



THE DIABETIC'S 365-DAY MEDICAL DIARY

THE PERSONALIZED
MEDICAL RECORD SYSTEM THAT
ENABLES YOU TO KEEP TRACK OF YOUR
DIET, MEDICATION, EXERCISE,
SYMPTOMS, COMPLAINTS, MOODS,
AND FEELINGS... PLUS
DETAILED FOOD EXCHANGE LISTS

B.D. COLEN

THE DIABETIC'S 365-DAY MEDICAL DIARY

B.D. COLEN

Medical writer

Newsday

Long Island, New York



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The Family Medical Diary

This one is for Nicholas

Introduction

Did you ever think you would write a book? Probably not. But then neither did you think you would ever develop diabetes. Unlike the other books you have read about diabetes, this book will apply directly to you and you alone, because you are going to write it. Your *Diabetic's Medical Diary* will be a complete account of 1 year in the course of your disease and your control of it. When you and your physician review the diary you will be able to see exactly what you ate each day of the year, what medications you took, and how all aspects of your health responded to your careful control of diet and medication. You do not need any literary ability to write your *Diabetic's Medical Diary*; all you need is a desire to actively participate in the maintenance of your health and a few minutes' time each day.

The purpose of this brief introduction to your book is to explain what information it should contain and why you should be recording that information. But before beginning that explanation, it might be best to briefly review some basic information about your disease, diabetes mellitus. As you have likely been told at some point, no one can tell you with any real certainty why you have diabetes. There is, however, no question that both type I, insulin-dependent or juvenile, diabetes and type II, non-insulin-dependent or maturity onset, diabetes have genetic components. If one identical twin, for instance, develops type II diabetes, the

second twin is certain to develop the disease. This happens about 10% of the time in fraternal twins. The genetic component is less striking in type I diabetes—the disease will appear in two identical twins between 20% and 50% of the time, and only about 5% of the time in fraternal twins, but there is still a genetic element to the disease. In fact, when taking family medical histories of diabetics, physicians are likely to find at least one additional diabetic for every ten close relatives of the diabetic whose history is being taken.

In addition to genetics, some researchers theorize that a virus or viruses may play a role in the development of type I diabetes. While this theory is still being developed and is most likely years away from being proven, some researchers believe that a viral infection causes antibodies to attack and destroy the victim's beta cells, those cells that produce insulin. Which brings us to the question of what exactly is insulin and what, for that matter, is diabetes mellitus.

Diabetes is a metabolic disease, a failure of the body to properly process and make use of the chemical fuel we consume in the form of food—thus the importance of carefully controlling, and recording, everything you eat. When the nondiabetic individual eats a meal or snack, the amount of glucose, sugar, in the blood rises, and the beta cells are altered to produce and release more insulin, the hormone that controls glucose levels and metab-

olism. When insulin is being provided at normal levels, the liver uses the blood glucose to produce glycogen, one of the body's principal fuels, for immediate use and storage. The liver also synthesizes fat for energy storage, and some glucose is used by the liver as fuel and by the muscles for immediate energy and the production of glycogen. Additionally, already existing fatty tissue uses glucose to absorb, or take up, fat broken down during the digestive process. Insulin, produced by the beta cells in the so-called islets of Langerhans in the pancreas, prevents the release of fatty acids into the blood. If this entire system is functioning properly, natural insulin keeps blood glucose levels relatively even throughout the day.

At least that is what is supposed to happen. But when you have diabetes, your beta cells fail to respond to the message that there is new food in your system. It may be, in fact, that you do not have any beta cells, or you may have beta cells that do not function properly, or you may have a shortage of the vital insulin factories. In any of these events, your body is unable to properly metabolize, to break down and benefit from, the stored energy in the food you eat. Your kidneys are overburdened trying to remove the glucose from your blood, which, of course, means that your system derives little or no benefit from that glucose which the kidneys remove. At the same time, because there is not enough insulin in the system, the liver and other organs are led to believe that blood glucose levels are too low and thus begin to function as they would if you had not been eating and your system was running out of fuel. This means that in addition to having too much

glucose in your blood, your body begins to burn fat and proteins as fuel, and acid-based substances called ketones begin to build up in the blood along with the excess glucose. If this condition persists for a matter of days or weeks—the length of time is extremely variable—you can eventually fall victim to a condition called ketoacidosis (a disturbance of the acid balance in the system), slip into a coma, and die.

Fatal diabetic coma is a rarity these days in previously diagnosed diabetics who take proper care of themselves. There are, however, some serious side effects of your disease, and both you and your physician must be constantly aware of the possibility that these problems will develop. This is another reason why it is important for you to accurately record information in your *Diabetic's Medical Diary* concerning your general state of health. Among the side effects are the following.

Arteriosclerosis, which your doctor may call atherosclerosis. The word *arteriosclerosis* is used to describe numerous diseases of the blood vessels, all of which add up to the fact that diabetics have twice as many strokes as their nondiabetic friends, are 2 to 10 times more likely to suffer a heart attack, and have 50 to 100 times more circulatory problems. While part of this increase in disease may be attributed to genetic factors and to the direct effect of diabetes on the metabolism, much of the problem may also be attributed to the American diet, rich in fats and oils. Because your system is less able to remove free fats from the blood, you are more likely to suffer from fatty deposits in the blood vessels. Thus, once again, we see the importance of carefully maintaining and

monitoring the diet given to you by your physician.

Kidney disease. The bad news here is that about 50% of type I, insulin-dependent diabetics eventually suffer kidney failure, although this may take 20 to 30 years to occur. The one bit of good news is that the availability of federally financed kidney dialysis and transplantation means that kidney failure is no longer a death sentence for diabetics. In fact, if you are a type I diabetic, already used to careful control of your diet, monitoring of medication, and use of needles, you may have a far easier time adjusting to the fact of dialysis and the technology involved than would the nondiabetic kidney patient.

Visual difficulties. As a diabetic, your chances of becoming blind, or having your vision deteriorate, are up to 25 times greater than those of the nondiabetic. You are also much more likely to develop cataracts or glaucoma. Diabetics, unfortunately, suffer from both leaking and clotting of the tiny blood vessels of the eye. As depressing as this may be, there is hope. Researchers at the National Eye Institute have achieved very promising results using a laser technique to stop leaking, and some new surgical techniques are also proving effective. Because of the high rate of visual complications connected with diabetes, you should probably consult an ophthalmologist (an MD specializing in diseases of the eye) on at least an annual basis.

Nervous system complications. If you have trouble sleeping because of discomfort in your legs and feet, you are not alone. This is a common complaint among diabetics, as are difficulty in emptying the bladder, diarrhea, and impotence. All of these, and nu-

merous other complications, appear to be related to a breakdown of the covering of nerve fibers. Unfortunately, researchers thus far have had little success in treating these complications. There is some comfort, however, in the fact that they are self-limiting; that is, they reach a certain point and progress no further because the individual nerves involved die.

Diabetes is not a disease anyone wants to develop. Despite the list of complications, however, there is some good news on the research front. Insulin is being made in purer and purer form. The recombinant DNA technology developed during the past decade has made it possible to manufacture human insulin in the laboratory, and the end product is far less variable than the insulin on which you have depended in the past.

In addition, while there have been some initial problems with the mechanical insulin pump, that device, like the insulin itself, is being constantly refined. There seems to be little question that within a few years mechanical devices that deliver a precisely regulated flow of insulin throughout the 24 hours of a day will be the norm rather than the exception for insulin-dependent diabetics. Even as this is being written researchers are testing an implantable, hockey puck-sized, stainless steel insulin pump. According to a report published in the *New England Journal of Medicine*, the pump needs to be refilled only once every 2 weeks and can be placed under the skin of the abdomen using only local anesthesia.

This pump, which is already in use delivering cancer chemotherapy, could be on the market within 2 years at an estimated cost of about \$3,000—a small price to pay for freedom from a

schedule of insulin injections.

Even with such a device, however, it will be up to you to carefully monitor and control your diet, exercise, and medication to maintain as normal a blood glucose level as possible—and that is where your *Diabetic's Medical Diary* comes in.

Your *Diary* contains pages for an entire year. First, fill in the date next to the day of the week. The top half of each page is then divided into thirds labeled Morning, Noon, and Evening. Everything—*EVERYTHING*—you eat and drink (other than water) should be recorded in these columns. Because you are weighing and measuring the amount of each food you eat, record those measurements in the diary. Begin the day by noting the type, amount, and calories of each food you have for breakfast in the Morning column. You might for instance, have an entry like this:

Orange juice— $\frac{1}{2}$ cup
Oatmeal— $\frac{1}{2}$ cup
Rye toast—one slice
One soft-boiled egg
One teaspoon butter
Milk— $\frac{1}{2}$ pint

Your next entry would then be your midmorning snack. Lunch and your afternoon snack would be recorded in the Noon column, and dinner and your evening snack would go into the Evening column. It cannot be emphasized too strongly that if your *Diabetic's Medical Diary* is going to be useful it must be complete. Record *EVERYTHING*.

Under the section headed Medication you will record the type and quantity of medication you take and the time at which you take it. Whether you take insulin or an oral hypoglycemic agent, note the type of medication, the

dosage, and the time you take it. Also be sure to record any other medication you take, be it something as seemingly innocuous as aspirin or an over-the-counter cold preparation. Drug interactions can be a serious problem for you as a diabetic, and the best way to aid your physician in his effort to make sure you do not have such problems is to provide an accurate list of any and all drugs you take.

On each day's page you will note spaces labeled Urine Sugar Test and Glucose Monitoring. This is where you should record the results of the urine and/or blood glucose tests your physician has ordered you to take at least four times each day. Simply record the numbers, in the appropriate box, in the form in which your physician has asked you to record them. If you are at all confused about this section, show your *Diary* to your physician or diabetes health educator and ask either person to show you precisely how the information should be recorded.

The final entries on each day's page are labeled Comments on Health, Exercise, and Special Situations. Under Comments on Health you will write down *any* change in the symptoms you associate with your disease and *any* other health problems you may encounter. If you are getting a cold, make a note of it. If you are retaining fluid, that is, your legs or feet feel swollen, note it. If you have a cut that does not seem to want to heal, jot down a few words about it. In other words, you should be keeping a running account of *any* change at all in your physical condition. Under the section on Exercise note the type, time, and calorie expenditure for each activity. The appendixes will offer guidelines to accurate recording. Special Situations refer to

events that do not fall into any of the other categories.

Why, you may be asking, am I going to all the trouble of recording these trivial facts?

You are using your *Diabetic's Medical Diary* because you want to be in control of your health and your health care. You want to be a partner with your physician in the fine tuning of your system. If you faithfully record all

the information called for in the *Diary*, your physician will have a much easier time adjusting your medication and your diet. You and he will be better able to control your weight—which you know is a vital element in maintaining your health and avoiding many of the complications of your disease—and you and your physician will be better equipped to find the cause of any problems that develop.

B.D. Colen

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DAILY MEAL PLAN—Monday											
MORNING		Amt	Cal	NOON		Amt	Cal	EVENING		Amt	Cal
TOTALS											
URINE SUGAR TEST	NEGATIVE	1/10%	1/4%	1/2%	1%	2%	ACETONE				
GLUCOSE MONITORING (milligram %)				MEDICATION							
8:00 AM	12 NOON	4:00 PM	8:00 PM	MORNING				EVENING			
EXERCISE (Type, time, and calorie expenditure)				COMMENTS ON HEALTH:							
SPECIAL SITUATIONS:											

DAILY MEAL PLAN — Tuesday											
MORNING		Amt	Cal	NOON		Amt	Cal	EVENING		Amt	Cal
TOTALS											
URINE	NEGATIVE	1/10%		1/4%		1/2%		1%		2%	
SUGAR TEST										ACETONE	
GLUCOSE MONITORING (milligram %)						MEDICATION					
8:00 AM		12 NOON		4:00 PM		8:00 PM		MORNING		EVENING	
EXERCISE (Type, time, and calorie expenditure)						COMMENTS ON HEALTH:					
SPECIAL SITUATIONS:											

MORNING		Amt	Cal	NOON		Amt	Cal	EVENING		Amt	Cal
TOTALS											
URINE SUGAR TEST	NEGATIVE	1/10%	1/4%	1/2%	1%	2%	ACETONE				
GLUCOSE MONITORING (milligram %)				MEDICATION							
8:00 AM	12 NOON	4:00 PM	8:00 PM	MORNING				EVENING			
EXERCISE (Type, time, and calorie expenditure)				COMMENTS ON HEALTH:							
SPECIAL SITUATIONS:											

MORNING		Amt	Cal	NOON		Amt	Cal	EVENING		Amt	Cal
TOTALS											
URINE SUGAR TEST	NEGATIVE	1/10%		1/4%		1/2%		1%		2%	
										ACETONE	
GLUCOSE MONITORING (milligram %)						MEDICATION					
8:00 AM		12 NOON		4:00 PM		8:00 PM		MORNING		EVENING	
EXERCISE (Type, time, and calorie expenditure)						COMMENTS ON HEALTH:					
SPECIAL SITUATIONS:											

DAILY MEAL PLAN—Friday											
MORNING		Amt	Cal	NOON		Amt	Cal	EVENING		Amt	Cal
TOTALS											
URINE	NEGATIVE	1/10%	1/4%	1/2%	1%	2%	ACETONE				
SUGAR TEST											
GLUCOSE MONITORING (milligram %)					MEDICATION						
8:00 AM	12 NOON	4:00 PM	8:00 PM	MORNING			EVENING				
EXERCISE (Type, time, and calorie expenditure)					COMMENTS ON HEALTH:						
SPECIAL SITUATIONS:											

MORNING		Amt	Cal	NOON		Amt	Cal	EVENING		Amt	Cal
TOTALS											
URINE SUGAR TEST	NEGATIVE	1/10%	1/4%	1/2%	1%	2%	ACETONE				
GLUCOSE MONITORING (milligram %)				MEDICATION							
8:00 AM	12 NOON	4:00 PM	8:00 PM	MORNING				EVENING			
EXERCISE (Type, time, and calorie expenditure)				COMMENTS ON HEALTH:							
SPECIAL SITUATIONS:											

DAILY MEAL PLAN—Tuesday

MORNING			Amt	Cal	NOON			Amt	Cal	EVENING			Amt	Cal
TOTALS														
URINE SUGAR TEST		NEGATIVE	1/10%	1/4%	1/2%	1%	2%	ACETONE						
GLUCOSE MONITORING (milligram %)														
8:00 AM	12 NOON	4:00 PM	8:00 PM	MORNING					EVENING					
EXERCISE (Type, time, and calorie expenditure)				COMMENTS ON HEALTH:										
SPECIAL SITUATIONS:														

DAILY MEAL PLAN—Wednesday

MORNING			Amt	Cal	NOON			Amt	Cal	EVENING			Amt	Cal
TOTALS														
URINE SUGAR TEST		NEGATIVE	1/10%	1/4%	1/2%	1%	2%	ACETONE						
GLUCOSE MONITORING (milligram %)														
8:00 AM	12 NOON	4:00 PM	8:00 PM	MORNING					EVENING					
EXERCISE (Type, time, and calorie expenditure)				COMMENTS ON HEALTH:										
SPECIAL SITUATIONS:														