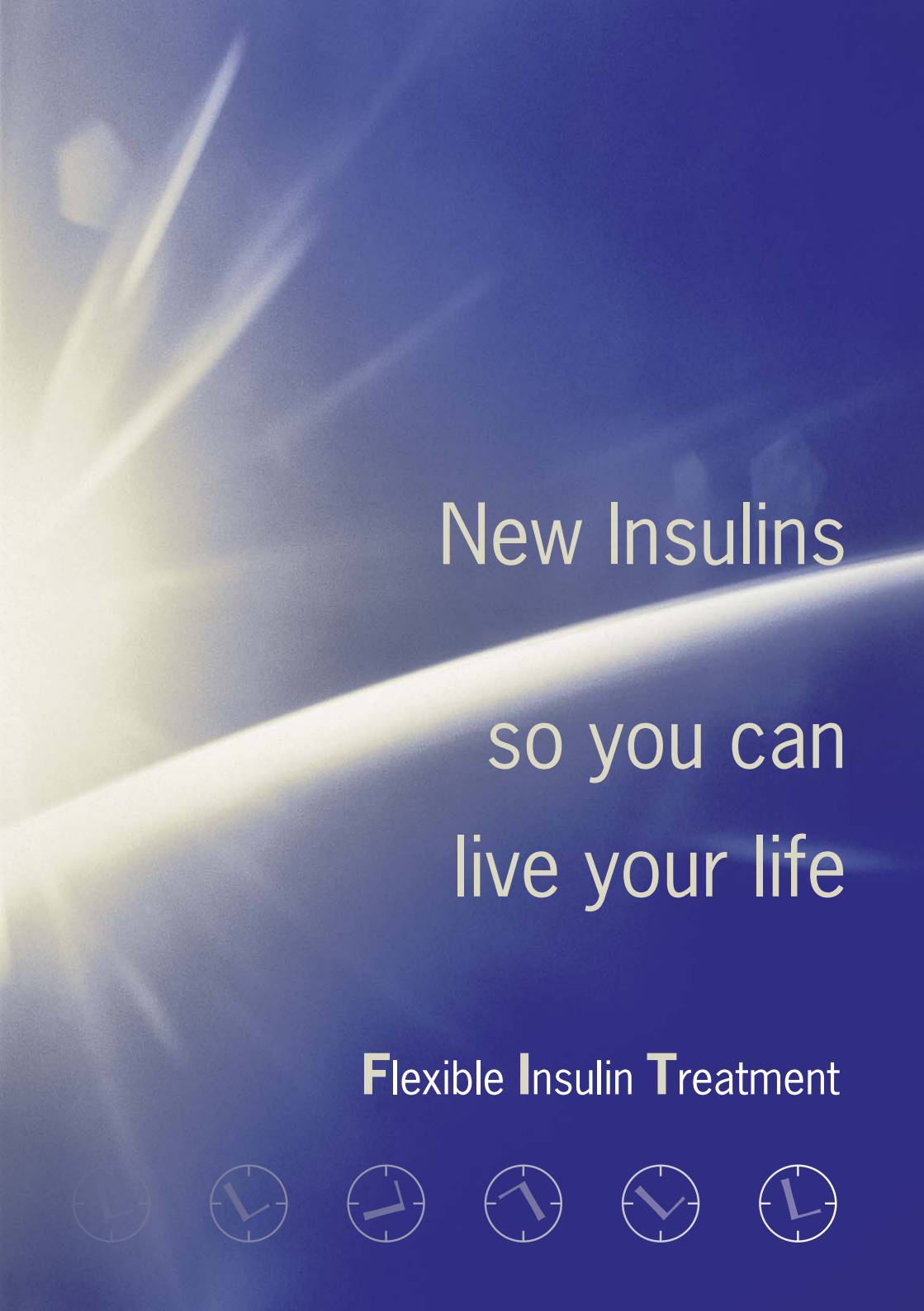
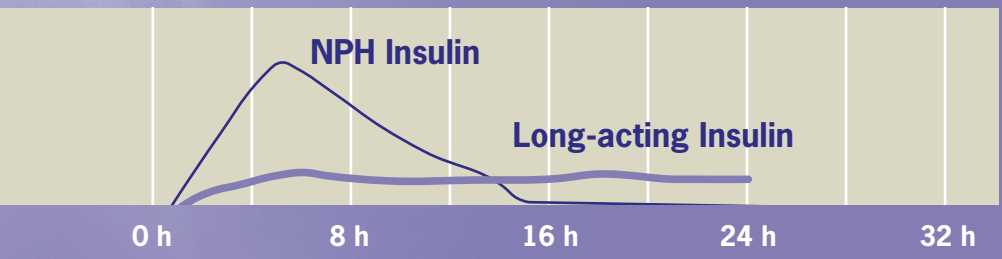

New Insulins
so you can
live your life
Flexible Insulin Treatment

Insulin action over a 24-hour period.



What are the new long-acting analog insulins?

The new long-acting analog insulins represent a new generation of insulins.

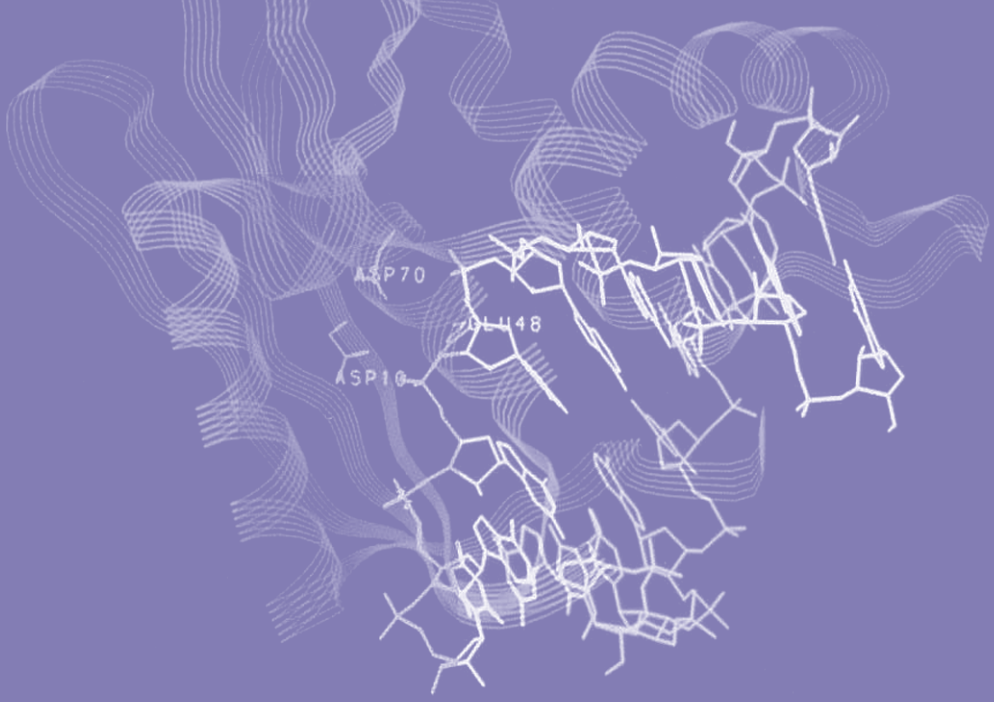
They are human insulins obtained through genetic bioengineering processes, yet these insulins are molecularly modified to offer a more stable, almost perfectly flat action curve.

This differs from the big «peaks» of the old NPH insulins within 6-8 hours after injection. Thus, because these new analog insulins do not have a «peak effect», they are less apt to cause hypoglycemia.

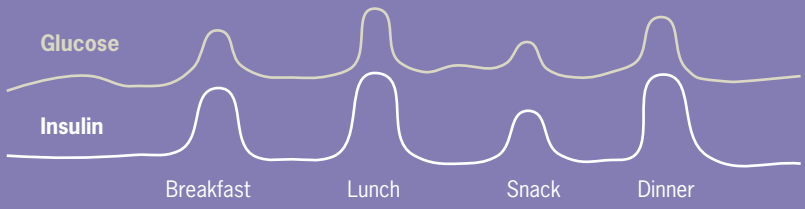
Their duration of action is has been lengthened, making them ideal as «basal» insulins. Moreover, their effectiveness is now more reliable, causing less variation in BG test results, which in the past were often bewildering when it came to their interpretation.

Unlike the old slow insulins that were opaque in color, these new prolonged action insulins are transparent.

In a word, *their effects are far more predictable, it is easier to control fluctuations in blood glucose levels, and thanks to their almost non-existent «peaks», they are less likely to lead to hypoglycemia.*



Normal glucose and insulin fluctuations in non-diabetic people:



Properties of Insulin Analogs:

Type	Start	Peak	Duration
Fast-acting insulin	5 - 15 min.	30 - 90 min.	3 - 4 h.
Long-acting insulin	2 - 4 h.	plana	20 - 24 h.

What is «Basal» and «Premeal or Bolus» insulin?

«Basal» insulin is the all the insulin used throughout the day, with the exception of the insulin injected just before meals. This term is very well known by patients who use insulin pump therapy.

«Premeal» or «Bolus» insulin is the insulin injected immediately before meals, which is meant to cover the carbohydrate intake of that meal.

Roughly speaking, «Basal» and «Bolus» insulins respectively constitute 50% of the total daily insulin doses, although this can vary greatly from patient to patient. It is very important to understand these two concepts, as our aim is to imitate the physiological sequence of events that naturally occur in the body. When the pancreas functions normally, it secretes both a «basal» insulin, which offsets the glucose that is continuously produced by the liver, and a «premeal» insulin.

Long acting analog insulins act like our bodies' «basal insulin», and are designed to keep our sugar levels under control when we are not eating. When we eat, we need to use «premeal insulin», which will usually be one of the fast-acting insulin analogs.

What does
Flexible Insulin Treatment (FIT) involve?

This is truly a revolutionary treatment, as it breaks away from virtually all the classic concepts of insulin treatment before this «new era» with the discovery of long-acting insulin analogs.

FIT will allow you to adapt factors such as timing and insulin dosage so that they better suit individual needs and lifestyle.

You need only answer these four questions before each meal:

1. *What is my glucose level now?*
2. *Am I going to eat more or less than usual?*
3. *Am I going to do more or less physical activity than usual?*
4. *What has happened to me in the past under similar circumstances?*

Actually, as you go through these questions what you are really doing is trying to «think of how your pancreas would act», anticipating the amount of rapid analog insulin you need for a given meal. The result will almost always be different, as the same exact circumstances do not always present themselves at the same time.

Don't despair if you don't always get things right. There are many changes that take place from one day to the next, so it's important to stay POSITIVE and try to learn from your own unique experience.

F I T = Flexible Insulin Treatment

+ FREEDOM + INDEPENDENCE

This individualized and self-tailored insulin therapy can now be administered «in real time», thanks not only to the rapid-acting insulin analogs that have been on the market since 1996, but also to the new long-acting insulin analogs that are available today.

Now, in addition to being able to choose your mealtime, in many cases you can avoid having to snack between meals, whether because you may not want to snack or because snacking often made it difficult to maintain your desired body weight. This treatment can even go so far as to allow a person to completely skip a meal, just as non-diabetics occasionally do, which until today was only possible for diabetics who use the insulin pump. Thus, in addition to FIT, we might also refer to this treatment as «Liberation Insulin Therapy».

Because fast-acting insulin analogs are administered immediately before eating and do not require a 30-minute delay before the meal, you can now select the amount and type of food you want to eat. As expected, you would simply adjust the amount of insulin to cover the carbohydrate content of the meal. We finally have «insulins that adapt to your lifestyle», rather than the other way around, giving you back some of the freedom you lost since your diabetes was diagnosed.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Why inject insulin and check BG so often?

There is no doubt that the goal of type 1 and type 2 diabetes treatment is to attain normal blood glucose levels. To do so, it is important to individually tailor insulin treatment to each person and keep both pre-meal and post-meal glucose levels within the target numbers, while minimizing the risk of hypoglycemia.

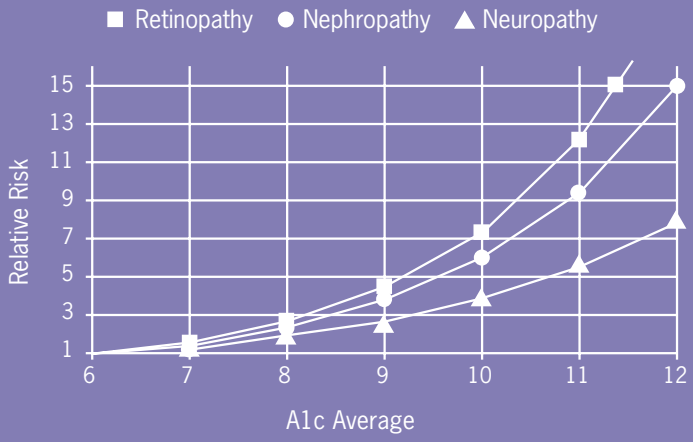
Recomemnd BG Targets
(according to the American Diabetes Society)

Pre-meal blood glucose level	*90 - 130 mg/dl*
Post-meal blood glucose level	*below 180 mg/dl*
Glycosylated Hemoglobin A1c level	*below 7 %*

Many patients opt to change over to FIT because it enables them to regain their FREEDOM in many aspects, as they can have their meals without the rigid schedules and absurd pre-meal wait times, which were often hugely inconvenient.

This therapy system also gives patients the freedom to vary in the amount of food they eat, just as non-diabetics do, as well as allowing them to enjoy sleeping in on weekends with no problem at all.

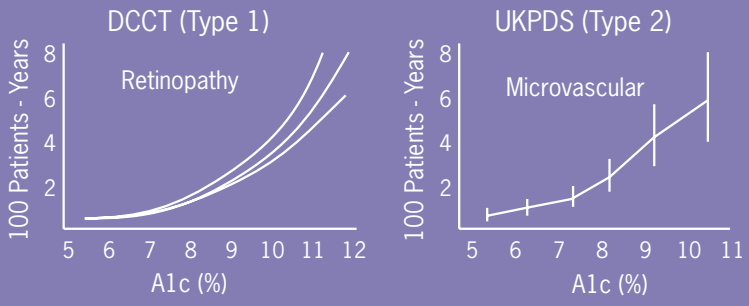
Relative Risk of Progression of Diabetic Complications



DCCT Research Group. N Engl J Med 1993, 329:977-986

What are the recommended A1c levels for diabetic patients?

- There is a continuous relation between A1c and complications risk.
- The lower the A1c level, the less the risk of complications.
- There is no cut-off level; the lower the better, but avoiding severe hypoglycemias.



DCCT Research Group. Diabetes 1996, 45:1289-1298

For many years, now, we have known that your "hard work" yields good results (mainly since the 1993 DCCT study). It is a proven fact that the more often a person self-tests and gives him/herself insulin, the lower the number and severity of the complications associated with diabetes.

Moreover, recent studies have shown that in patient groups with type 1 diabetes, Flexible Insulin Treatment (FIT) improves the patient's feeling of well being and satisfaction with the treatment, despite the many injections of insulin and the higher frequency of blood glucose tests than the control group. When the two groups were compared after 12 months' time, glycosylated hemoglobin (A1c) levels were lower among the patients of the test group, with no difference in the occurrence of hypoglycemia.

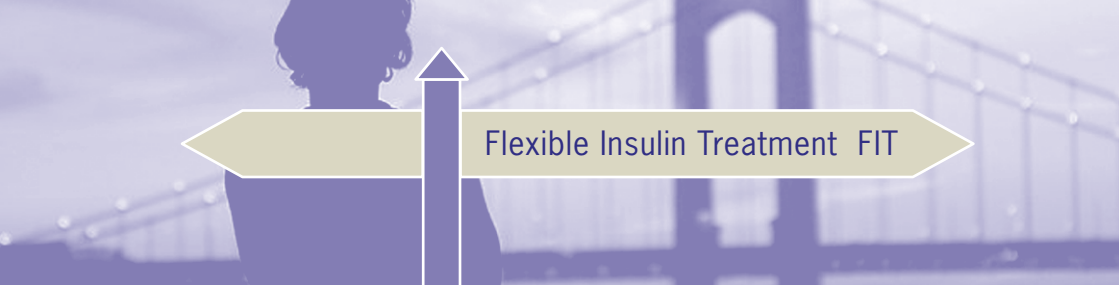
Remember, *that by simply lowering your glycosylated hemoglobin level from 8% to 7%, you are reducing the risk of complications by 35%. The DCCT/EDIC study, which is a continued follow-up on the patients that took part in the DCCT study, shows that this advantage is still patent 10 years later, and not only applies to the microvascular complications of diabetes, but also considerably reduces the risk of cardiovascular disease by 42%.*

Is the Flexible Insulin Treatment (FIT) right for you?

Given the scientific facts, for many years most people treating diabetics recommended that all patients with type 1 diabetes tested blood glucose levels at least 3 times a day and had at least 3 injections of insulin. Yet we must bear in mind that those studies were conducted before the insulin analog era.

Since the introduction of fast- and prolonged-action insulin analogs, everything has become simpler. If you ever had any doubts about FIT, they have most probably been resolved by now. Nevertheless, to make your decision easier, we have prepared a list of simple questions that will help you decide whether or not FIT is right for you:

1. *Do you want to try to keep your blood glucose levels within the target range, and are you motivated to do so?*
2. *Are you willing to make an extra effort to prevent or reduce the complications associated with your diabetes?*
3. *Would you adjust your daily fast-acting insulin dosage to the amount of carbohydrates that you plan to eat?*
4. *Are you willing to check your blood glucose levels 4 times a day?*
5. *Are you willing to give yourself insulin at least 4 times a day?*
6. *Would you regularly note down the glucose self-test results and insulin dosages in a notebook or would you load them onto your computer at least once a week (if your glucometer software collects them), to observe patterns in your glucose levels?*



If you have answered YES to most of these questions, there is no doubt that the FIT treatment is right for you.

You will need to discuss your decision with your healthcare team, because if you decide on FIT, you will have to «get down to work» with them. They will provide you with all training and information you need to get the best results and fully benefit from the well being that these new insulins can offer.

We must point out that FIT is not appropriate for everyone. For example, for small children, very elderly people, and some patients with very advanced-stage diabetic complications it may even be unadvisable.

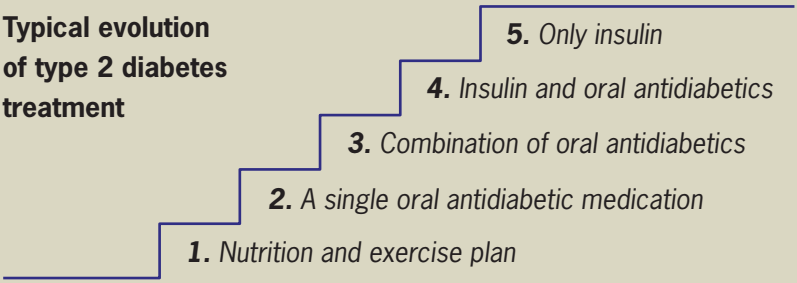
If you have answered NO to most of these questions, then there is no doubt that FIT is inappropriate for you. This may be because you like to keep somewhat regular daily routines and habits, or possibly because your glycosylated hemoglobin level is very good (under 7%), or you rarely experience hypoglycemia, or you are not drawn to that FREEDOM that they say «others» get with FIT, or simply, it is not something you want to do at this time in your life.

Most important of all, remember that you must be the one to decide on the type of insulin treatment to use.

What are the adventages of the new insulin analogs for patients with type 2 diabetes?

Until we can change the natural evolution of diabetes, all type 2 diabetes patients will eventually need to take insulin.

Typical evolution of type 2 diabetes treatment



To begin with, these insulins are usually administered before bedtime. For many patients this is very convenient, since they can keep their glucose levels under control for some time by taking insulin at night only, and using oral antidiabetic medications during the day. This also reduces the risk of weight gain.

In addition to making the transition simpler, this initial nighttime dosage of insulin helps regulate your basal insulin level, which offers the following advantages:

It prevents the liver's overproduction of glucose at night which is the main cause of high glucose levels in the morning. The results are optimal fasting blood glucose levels.

When you attain the best possible fasting glucose levels, the oral antidiabetics tend to work better, leading to better diabetes control, and still more importantly, increasing your feeling of well being.

This often enables type 2 diabetes patients to continue to use their oral antidiabetic medication during the day, making the «bad news» of the need to start insulin therapy a bit easier to accept.

Nevertheless, the inconveniences and drawbacks that patients might associate with insulin treatment tend to disappear when they find that their overall sense of well being is better, **becoming very pleased with their decision.**

The safety of these new insulin products and the simplicity of the new administration systems (insulin pens with more precise dosages, along with shorter and thinner needles) will lead to a more widespread use of this intensive yet very simple treatment, and the earlier regular use in daily clinical practice for patients with type 2 diabetes.

The result will undoubtedly be manifest not only in the decrease of diabetes-caused mortality and morbidity, but also in an improved quality of life, by stopping diabetic complications, as some very important studies showed us years ago. (Kumamoto 1995, UKPDS 1998).

New Insulins

so you can

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Flexible **I**nsulin **T**reatment

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