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APPENDIX I

THE LADDER DIET OF THE MEDICAL CLINIC OF ST. BARTHOLOMEW'S HOSPITAL

The weights of foods are given in ounces in this table. They are therefore different from those which a patient has while in hospital. There is no convenient equivalent of 1 oz. in g.; if 25 g. are taken as equivalent to 1 oz. there is an error of 3·4 g. on the low side; if 30 g. is taken as the equivalent the error is 1·6 g. on the high side; the exact figure 28·4 g. is not convenient for general use.

I have, therefore, drawn up two tables, one in Chapter V, Part II, where gramme weights are used, whereas in the table below ounces are used so that the figures may be available for ward and outpatient use. It is important to remember that the patient on discharge from hospital will eat 3·4 g. more food for each meal. This difficulty can be overcome by adding the extra food during the last days in hospital. The diet scale is drawn up for an adult weighing 65 kilos, or 10 st. 3 lb.

The treatment should be started with one or two hunger days. Hunger day: As much weak tea, coffee, or fresh lemonade may be drunk as is desired. Meat essence should be given at two meals.

Day 3 and 4:
Egg and vegetable diet should be given for two days.
APPENDIX I

THE LADDER DIET

Breakfast: 2 eggs, butter \(\frac{1}{4}\) oz., weak tea or coffee.
Lunch: 1 egg beaten up in weak tea or coffee, 2 oz. of lettuce or tomato.
Midday meal: 6 oz. of green vegetables, \(\frac{1}{4}\) oz. of butter, 10 oz. of meat essence.
Tea: 2 eggs, \(\frac{1}{4}\) oz. butter, weak tea or coffee, 2 oz. of lettuce or tomato.
Supper: 6 oz. of green vegetables, \(\frac{1}{4}\) oz. of butter, 10 oz. of meat essence.

Eight agar bran biscuits may be eaten in the day.

Total: 5 eggs, \(\frac{1}{4}\) oz. of butter, 12 oz. of green cooked vegetable; meat essence.

One oz. cream may be exchanged for \(\frac{1}{4}\) oz. butter.

Day 1 and 2:
If the urine contains no sugar for two days, add 4 oz. of milk for the whole day in several portions.
Protein 57.7 g.; fat 117.9 g.; sugar 16 g.; caloric value 1358.

Day 11 and 12:
If the urine contains no sugar for two days, add 4 oz. of bread in two portions of \(\frac{1}{4}\) oz. to two meals.
Protein 62.2 g.; fat 122.5 g.; sugar 20 g.; caloric value 1428.

Day 13 and 14:
If the urine contains no sugar after two days, add \(\frac{1}{2}\) oz. of bread in two portions of \(\frac{1}{4}\) oz. to two meals.
Protein 63.2 g.; fat 122.6 g.; sugar 27.5 g.; caloric value 1498.

Day 15 and 16:
If the urine contains no sugar for two days, add \(\frac{1}{4}\) oz. of ham may be added to the evening meal and 1 egg deducted from this meal.
Protein 56.2 g.; fat 122.8 g.; sugar 35.0 g.; caloric value 1538.

Day 17 and 18:
If the urine contains no sugar after two days, add \(\frac{1}{2}\) oz. of bread in two portions of \(\frac{1}{4}\) oz. at the other two meals of the day, so that the 1 oz. of bread is divided into four equal portions.
Protein 65.2 g.; fat 123 g.; sugar 42.5 g.; caloric value 1588.

Day 19 and 20:
If the urine contains no sugar for two days, add \(\frac{1}{4}\) oz. of bread in two portions of \(\frac{1}{4}\) oz. The patient will
have \( \frac{1}{2} \) oz. of bread at each meal. He should be told that it is very important to divide up the bread into four equal portions and not to take it all at one meal or two meals.

Protein 66.2 g.; fat 123.2 g.; sugar 50 g.: caloric value 1568.

The patient should be kept at this level for another four weeks. If he is still sugar-free, 1 oz. of butter may be added and the bread cautiously increased up to 4 oz.: \( \frac{1}{2} \) oz. being added every fourteen days.

Protein 70 g.; fat 144 g.; sugar 80 g.: caloric value 1910.

If all goes well another ounce of butter may be added to raise the caloric value.

Protein 70 g.; fat 184 g.; sugar 80 g.: caloric value 2090.

If sugar, however, reappears when meat, ham, or bacon is added to the diet, one or two hunger days should be repeated and the whole ladder re Climbed.

If sugar reappears when bread is added to the diet, one hunger day should be given and the ladder reascended as before.

If sugar reappears when \( 1 \frac{1}{2} \) oz. of bread is added, order one hunger day and return to the same diet as before without bread.

If sugar appears at any time after this point is reached, give one hunger day and return to the full diet less some butter or bread.

If the nitro-prusside test for aceto-acetic acid is very intense at any time, either give one or two hunger days or remove all the fat from the diet.

When the stage is reached at which \( \frac{1}{2} \) or 1 oz. of bread is tolerated at each meal, that amount of bread can be exchanged with an equivalent amount of starch as in the following Appendix. When the equivalent amounts of fruits are eaten, the urine must be very carefully tested.

The above scale of diet is suitable for an adult patient weighing about 65 kilos \( [Note: \ 1 \text{ kilo} = 2.2 \text{ lb.} \text{ Hence a man weighing } 10 \text{ st. } 3 \text{ lb. } (= 143 \text{ lb.}) = 143 \div 2.2 = 65 \text{ kilos}]. \) If the patient's weight is more than 5 kilos above or below 65 kilos, the diet should be altered so that it contains about 1 g. of protein and 29 calories per kilo.

The dietetic requirements of the growing child are much more difficult to calculate. The patient must have more protein per kilo than an adult, and it may be necessary to increase the protein up to 2 g. per kilo. The caloric requirements of a healthy child at rest have been worked out by Benedict, and the table on p. 158 is of assistance in settling the caloric value. However, the matter is a very difficult one, and it is possible that the bad results obtained with children are due to the fact that the protein and caloric values are much too high.

The question whether a patient with diabetes should ever eat starchy food again has been raised by E. P. Poulton (p. 96). Certainly, if the patient can only eat 25 g. of bread without passing sugar, he should abstain from any sugar except that which is in the vegetables. Where the sugar tolerance is greater than 1 oz. of bread, the question is more difficult to decide and is at present being investigated. If no carbohydrate is eaten the caloric value of the diet can be increased by giving more butter (1 or 2 oz.) and another ounce of meat.

The monotony of the diet is one of the reasons which induce many patients to break the rules, whether they admit it or no. The diet, however, can be modified in many ways if the patient has means.
For the purposes of exchange 2 oz. of meat may be considered equal to the same amount of bacon, ham, and any kind of meat or game. It is true that the protein content and caloric value are different, but slight changes can well be neglected as it adds so much to the complexity of the diet if slight differences of caloric value have to be taken into account. Further, the more complex the diet the less likely, in my opinion, is the patient to stick to it.

APPENDIX II

RECIPES

I. Agar-agar bran biscuits after Allen:

Bran dry weight 2 oz.
Agar-agar powdered ½ oz.
Water 4 oz.

The bran should be of the type used for feeding cattle. The bran is first washed. It is tied up in a cheese-cloth and hung under a cold-water tap until the water runs through clear. It is then dried. The agar is placed in cold water and then boiled for some minutes. The hot liquid is poured on the bran, mixed well, and moulded into flat biscuits and placed in the pan. When the mixture is cold it is baked until the biscuit is dry and crisp. The food value of these biscuits is nil, but with a little persuasion patients will nearly always eat them with pleasure. Their value lies partly in that butter may be spread on the biscuits, and the patient likes to bite something firm. They tend to make the patient feel the pangs of an empty stomach less. Not more than one oz. should be eaten in the day, as all the bran has to be excreted and the stools are very bulky in consequence. The patient may therefore have his bowels open every day and yet be very constipated.

II. Agar-agar jellies:

To make two 8-oz. jellies.

Place in each bowl 1½ oz. of unsweetened lime-juice and four saccharine tablets.

Dissolve ½ oz. of agar-agar in 17 oz. of water, and boil. Pour the agar into the bowls, mix, and allow to cool. Other flavouring agents can be used.