



Wellcome Film Project

Living with Diabetes

Presented by The Wellcome Foundation Limited, 1959.

The Wellcome Foundation Ltd gratefully acknowledges the assistance of the staffs of Hammersmith Hospital and University College Hospital.

Written and Directed by RT Goodliffe.

Presented by Geoffrey Lewis and Stella Riley.

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Production Assistant: Peter O'Dell.

Diagrams: Bill Brott.

Those taking part: Geoffrey Lewis; Stella Riley; Sheila Wynne; Alec Finter; Richard Bennet; Sue Hayton; 'The Gherkins.'

Colour

Duration: 00:22:23:24

00:00:00:00

<Opening credits>

<Geoffrey Lewis narrates over shots of people disembarking from a train and walking in a city street>

For every two hundred people in Great Britain three have diabetes, that is about six people in every crowded train. Perhaps half a dozen in this street. But these, the well-balanced diabetics, go unnoticed in the crowd. They no longer suffer from

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diabetes, they have learned to manage the condition and they live usefully and normally with other people.

<Lewis To camera>

What is the secret of their success? Well, perhaps this is best summed up by the motto of the British Diabetic Association – 'balance is life.' But to understand this better, we must first learn a little more about diabetes and its treatment.

<Lewis narrates over illustration showing plate of food and human pancreas>

Now, two things are of prime importance to the diabetic – his diet and his pancreas. The pancreas is a gland connected with our digestive system and among others releases insulin. Our diet contains various substances which, when they are digested, produce sugars. Both the insulin and the sugar find their way into our blood and here they provide the energy we need for living. It's important that there is just the right amount of insulin to balance the sugars, but if for any reason our pancreas does not produce enough insulin, or perhaps even produces no insulin at all, then the balance is lost. The excess sugar cannot be used by our body so it accumulates in the blood and some is lost through the kidneys.

<Lewis to camera>

Diabetes, then, means that our body cannot supply enough insulin for our requirements. What are we going to do about it? Well, that may depend to some extent on what sort of person we are.

<Lewis narrates over illustration of a man and a woman>

Let's take two diabetics for example: one fat, one thin. Now if we make this fat one lose weight then his body will require less insulin to keep it going and we may then find that his pancreas can keep pace with his requirements and his symptoms will

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disappear. The thin one, however, cannot afford to lose weight and she will have to take extra insulin by injection.

<Lewis to camera>

This is why about half the diabetics in this country take insulin while others can be controlled by diet alone. But whether you take insulin or not, you must still preserve the balance between insulin and sugar and this means controlling the food you eat each day. But this is the province of the dietician, so let her tell you about it herself.

00:03:07:09

<Stella Riley narrates over shots of a table filled with different foods>

We all know that foods like these contain sugar, but although it is not quite so obvious we can also obtain sugar from foods like these – they may not taste sweet but as soon as we eat them our bodies convert them into sugar.

<Riley to camera while standing by table filled with different foods>

For convenience, we will call all these foods, whether they taste sweet or not, carbohydrates; and in diabetes it is carbohydrates with which we are mainly concerned. Individual diets must be based on individual needs. Now, we need carbohydrates to replace some of the energy we expend each day – obviously a manual worker will have different requirements from someone who works in an office. But diet must also meet other needs.

<Riley holds a conversation with two patients: Miss Smith and Mr Anderson, all are seated>

Riley:

Now you Miss Smith, what do you do for a living?

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Miss Smith:

Oh, I work in an office.

Riley:

And you don't lead a very active life?

Smith:

No, not particularly. But I do like going dancing and swimming.

Riley:

And you, Mr Anderson, do you get much exercise?

Mr Anderson:

I know what you're driving at, but after a hard day in the city, a spot of gardening is about as much as I can cope with. It's these business lunches, my wife says I ought to cut them down but they are really necessary you know.

Riley:

That may be so, but when you go out to lunch it's important that you know which foods you may eat. Our main concern at first will be to reduce your weight to what it ought to be for your height and age. You won't find that a great trial and I'm sure you'll feel much better for it.

Anderson:

It's all jolly fine you talking about diet, but you don't have to do it! Look at this: steamed fish and eggs, no sugar, no pastry [...]

Riley

<interrupts> No, but there are quite a few things that you can have without restriction [...]

Anderson

<interrupts> Yes! I can see them here! Soda water and vinegar!

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Riley:

Now look, I know this is going to alter your habits but it won't be the end of the world for you, and you must do it for your own sake.

Anderson:

I suppose you're right. What about our thin friend here, is she going to be put on a slimming diet too? Where's she going to lose it from?

Riley:

Don't worry, you won't have to reduce, you're already at your correct weight, if not slightly below. But you will have to keep to a controlled diet in order to balance the carbohydrate intake with the amount of insulin that they prescribe for you.

Smith:

Well, dieting doesn't worry me, but do I really have to take insulin? Mr Anderson was telling me he's having some pills for his diabetes.

Riley:

<laughs> I'm afraid tablets won't help you. You see Mr Anderson has diabetes mainly because he's overweight, but you have it simply because your body cannot produce enough insulin for your needs. People who are overweight like Mr Anderson, however, can sometimes be helped by tablets in addition to their diet. Now, in your case, insulin is essential but you must stick to your diet too. Because you're having a prescribed amount of insulin each day, you must balance this with the right amount of carbohydrate.

Now to make this easier for you to follow, we've planned your diet sheets to look like this. *<close shot of Riley's hand indicating fields on a diet sheet>* At the top it shows the carbohydrate content of each day's meal and also your daily allowance of milk. In the left hand column there are suggestions for each meal – these foods contain no carbohydrates so you may have normal amounts of them without worrying about their effect on your diet, but you should not have them in excess or you may become

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overweight. The right hand column you will see refers to ounces of bread; this is the most important part of your diet because it represents the amount of carbohydrates. *<Riley seated again, talking to Anderson and Smith>* You must have exactly the amount shown and you must have it at the appropriate meal, it's no good just making sure at the end of the day that you've had the right amount, this is particularly important if you're taking insulin. You don't, of course, have to have the carbohydrate as bread but it's simply a convenient measure – for each ounce of bread shown on your diet sheet you may substitute some other food of similar carbohydrate content.

<Riley narrates over close shot of food table> Now, here's a list of these equivalents to help you to work out your meals to suit yourselves. *<shot of table laid with breakfast options>* We'll begin with you Miss Smith. Your daily allowance of milk is one pint, this includes milk for cooking as well as in tea or coffee. For breakfast you're allowed three ounces of bread, that is three slices from a cut loaf, but you may if you wish substitute this for some other food, for instance you could substitute one ounce of bread for some cornflakes – the list of equivalents will show you the quantity. The other foods – eggs, bacon and tomatoes are allowed without restriction. You may of course have tea or coffee but the milk must come from your daily allowance. *<shot of table laid with lunch options>* You could begin your lunch with clear soup. A potato has been substituted for one ounce of bread. You may have a milk pudding which will equal a further one ounce and the milk must also be deducted from your allowance. Finally you may have cheese and biscuits, the biscuits completing your three ounce allowance of bread for this meal. *<shot of table laid with tea options>* For tea you could have a salad, here we've made no substitution, the two ounce of bread is your allowance – you could if you wish use the bread to make a sandwich to take to work with you. Remember the milk in your office tea must be deducted from your allowance. *<shot of table laid with dinner options>* For dinner you could have this sort of menu, the potatoes are substituted for one ounce of bread, and the fruit to a further one ounce. You may of course have coffee. The biscuits are equal to one ounce of bread making a total of three ounces for dinner. You must finish the pint of milk so any remaining could be used for a final drink before you go to bed.

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<Riley narrates over close shot of diet plan> Your diet, Mr Anderson, is a little less generous, but only until you're down to a normal weight, then the doctor will prescribe a more liberal diet to keep you at that weight. *<shot of table laid with breakfast options>* You are allowed only half a pint of milk each day – you might have the sort of breakfast you see here. Your allowance of bread at this meal is one ounce. *<shot of table laid with lunch options>* For lunch you could have clear soup, followed by steamed fish and vegetables. All these are allowed without restrictions and you may of course have coffee, if you have it black it will conserve your allowance of milk. *<shot of table laid with tea options>* You could have a salad like this for tea, once again you're allowed one ounce of bread. *<shot of table laid with dinner options>* For dinner you're allowed two ounces of bread, one ounce of bread is shown here. The meat, turnip, peas and cauliflower are allowed without restriction. You may have a peach and tea or coffee. But if you finish your allowance of milk you'll have to have it black. *<shot of diet sheet showing forbidden foods>* Finally there are a few things which you must not eat at all. These are shown on your diet sheet and they include sweets, sugar, food containing any sugar, sweet drinks and so on. *<shot of bottles and packets of 'Saxin'>* For sugar you may substitute Saxin – it is also available in liquid form which you will find useful in cooking.

<Riley stands, talks to Anderson and Smith> Well, now, does that make you feel a little easier about your diet?

Anderson:

At least you make it sound more attractive than it looks here. I suppose one can get used to anything in time.

Riley:

Yes, and if you stick to your diet and reduce your weight you should soon be able to go onto a more liberal diet. What about you, Miss Smith?

Smith:

Well, I don't think I'll find it too difficult, after all it's not much different from a slimming diet. But what I'm most worried about are these insulin injections.



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Riley:

<Anderson and Smith are shown out by Riley> Well don't worry about it. Look, as you leave here, drop in and see the doctor. You'll find him most helpful about anything you want to know.

Anderson:

<on way out> Thank you so much, you've been most kind.

00:09:49:13

<Lewis, seated at desk, to camera>

Well, we've dealt briefly with diet. Now, what about the diabetic who has to take insulin as well. You for example Miss Smith.

<Camera pulls back to show Miss Smith sitting across the desk from Lewis, they converse, the camera moving from one to the other as they speak>

Lewis:

No, don't tell me, I know. Apart from other things, you don't like the idea of having to inject yourself with insulin each day. Now tell me, you clean your teeth each day don't you? And polish your shoes? Well really making an injection is just as simple as that.

Smith:

I suppose when you put it like that it does seem rather silly. But well, it makes life so complicated, keeping the syringe sterilised and ... and everything.

Lewis:

Now look, the thing to do is to work out a routine and stick to it. Then after a while the routine will become purely automatic and you won't have to worry about it any more. But I can give you one or two tips which I think you'll find useful. First, don't always

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make the injection into the same place. If you always make an injection into, say, your arm, for instance, sooner or later you're going to make a sore patch there. I'll show you what I mean. *<Lewis stands, moves to his office wall and shows a drawing of a human body>* The dark areas on this chart show the areas where you can safely make an injection. In general anywhere where the skin is loose enough to be pinched up between finger and thumb. *<Lewis sits back at desk>* So you see there's no need for you to make an injection in the same place more often than once a week. *<Lewis takes syringe from desk drawer>* Now for the syringe. *<Close shots of syringes>* The main divisions are equal to a quarter of one cc., each main division is further divided into five. If you fill the syringe with forty strength insulin the small divisions are each equal to two units. For instance, this syringe contains thirty-six units. Eighty strength insulin is twice as strong so you would halve the amount; this syringe filled with eighty strength insulin contains the same dose as the other syringe, thirty-six units.

<Close shots of female preparing insulin injection and injecting into her thigh> Now, the injection itself. The syringe must be kept in spirit. Your hands should be thoroughly washed before making an injection, but although your hands are clean they are not sterile so you should not put your fingers in the spirit, use a pair of forceps. The same applies to the needle, handle it only by the hilt. Expel any spirit remaining in the syringe and rinse out with boiled water. The syringe is now ready for use. Clean the cap of the insulin bottle with spirit, set the plunger to approximately the dose you intend to take and inject the air into the bottle. If you don't do this you'll find it difficult to fill the syringe. Draw out slightly more than the required dose of insulin, expel any air bubbles and at the same time adjust the syringe to the correct dose. Clean the place chosen for the injection with spirit. Pinch up a fold of flesh and insert the needle at a slight angle, stop at least a quarter of an inch from the hilt and withdraw the plunger slightly. If blood enters the syringe, make the injection in another place. Make the injection slowly. Withdraw the syringe gently and carefully. Rinse the syringe in water and return the syringe and needle to the dish. In addition to this, boil the syringe in water at least once a week.

Smith:

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I think I can remember that but tell me, at the moment I have to come back to the clinic in two weeks – will I always have to come as often as that?

Lewis:

No. At the moment you're still settling down but once you get used to the routine you can come less often – how often depends mainly upon yourself. If you can control your diabetes so as to keep your blood sugar at a reasonable level you need only attend every now and then for a general check-up.

Smith:

Oh that sounds alright. But how do I know what my blood sugar's doing?

Lewis:

Well that's easy. You remember we began by talking about balance. *<animated diagram showing insulin / sugar balanced by scales>* We said that if you had too much sugar for the available insulin, the balance is lost and the sugar accumulates until some is removed by the kidneys. *<back to Lewis>* This sugar appears in the urine and fortunately there are chemicals that can detect the presence of sugar. If you come over here I'll show you what I mean.

<Lewis and Smith move to a table in his office and he demonstrates> They are made up in tablet form and you add them to the specimen. In a few moments there's a colour change as you see. Now comparing the tube with the colours shown on this chart, you can find out about the percentage of sugar in the specimen. *<close shot of specimen held against colour chart>* In this case about three quarters of a percent. *<Lewis again>* If it's high you've probably been careless about your diet. But if it's consistently more than one percent you should report for a check-up.

Smith:

So, by making this test I can see how I'm getting on each day.

Lewis:

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That's the idea. Then if anything appears not quite right you can come to the clinic for advice.

00:15:11:02

Smith:

<Lewis and Smith resume their places at his desk> I wonder, could you tell me anything about insulin, what it is and how it's made?

Lewis:

Well, it's not made exactly. It comes from animal pancreas and extracting the insulin from the pancreas is quite a complicated process and is undertaken by several factories on a large scale. *<shot of sign for Burroughs Wellcome & Co. Wellcome Chemical Works, followed by shots of the building inside and out, and of some of the processes used to convert animal pancreas to pure insulin>* This company was one of the pioneers of insulin production and was the first to make insulin commercially available in 1923. The plant works day and night to supply the demand for this and uses many tons of pancreas each week. Most of the pancreas comes from abroad and arrives at the factory deep frozen. It is reduced to a paste and mixed with alcohol which dissolves the insulin. Then follows a long and complex series of processes which gradually remove all the impurities. It takes half a ton of pancreas to produce just this much pure insulin. *<close shot of pure insulin>*

<shots of factory production of insulin for diabetics> Preparation of insulin for diabetics is carried out under strictly sterile conditions in a specially protected room. Finally the bottles are thoroughly inspected for faults and imperfections before being packed. The packs are colour coded in accordance with the standards adopted by the British Insulin Manufacturers.

<Lewis to camera>

Well, I think we've told you just about all there is to know about diabetes – from diet to insulin. Now, it may seem fairly easy for diabetics to make a reasonably good job of looking after themselves, and so it is, provided you stick to the rules. But when

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temptation is strong enough, rules are apt to be forgotten, sometimes with embarrassing consequences. For instance, Miss Smith should be having her dinner but she likes dancing.

<Lewis narrates over shots of Smith out dancing>

She intends to have something to eat later on. Now, the insulin she took this morning is designed to have its maximum effect in time to counteract her evening meal. If she doesn't have a meal, her blood sugar will fall rapidly and the balance will be lost. This is why you must have your meals at the correct time. Exercise like dancing tends to burn up blood sugar and will make matters worse. Symptoms may vary slightly with different people but a headache, perspiring or blurred vision are warning symptoms. It is just for this sort of emergency that we urge diabetics always to carry some sugar and their diabetics card with them. Sugar will counteract the effects of insulin and if she takes several lumps in some coffee she'll quickly recover.

<Lewis, seated at office desk, in conversation with Smith>

Lewis:

You were very nearly in trouble then weren't you?

Smith:

Yes, but I did remember to take the sugar. I don't think I'll make that mistake again.

Lewis:

No I don't think you will either but be very careful not to make another mistake which is just as serious. You were in trouble on that occasion because your blood sugar was too low, but too high a blood sugar can also cause trouble and it may be more difficult to recognise in time. High blood sugar may be caused by failing to take your insulin or by an infection. Now, suppose you haven't been feeling very well, it's probably just a bad cold but one morning it gets worse.

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<Lewis narrates over shots of Smith lying in bed getting progressively sicker after failing to take her insulin, accompanied by dramatic music>

You should take your insulin but that means getting up and getting breakfast as well, too exhausting, so you decide to skip the injection and the breakfast, after all, you'll probably feel more like it after an extra hour in bed but that is a serious mistake. Now, as well as the cold, your blood sugar will begin to rise. After a time you'll begin to feel more ill and less like eating. You may feel sick and begin to breathe heavily. Sooner or later you'll probably be very thirsty but by this time you'll begin to realise you really are ill and phone the doctor. The first thing he'll ask you is: "have you taken your insulin?" It is in just this way that a trivial illness can lead to a serious diabetic condition.

<Lewis to camera>

Whatever happens, always take your insulin. In case of illness you may need more insulin but never less and if you can't face your food, take sugar, or whatever is suggested for emergency use on your diet sheet. If ever you are in doubt on any point, go to your clinic and ask for advice, that's what it's there for. And remember, if you take the trouble to learn and apply what they teach you, you'll rarely have anything to worry about. *<shot of Smith diving into a swimming pool>* You can lead as active a life as you wish and pursue your hobbies just like anyone else. The secret lies not in putting up with diabetes but in learning to live with it. *<shot of busy city street>* Once you realise this, there is no obstacle you cannot overcome. This is being proved each day in industry and commerce and everyday life.

<End credits>