hereditary retention of racial characteristics among the Japanese as far as their basal metabolism is concerned.

Summary. 1. The average metabolic rate of 38 American-born male Japanese university students is –3.4% according to the Harris-Benedict and –4.1% according to the Aub-DuBois prediction standards. 2. The results of the present study are remarkably in accordance with those data of Miller and Benedict in Hawaii and of Okada, *et al.*, in Japan. 3. A comparison of data from 3 different geographical localities seems to support the conception that racial characteristics are retained hereditarily as far as the basal metabolism of Japanese is concerned.

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High Fat and High Carbohydrate Diets That Can Be Fed to Rats by Stomach Tube.*

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In order to maintain body weight in hypophysectomized rats it was found necessary to develop diets which could be fed by stomach tube in amounts sufficient for adequate nutrition. Two examples of satisfactory diets follow:

High Carbohydrate diet	g
Dried egg albumin†	15
Corn starch	42
Dextrin (from corn)	21
Cane-sugar	21
Osborne-Mendel salt mixture	4
Activated charcoal	5
Cellu-Flour	5
Vitamins B and D	
Enough water to make 125 cc	

High Fat Diet	g
Dried egg albumin†	15
Melted butterfat‡	37.8
Osborne-Mendel salt mixture	4
Cellu-Flour	10
Vitamins B and D	
Enough water to make 125 cc	

The salt mixture, Cellu-Flour, and casein should pass through a 100 mesh screen. The dry ingredients are mixed together and the melted butter or cream stirred in. Finally, small amounts of water are added until the required volume is reached and the whole then

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† 14.5 g of casein and 0.5 g of gelatin may be used in place of the albumin.

‡ 63 cc of 60% cream may be substituted.

thoroughly mixed. The mixture is passed through an homogenizer until uniformly creamy.

For administration the distal 5″ of a No. 8 French rubber catheter is fitted to a hypodermic syringe and used as a stomach tube. The piece of catheter is best attached by sliding its proximal end over a large sized needle filed off square about ½″ from its hub or by the fitting shown in Fig. 2. The syringe is next filled with the proper amount of food. The tube is then wetted and passed down the rat's esophagus with a to and fro rotary movement while an assistant holds the rat's mouth open by a forceps placed back of its incisors and spread quite widely. The tube starts more easily if the rat's

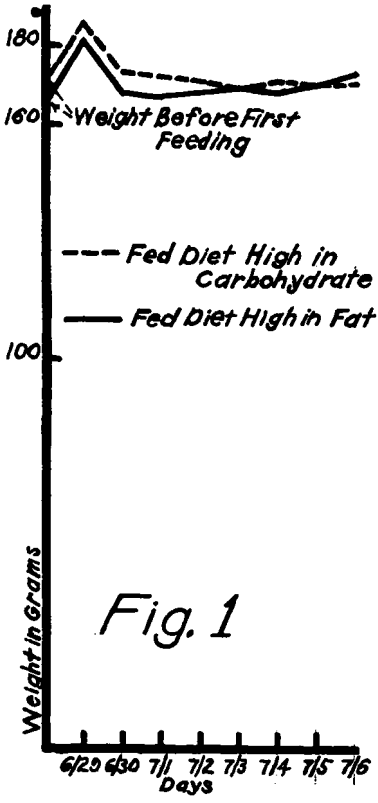

Fig. 1

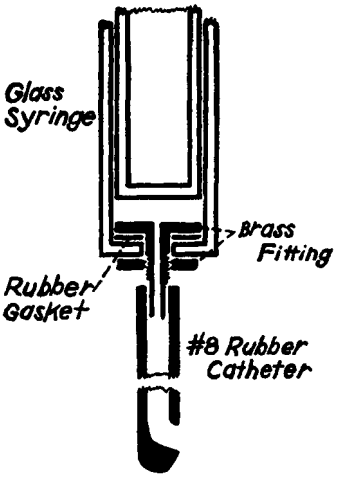

Fig. 2

FIG. 1.

The average daily weights of six hypophysectomized rats fed a diet high in carbohydrates and nine hypophysectomized rats fed a diet high in fat. The rats were weighed each day before the last feeding. The peak on 6/29 is probably due to the addition of the food fed to that already in the rat's gastrointestinal tract before the feedings were started.

FIG. 2.

Fitting for attaching a catheter to an all glass syringe. The nib of an ordinary glass syringe can be broken off and the hole enlarged to the proper size with a three-cornered file. Certain brands of syringes will not function with these diets.

head is kept well flexed on its neck. The tube seldom enters the trachea but if such an accident occurs it can be recognized at once since not nearly all of the tube can be passed. Under such circumstances it should be gently withdrawn without delay.

With practice one person can learn to hold the rat with the left hand and pass the tube with the right. The thumb of the left hand is pressed against the rat's mandible to prevent his incisors from occluding and puncturing the catheter. With practice one can feed a rat in about 2 minutes. In most instances, the amount fed should be proportional to the rat's surface area. For young adult rats the amount required will be about 5 cc for each of 3 daily feedings. Diets which are inconveniently stiff may be diluted slightly and given in proportionately larger amounts.

The following example illustrates the use of these diets: A group of 6 hypophysectomized rats averaging 170 g in weight and fed 4.3 cc of the high carbohydrate diet per day per 100 sq cm of body surface showed an average change in weight of less than 1 g after 8 days of feeding. A similar group of 9 hypophysectomized rats fed a corresponding amount of the high fat diet gained an average of 9 g apiece during the same period of feeding. The average weights of the 2 groups are plotted in Fig. 1. The daily feeding was given in 3 equal portions at least 5 or 6 hours apart. In addition the animals were allowed to drink Rubin-Krick solution[1] *ad libitum*. None of the rats showed signs of esophageal irritation but 3 rats on the high carbohydrate diet and one rat on the high fat diet died from other causes connected with hypophysectomy and are not included in the data. Normal controls were equally well maintained on the same amounts of the diets.

[1] Rubin, M. J., and Krick, E. N., PROC. SOC. EXP. BIOL. AND MED., 1934, **31**, 228.