with the aid of thoracic duct cannulated animals and Skipski *et al.*(18) from *in vivo* studies, have reported that monoglycerides can be absorbed intact, this enzyme may serve some role within the cell.

Summary. An enzyme present in homogenates of rat intestinal mucosa has been found to hydrolyze long chain saturated and unsaturated fatty acid monoglycerides, but little, if any of either the di- or triglycerides. The α- and β-forms of these monoglycerides appear to be hydrolyzed to a similar extent by this enzyme preparation. The relation of this enzyme to intestinal digestion and absorption of fat is discussed.

The authors gratefully acknowledge the suggestions of Prof. H. C. Tidwell and the technical assistance of Miss Patricia Chatten.

1. Tidwell, H. C., Johnston, J. M., *Arch. Biochem. Biophys.*, 1960, v89, 79.

2. Deuel, H. J., Jr., *The Lipids, Their Chemistry and Biochemistry,* Interscience Publishers, New York, 1955, v2, p10.

3. Nikkila, E. A., Haahti, E., *Acta Chem. Scand.*, 1954, v8, 363.

4. Schmidt, G., Bessman, M. J., Thannhauser, S. J., *Biochim. Biophys. Acta,* 1957, v23, 127.

5. DiNella, R. R., Meng, H. C., Park, C. R., *J. Biol. Chem.*, 1960, v235, 3076.

6. Hübscher, G., Clark, B., *The Enzymes of Lipid Metabolism,* P. Desnuelle, Ed., Pergamon Press, New York, 1961, p295.

7. Senior, J. R., Isselbacher, K. J., *Biochem. and Biophys. Res. Commun.*, 1961, v6, 274.

8. von Lohuizen, O. E., Verkade, P. E., *Rec. Trav. chim.*, 1959, v78, 460.

9. Hartman, L., *Chem. and Indust.*, 1960, 711.

10. Martin, J. B., *J. Am. Chem. Soc.*, 1953, v75, 5483.

11. Folch, J., Lees, M., Stanley, G. H. S., *J. Biol. Chem.*, 1957, v226, 497.

12. Papariello, G. J., Chulkaratana, S., Higuchi, T., Martin, J. E., Kucheski, V. P., *J. Am. Oil Chem. Soc.*, 1960, v37, 396.

13. Pohle, W. D., Mehlenbacher, V. C., *ibid.*, 1950, v27, 54.

14. Mattson, F. H., Beck, L. W., *J. Biol. Chem.*, 1956, v219, 735.

15. ———, *ibid.*, 1955, v214, 115.

16. Savary, P., Desnuelle, P., *Biochim. Biophys. Acta,* 1956, v21, 349.

17. Reiser, R., Bryson, M. J., Carr, M. J., Kuiker, K. A., *J. Biol. Chem.*, 1952, v194, 131.

18. Skipski, V. P., Morehouse, M. G., Deuel, H. J., Jr., *Arch. Biochem. Biophys.*, 1959, v81, 93.

Received April 25, 1962. P.S.E.B.M., 1962, v110.

Normal Feed Consumption of Female Sprague-Dawley-Rolfsmeyer Rats.* (27639)

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As an introduction to a study of food restriction on thyroxine secretion rates (TSR) of female Sprague-Dawley-Rolfsmeyer rats, it became necessary to determine mean and range of feed consumption of a standard diet under *ad libitum* conditions. Data on feed consumption of other strains during various states of activity with diets containing various amounts of energy have been reported(1,2,3). Data are presented on *ad libitum* feed consumption of this strain under standardized temperature and management.

Materials and methods. Twenty-four nulliparous mature female rats averaging 265 g, placed in 4½″ × 8″ × 4½″ metabolism cages so constructed as to prevent coprophagy, were allowed several days to become accustomed to feed and water sites. Temperature was maintained at 78 ± 1°F and the rats were artificially illuminated during daylight hours. Purina Lab Chow with an energy value of 4.41 calories per gram and 23.4%

* Contribution from Mo. Agr. Exp. Sta. Journal Series No. 2428. Approved by Director.

† This investigation was supported in part by a grant from U. S. Atomic Energy Commission.

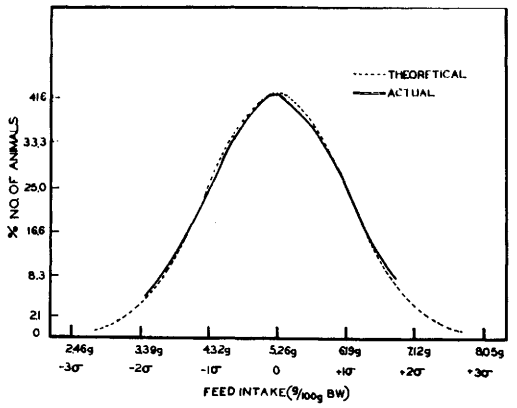

FIG. 1. Frequency distribution of normal feed intake of mature Sprague-Dawley-Rolfsmeyer female rats. Mean daily feed consumption was 5.26 g/100 g body wt with ± one standard deviation (σ) equal to 0.94 g.

total protein was provided daily and resulting residues were weighed back for a period of 6 days.‡ Body weights (BW) were taken on alternate days and feed consumption was expressed as g/100 g BW/day.

Results. Individual feed consumption data were compiled and fitted to a normal frequency distribution curve(4). Considerable variation in daily feed consumption was observed even on an equal BW basis (Fig. 1). An average of 5.26 g of feed per 100 g BW per day was consumed with a range of 3.32 g. Confidence limits of 98% show that mean values of feed consumption of a sample of animals from a population can vary from 4.17 to 5.74 g feed per 100 g BW ($X \pm t \cdot SEM$). Similarly individual animals of a population might show daily variations of from 2.93 to 7.58 g of feed per 100 g BW ($X \pm t \cdot s$).

‡ We are indebted to the Ralston Purina Co., St. Louis, Mo. for complete analysis of feed. Caloric value was determined by bomb calorimeter.

Discussion. Because of this variation, a given feed intake reduced from the mean will result in greater weight losses in some animals than in others of a population. Animals with normal feed intake at certain values below the mean intake can easily withstand feed restriction up to that value without any degree of starvation. However, those animals whose feed intake is higher than this will suffer greater losses in BW.

Variation in feed intake possibly reflects differences in secretion rates of those hormones more directly associated with energy metabolism. It has been shown that administration of 3 μg thyroxine per 100 g BW increases food consumption to 6.0 g per 100 g BW. Administered doses of 6, 9, and 12 μg per 100 g BW increased food consumption to 6.5 g, 7.2 g and 7.4 g per 100 g BW, respectively(5). Adrenalectomy and 1% NaCl replacement has been found to result in lower feed consumption as well as lower thyroxine secretion rates(6).

Summary. Mean daily feed consumption of 24 nulliparous female Sprague-Dawley-Rolfsmeyer rats was found to be 5.26 g per 100 g BW and showed a range of 3.32 g per 100 g BW. Statistical analysis shows that some animals of a population may consume as little as 2.93 g and others may consume as much as 7.5 g per 100 g BW.

1. Slonaker, J. R., *Am. J. Physiol.*, 1924, v71, 362.
2. ———, *ibid.*, 1927, v83, 302.
3. Hitchcock, F. A., *ibid.*, 1927, v83, 28.
4. Mills, F. C., *Introduction to Statistics*, 1956, 151.
5. Grossie, J., Turner, C. W., PROC. SOC. EXP. BIOL. AND MED., 1961, v107, 520.
6. Anderson, R. R., Grossie, J., Turner, C. W., *ibid.*, 1961, v107, 571.

Received April 30, 1962. P.S.E.B.M., 1962, v110.