ABC of Nutrition

A STEWART TRUSWELL

OBESITY: CAUSES AND MANAGEMENT

Secondary obesity

Think of myxoedema or Cushing's syndrome in every new patient with obesity.

But if the patient does not have the usual clinical features:

— Feeling cold, constipation, deafness, loss of energy, voice change, dry skin, for myxoedema

— Moon face, hypertension, glycosuria, truncal obesity, striae, for Cushing's syndrome

it is not worth sending him or her for laboratory tests.

Neither myxoedema nor Cushing's syndrome cause gross obesity

Obesity *secondary* to hypothalamic conditions that increase appetite is rare and to endocrine disorders uncommon. It is not practical to send the large numbers of obese people up and down the country for expensive endocrinological investigations.

Obesity may follow (a) enforced inactivity such as bed rest, arthritis, stroke, change to a less active job, sports injury, or (b) overeating associated with psychological disturbances or some drugs that increase the appetite: adrenocortical steroids, sulphonylureas, anabolic agents, oral contraceptives, and cyproheptidine (Periactin).

In the great majority obesity is *primary*. There is no obvious predisposing condition. If the patient says she eats little: (1) The weight gain may have been in the past. (2) In surveys obese people have often been found not to eat more than thin people. (3) Some people undoubtedly need less food than others apparently comparable; they are efficient metabolisers with a low basal metabolic rate (but normal thyroid) and may feel the cold sooner than others. (4) Repeated periods on low calorie diets may lead to further adaptive lowering of the basal metabolic rate. No single mechanism has been consistently confirmed in all obese people—whether lack of brown adipose tissue, inactive sodium pumps, low basal metabolic rate, distorted appetite regulation, etc, etc.

Obesity is a syndrome like fever or anaemia with no single cause.

Obesity is not necessarily the result of gluttony or sloth.
It is the start of successful management if the doctor believes and does not blame the fat person (unlike most of society).

It is not possible to conjure a unifying theory which will explain why some people become fat while others remain lean. This is too much to expect: economists have no simple explanation for the commercial success or failure of businesses or nations, and the energy economy of a human being is subject to as many influences as any financial economic model.

John Garrow
BMJ 1983;286:1684

Management

115 patients per GP

Grossly obese specialist management

109 moderately obese managed by GP:

- regular visits
- realistic aims

Alternative is referral to slimming club, NHS dietitians, or commercial organisation with occasional check by GP

Management should fit the grade of the obesity.

Gross obesity is rare, and ideally such patients should be referred to a special centre. Surgery such as gastric stapling or jaw wiring may be justifiable. (The complications of ileal bypass are formidable.)

For a patient with *moderate obesity* (W/H^2 30-39) repeated visits are justified and anorectic drugs if indicated.

Principles of reducing regimen

You can lose weight only by achieving a cumulative negative energy balance. Calories in must be less than calories expended.

An average loss of 500 Kcal (2000 kJ) per day — 3500 over a week — is equivalent to a loss of about 0.5 kg (1 lb) or more at the start, when water is lost

Some useful questions:

Why do you want to lose weight ?
 What weight would you like to be ?
 Are you on a diet now ?
 What diets have you been on before, and what happened ?
 Who shops and cooks at home ?
 What do your family think ? Will they support you ?

Alternative or supplementary strategies to close personal management

- Hand out a diet sheet. The most dismissive course and least recommended. The new eating regimen needs to be tailored to the individual patient.
- Recommend a popular book — such as the F plan diet or the Prudent diet. Others are often unphysiological and dangerous (see *BMJ* 1982; 285:1519)
- Recommend a good local slimming club (e.g. Weight Watchers), group therapy
- Refer the patient to a dietitian, preferably nearby or linked with the practice.

The essence of treatment is to reduce the food energy. Most people experience periods of hunger, all are deprived of their accustomed amount of oral gratification and suffer repeated temptations.

To stick to a weight-reducing diet is a battle of the will — the patient's own will. Motivation is essential. No patient will go day after day denying himself or herself the usual pleasures of eating unless she is motivated to persevere and can see rewards ahead such as better health or a more attractive appearance. Sometimes a fat patient is not ready to embark on a long and strenuous course of weight reduction on the day the doctor first broaches it. He or she may be going through a personal crisis, which is reflected in the obesity. If the doctor is patient the patient may later be able to follow the advice given below. Obese people can have low self esteem. The therapist needs to strengthen this and build up the patient's motivation.

- Habits are more important than diets.
- It is the long haul that counts.
- Crash diets and gimmicks do not work and may be dangerous.
- A loss of 2 kg per week for the first two or three weeks and then 1 kg per week is as much as can be expected but half this is acceptable (and all that some can manage).

The nutritional principles are simple:

- Eat less — eat $\frac{2}{3}$ or $\frac{1}{2}$ the calories (joules) you have been eating.
- Technically the usual aim is about 1000 kcal/day for a woman, 1500 kcal/day for a man.
- Try to cut out empty calorie foods — fats, alcohol, and sugars, which provide 9, 7 and 4 kilocalories per gram respectively.
- Eat three meals a day.
- Have a variety of foods each day from the major four food groups — meat and fish, milk and cheese, bread and cereals, vegetables and fruits.
- The amounts of low calorie foods (see table) can be maintained or even increased.
- Special dietary foods are unnecessary.
- Do not buy, and avoid, the food(s) that you find most tempting, "more-ish."
- A calorie counter can interest the patient who likes to go into details but carbohydrate counting is unphysiological.
- There is a considerable range of calorie value for typical servings of common foods (see table).

The central technique for managing obesity is modification of eating behaviour. Its introduction by R B Stuart in 1967 changed the expectation of treatment from poor to fair and refinements are improving prospects further.

Representative energy values of some common foods: kcal per stated typical serving

	kcal		kcal		kcal
Cucumber (2 oz)	5	Bread (1 slice, 1 oz)	65	Chocolate, milk (1 oz)	150
Lettuce (1 oz)	5	Potatoes (new, boiled, 4 oz)	85	Peanuts (1 oz)	160
Cauliflower (4 oz, raw)	15	Egg (medium, boiled)	90	Cake, sponge (2 oz)	170
Tomatoes (4 oz)	15	Banana (1 fruit)	90	Chicken (meat only, roast, 4 oz)	170
Crispbread (1 slice, 5" x 3")	16	Wine (4 oz)	90	Cheese, cheddar (1½ oz)	175
Carrot (3 oz)	20	Beer (½ pint)	90	Avocado (½ fruit)	190
Grapefruit (½ fruit = 6 oz)	20	Butter (½ oz, for slice of bread)	105	Rice (2 oz)	205
Milk (1 oz, in tea)	20	Cornflakes (1 oz)	105	Macaroni (2 oz)	210
Sugar (1 level teaspoon)	30	Yoghurt (low fat, flavoured, 5 oz)	115	Fish fried in batter (4 oz)	225
Jam (½ oz)	35	Fish (cod, grilled 4 oz)	110	Beefsteak, grilled (4 oz)	250
Orange juice (unsweetened, 4 oz)	45	Carbonated soft drink (11½ oz can)	120	Pork chops (7 oz, grilled, fat cut off)	265
Apple (one, 5 oz)	50	Potato crisps (25 g, small packet)	135	Biscuits, digestive (2 oz)	270
Peas (4 oz, boiled)	60	Dates (2 oz)	140	Biscuits, chocolate (2 oz)	300
Whisky (1 oz) and soda	65	Baked beans (8 oz)	145	Chips, fried (4 oz)	330

Time	Food	Taste rating	Amount	kcal	Where ?	Who with ?	Mood	Hunger	Associated activity	Why eaten ?
4.45pm	Chocolate Cake	My weakness V. Good	3 slices	510	Kitchen	Children	Fed up	No	Giving children their tea	Imitaked by noise
5.00pm	Egg Sandwiches	Nothing Special	1 1/2 sandwiches	200	Kitchen	Alone	OK	No	Clearing up	Leftovers
6.00pm	Pen & tonic	✓	1 large	140						
	Peanuts	✓	1/2 pkt (10g)							
7.30pm	Supper: Lamb chop Sprouts Potatoes	OK	Medium							

First the patient makes notes of everything she eats for a week and where she was at the time, what she was doing, and how she felt. The calories can be worked out later. The therapist guides and encourages the patient to fill in the form in detail. In the process she discovers in what circumstances she eats most. The doctor discusses the completed forms with the patient and suggests behaviour modifications. Obese people do not eat because they are hungry more often than not but in response to external cues—boredom, anger, delicious taste, etc. The patient can make arrangements to minimise these cues.

Rules for modifying eating behaviour

- (1) Buy non-fattening foods. Do not buy foods that specially tempt you. Use a shopping list and stick to it. Do not shop when you are hungry.
- (2) Always eat in one room, in only one place in that room—for example, seated at the dining table—and avoid other activities (except conversation). Make eating a pure experience.
- (3) Look for times when you are most likely to eat unnecessarily—for example, when giving children their tea, or because you cannot bear to throw food away—and take steps to change your routine.
- (4) Always have nearby a variety of low calorie foods to use as snacks—like raw vegetables.
- (5) Recruit others to help you curb your eating—spouse, coworkers, friends—they can help most by praising when you do not overeat.
- (6) Build in rewards for sticking to the programme—something you would like to do or a present. Family and friends are usually happy to cooperate. Of course, the reward cannot be a meal or food.
- (7) Make small portions of food appear to be large (small plate, food cut up and spread all over it). Make second helpings hard to get; do not keep serving dishes on the table. Leave the table as soon as you have eaten.
- (8) Slow down the rate at which you eat. Chew each mouthful for longer. Always use a knife and fork or a spoon and put them down between mouthfuls. Swallow one mouthful before the next.
- (9) Take steps to minimise hunger, loneliness, depression, boredom, anger, and fatigue, each of which can set off a bout of overeating. This needs discussion and planning. Hunger is avoided by three regular meals daily.
- (10) Increase the exercise you take each day.
- (11) Keep a graph of how much you eat and exercise and of your weight.

Exercise

Energy used in activities (rounded approximate figures)	
<u>At rest</u> (men + 10%, women - 10%)	1 kcal/min
<u>Moderate exercise</u> eg. walking, gardening, golf	5 kcal/min
<u>Intermediate</u> eg. cycling, swimming, tennis	7 kcal/min
<u>Strenuous</u> eg. squash, jogging, hill climbing, heavy work.	10 kcal/min
In SI Units 1 kcal/min = 4.2 kJ/min = 70 watts	

During an hour's walk at ordinary speed, mostly on the level, 5×60=300 kcal of energy are used up. But at rest about 1×60=60 kcal would be spent per hour. The energy used by the effort of going for an hour's walk is therefore the difference between 300 and 60=240 kcal. This is equivalent to about two slices of bread and butter (see table.)

People can be discouraged by the small amount of food which is directly equivalent to the use of quite a lot of precious time taking exercise.

There are, however, additional benefits from increased regular exercise. Firstly, obese people, with a heavier body to move, use more energy for the same amount of work. Secondly, exercise can be valuable as a diversion from sitting indoors and being tempted to eat. Thirdly, exercise is more likely to reduce than increase appetite. Fourthly, after exercise the resting metabolic rate may increase for some hours. Fifthly, when exercise is taken after meals the thermic effect of the meal may be increased.

Drugs

Diethylpropion, phentermine, and chlorphentermine are derivatives of amphetamine. They reduce appetite by enhancing release of noradrenaline but are likely to cause some sleeplessness, nervousness, irritability, dry mouth, palpitations, and increase of blood pressure. Best taken before time hunger is expected.

Fenfluramine acts when metabolised to norfenfluramine (but this conversion is variable); it potentiates serotonin in the brain. Side effects include drowsiness, nightmares, and diarrhoea. Dose: start with 20 mg three times a day and work up according to patient's response.

Anorectic drugs at present available are an optional extra to support behaviour modification and diet in some patients with moderate or gross obesity, particularly those who are persistently troubled by hunger on a reduced food intake. They are not justifiable for mildly overweight people because they have side effects, occasionally severe.

Diethylpropion (Tenuate) and phentermine (Preludin) are examples of the larger group. They reduce appetite, but tend to be sympathomimetic stimulants. They can be useful in a depressed obese patient and, being short acting, can be taken intermittently.

Fenfluramine (Ponderax) works in a different way: it increases satiety, takes days for its effect to develop, and the dose needed varies from patient to patient. Continuous treatment is advisable also because rapid withdrawal can be followed by depression.

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Letter from . . . Chicago

Bad for business

GEORGE DUNEA

Depending on your perspective you could think of 1985 as the year of the grasshopper, of the turtle, or of the salmonella. An infatuation with numbers could easily tip the scales in favour of the grasshoppers because there are millions and millions out there in the west, just breeding and hatching and feeding in the dry heat. It is one of the worst infestations in American history. There is a joke going around that if you have a funeral for one million grasshoppers you get five million mourners. The war is a difficult one; even the old second world war fighter airplanes have been recalled into action for the spraying; and the already financially strapped farmers worry about the cost of all this and hope that the Malathion will not destroy their valuable honey bees.¹

Others, however, worry about the turtles.² They compare America's exporting of four million pet turtles each year to the dumping abroad of pesticides, obsolete drugs, and toxic wastes. They propose a turtle ban and turtle free zones, arguing that we should not be disseminating salmonellosis to the children of the world. They also worry that some of the salmonella could be reimported to our shores in some delicious morsel of exotic food or, worse still, that they might waylay us as we go touring abroad. So far the industry's efforts to produce a salmonella free turtle have failed; and many turtles perversely continue to harbour the various cousins of this wonderful family: typhimurium, muenchen, java, oranienburg, and others with equally catchy touristy names. Of these we had most experience in Chicago with *Salmonella typhimurium*, because in April some 16 000 people became ill when a malfunctioning valve in a dairy plant allowed raw milk to contaminate the

pasteurised product. Then in June the salmonella struck again in Chicago. This time the culprit was *Salmonella agona*, and more than 350 people became ill after eating improperly heated corned beef at their favourite delicatessen store. The owners derived scant comfort from the investigators' finding that the coleslaw was pure, the lox and bagel above suspicion, and that even the potato salad was given a clean bill of health. Yet it was all terribly bad for business, having to shut down the store while health inspectors scoured the country for tainted food workers and guilty cows.

Yet it all worked out all right; and with the installation of a new "state of the art" corned beef heater and the crowds flocking back for the new Sabbath we can go back to worrying about AIDS because there were as many cases of it in the first six months of 1985 as during the whole of 1984. Less alarming was a recent local outbreak of red eyes, cracked lips, peeling hands, and strawberry tongue among children under 5. No—it was not scarlet fever—it was Kawasaki syndrome. No deaths occurred, no "artery problems that in 20% of people may lead to heart attacks." For tourists, on the other hand, there were warnings that alcohol might not effectively kill off the bacteria frozen in the ice cubes that travellers in Mexico and elsewhere like to add to their tequila or scotch; and microbiologists have isolated not only *Escherichia Coli* and shigellas but also *Salmonella typhimurium*.³ Even more infectious are lion and tiger bites, which in Kenya as well as in Vancouver have caused severe systemic *Pasteurella multocida* sepsis.⁴ And there was also the outbreak in the Hispanic community in California of an illness contracted by eating a popular, soft and mildly flavoured Mexican style cheese, which is used mainly in cooking. Some 70 people came down with flu like symptoms, and there were 29 deaths or stillbirths attributed to *Listeria monocytogenes*. The owners of the factory declared that they were "devastated," but could not explain how the bacteria had got into the cheese.

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