

Dr. R. David Dikeman - Presentation (SD 2016)

We're going to talk about type 1 diabetes exclusively today.

You have heard about the disaster

of the current high carb recommendations and the food pyramid all day long.

And we're going to talk about the effect of those recommendations

when put on type 1 diabetics,

who have no functioning beta cells and no way to produce insulin.

And the statement is that these type 1 diabetics

are at Ground Zero of this nuclear catastrophe

that are the current USDA food pyramid guidelines.

And in my opinion we're talking about the biggest scandal in modern medicine...

Is the recommendation that a type 1 or type 1 child

is told to eat a high carbohydrate diet.

So we can go quickly to a resolve right off the bat.

Does a high carb diet work for type 1 children?

And the answer is no.

Within a matter of years the complications start.

It doesn't take long.

Kids are expected to have neuropathy,

you're supposed to go to an eye doctor annually,

in a few years you're going to have a 50-50 shot of neuropathy

or retinopathy is about one out of four

and then the kidney disease starts after about a decade.

Now a lot of kids are diagnosed when they are three.

That means that by the time they are 13 their kidneys start to get trashed.

Let's back up a little bit and let's get a little background

on what type 1 diabetes is all about.

So let's just imagine that your child was just diagnosed

as my child was three years ago.

What happens is a total world of confusion.

Most doctors don't know about diabetes, type 1 diabetes

and they don't know the warning signs.

What happens to your child is it looks like he has a fever or a flu,

he's got to stay home from school, very thirsty, which is odd.

At least he is eating well, they are always hungry,

which is you think an encouraging sign, but it's not.

What's happening is that they are not producing insulin anymore.

Their blood sugars are very high,

they are peeing out all the glucose that their body is creating,

they eventually go into ketoacidosis with these very high blood sugars

and they rapidly lose weight

and I'm talking about 10 pounds, 15 pounds in a matter of a couple of days.

It is a reasonable expectation

that when you take your child to your doctor on these conditions,

he sends you home with a misdiagnosis and totally messes it.

And your child is in severe danger and can die.

And they do die at times.

Let's suppose you get past that hurdle, you take your child to the emergency room...

You will quickly in a matter of a day or two be sent home

with very little information about how to manage a very complex disease.

You will get a crash course in what's called Basal/Bolus Insulin Dosing

and what's called Carb Counting.

These are the modern methods of treating type 1 diabetes.

Your doctor will tell you that you should eat a certain number of carbs,

count how many you are eating, take a corresponding amount of insulin

and your blood glucose will go up and down between each meal,

although they predict that it goes right back down to the normal level.

Of course that doesn't really happen.

The most interesting part of your crash course will be your meeting with your dietitian

who will take the current guidelines from the American Diabetes Association,

published by a group called the Diabetes Care and Education, the DCE.

And in that they will say if you have a five-year-old child for example,

you might want to feed them 45 g of carbohydrate per meal.

If your child is larger maybe of 60, 70 pounds and maybe six years old,

60 g of carbohydrate per meal.

And much more as they get larger.

The teens are recommended 60 g of carbohydrate per meal,

which is more than I eat in two weeks.

What's a sample meal?

I'm going to show you a picture of it...

Mashed potatoes, skim milk...

Not full fat milk, skim milk...

Canned peaches and of course dry chicken breast,
because fat would be bad.

And some dressing.

So that's what you're told to eat by your dietitian.

And if you don't quickly grasp that that's a bad idea,
it can be down the tubes for your child and your family for decades.

And that's what happens.

So you go home with this recommended advice.

And I mean everyone's going to follow this advice

your doctor is telling you, your dietitian...

Your son and your daughter or yourself almost passed away...

Everyone goes home and follows this advice.

And what happens?

You might get a CGM from your doctor or you might have a blood sugar meter
and after every meal, although a normal blood sugar is about 83 mg/dL,
your child's blood sugar goes up into the 300 and 400s.

And then comes crashing down to zero where you are at a seizure level.

And then they eat again and they go back up.

That's a meal... if you look at the times that this takes place,

you are talking about three or four hours.

After a full day this is what your day looks like

when you eat the meal that they told you to eat.

Here's your mashed potatoes and here's your peaches

and then you are you have a similar meal - up you go again to 400,
back down, crashing down to zero, up to 400, back down to zero.

And then at night things have been so scary during the day,
you might sleep elevated for safety sake around 200, 250,
which is about triple normal.

That is life with type 1 diabetes.

Although I consider myself a smart guy with a PhD in physics,
I was stupid enough to fall for this terrible advice.

And I put my son on the same advice and look what happened.

This is his first month of blood sugars.

Up to 400, back down to 40.

There's no pattern.

It's a disaster, a horrible way to live.

This is another picture I have of a boy who was diagnosed for six months.

This is a several day scan of his continuous glucose monitor.

Now remember you are living right around here on a fairly flat line.

This kid has blood sugars which are sky high and all over the place
and nearly every type 1 child suffers from this fate.

Let me back up and talk a little bit about who I am.

You might've heard that my name is Dr. R. D. Dikeman.

I'm not a medical physician, I am a physicist.

So what are my qualifications?

Well obviously I have been touched by type I diabetes,

but as the story goes I got involved with the famous Dr. Bernstein,

who is right up there with Dr. Atkins as far as being a low-carb giant,

published his book many decades ago.

And I began working with Dr. Bernstein on--

he's and 82-year-old type 1 diabetic,

encapsulating all his knowledge on YouTube before he retires.

So I've spent hundreds of hours with him and a sort of a protégé

and we filmed hundreds of videos,

because the knowledge required to manage type 1 diabetes is vast.

So he's one of the original pioneers of low-carb, 82 years old,

his blood sugar is exquisite, his A1c's run in the 4% range.

He worked as a director of a diabetic wound clinic for three decades.

He knows his way around the block when it comes to diabetes.

And I love his fundamental tenet,

which is, "The diabetics have the right to normal, healthy blood sugars."

and that should be the first approach by physicians.

My son has the same right to normal blood sugars as my non-diabetic son.

When I started...

Actually my wife discovered Dr. Bernstein and we started implementing his techniques.

We started linking up with other people, we started a Facebook group

and it's now the largest group of well-controlled diabetics in the world

called "Typeonegrit."

A big qualification is that I am Dave's father

and Dave does the lion share of his diabetes management.

But it's a family affair.

Dave's last A1c was 4.6% which is an average blood sugar of 85.

This is my famous picture where his blood sugars are totally normal,

but with a 88 prescribed diet, they are all over the place.

Now to give you an idea how rare that is,

only 29 out of 25,000 type I diabetics,

1 out of 1000 are able to get an A1c less than 5,

which is what I would consider a normal blood sugar.

Okay.

Dave gets the lion share of the credit, but it is a family affair

and I just wanted to dedicate this talk to my son, Hayden,

who is my youngest son and he is not diabetic.

But we all eat low-carb in my family and Hayden has never ever complained

about missing his values...

He would never eat something that would hurt his brother

and he has the right values for a young guy.

I love him.

Where are you, Hayden?

You will see Hayden.

Let's back up and add some quick definitions of what carbohydrate is

and what is a normal blood sugar.

Carbohydrate, here is an example... Starch, what is?

I didn't know what all these carbohydrates just meant...

Well, guess what it.

It's just a chain of glucose molecules.

And for most modern, non-fibrous complex carbohydrates,

it instantly turns into glucose in your mouth,

the enzymes in your mouth turn it into glucose.

You are literally swallowing glucose.

You can do a test... this is a famous YouTube video where Dr. Bernstein took down the current AADE president by taking some of the foods she was recommending, putting it in his mouth and turning a diastix, which is a glucose detection device black...

Instantly turned black.

I did this experiment on YouTube and we have a fan, Edmonds Allison, Herschede, her son, did an experiment.

He took all these foods, Quest bars and bread and crackers and they all turn black after you put them in your mouth.

Except cheese didn't turn black.

Cheese doesn't turn to glucose, that's a good food.

A question on every type 1 diabetic parents...

"Don't we need carbohydrates?"

Okay, you have been brainwashed.

Everybody in this room knows you don't need to eat carbohydrates.

The body makes all the glucose you need.

In fact diabetes is kind of a disease of an abundance of glucose.

And if you don't believe me, look what happens to Dave's blood sugar if I don't give him his daily insulin shot.

His blood sugars go to the moon, out of nowhere.

The body can create all the glucose it needs, you don't need to eat any.

There's no such thing as an essential carbohydrate.

What's a normal blood sugar?

This is a graph of my blood sugar.

Of course I'm going to experiment, I am a scientist.

I took Dave's CGM monitor and I'm about 83...

My A1c is 4.4, it wasn't always that high,

I was on a high-carb diet before Dave was diagnosed and it was higher.

I've gotten it down to 4.4.

Lots of studies would go over later about what is a risk factor for glucose.

If you're in 80s, you are doing great.

So that's what we aim for.

So what's the remainder of the talking, we'll talk about the standard treatment, and then we will talk about how to really normalize blood sugars.

So basically the standard treatment in a nutshell is...

your doctor tells you

that the complications of diabetes are caused by high blood sugars.

And you say, "Okay, what causes that?"

And the answer is carbohydrate and your doctor tells you to eat carbohydrate.

So you might scratch your head at that.

Dr. Bernstein has a great line,

"The ADA approach is not a strategy geared towards survival."

And it certainly is not.

What does your doctor know about food? Nothing.

Dr. Troy Stapleton is a type 1 diabetic.

He got a quick lesson in nutrition when he was in medical school.

Six years in medical school, maybe an hour in nutrition and it was all wrong.

So if you think your doctor teach you about nutrition, you are sadly incorrect.

They are going to follow the guidelines.

Here is a picture of the food I talked about earlier.

If I fed this to Dave, it doesn't matter how good we are at managing insulin.

Dave is a rock star,

he's got a better blood sugar

than most of the non-diabetic public,

but if I fed him this, he would be straight to the moon.

And this is what we're told to eat.

More on the 88 diet this is what they recommend.

They'll tell you on their website whole grains, fruit...

and fruit is terrible, it's been so manipulated by agriculture for sweetness.

It's got a sugar content so high, you go straight to the moon.

Of course of the magical beans high in carb,

they raise blood sugar,

and low-fat protein foods...

Disaster.

Could never control my son's blood sugar on such a diet.

What's the result?

Let's suppose you follow the ADA recommendations.

It's too radical to be low-carb, you are scared, your doctor told you...

Your doctor bullied you, that happens often.

Really often.

Why do you get these roller coaster blood sugars then?

Let's look at Dave.

He is about 105 pounds.

Everybody's different, you hear that a lot.

But diabetics, especially type 1 diabetics are the same in that gram of glucose.

A little less for carbohydrate, but let's take a gram of glucose.

It's going to raise him 7 points.

Okay, that's a gram.

So what is going to happen if he eats a 40 g lunch?

He is going to go to 200 - 300 points high and you're going to get this result.

It's mathematics.

It's physiology.

He's going to go to 400 with a 60 g Starbucks cookie.

Okay so that's the first piece of the physics of diabetic control.

The second piece is what's called Dr. Bernstein's "Law of Small Numbers".

If you take a large dose of carbohydrate and a large dose of insulin...

...randomness occurs.

You cannot predict what's going to happen

and the most important thing about taking medication is predictability.

If you feed Dave the exact same meal, high carb meal,

with the exact same amount of insulin... let's say four pieces of pizza...

One day he might be flat,

the next day he might go high for six or eight hours.

The next day he might go crashing into the ground

and have a seizure all day long.

It's unpredictable.

When you go low-carb you have what's called small mistakes.

You might estimate your insulin a little bit less.

A fraction of your insulin might be destroyed by your immune system, which happens.

There's all these factors which create variability in the dosing.

But suppose you follow... what happens?

Let's look at the statistics of all the kids and adults who follow the standard diet guidelines.

The 50% line is right here.

That means you could expect your kid to have an A1c of about 8%.

That's triple normal, your blood sugar is 200 and it's not 200 all the time.

It's 400 a lot of the time and 40 a lot of the time.

That's a nightmare.

And what's going to happen?

By the way, is it different around the world?

No, Scotland 9%, Japan and 10 USA 8.6%...

Have they done a study to see if this carbohydrate counting method actually works?

Yeah, they claim that it works.

You went from an 8.4 and once you had proper training from your dietitian,

you went down to an 8.1.

That's pretty successful, isn't it?

I'm going to blow that result away in a few minutes.

What's going to happen?

Aside from some of the misery of day-to-day life which we're going to talk about, let's talk about the diabetic complications.

They come on fast.

And we know the mechanism for them.

There's a Banting--

I can't do all the biochemistry in this short amount of time...

Banting lecture in 2004 reviews

what I would call a grand unified theory of diabetic complications.

And they are due to high blood sugars.

We'll talk about one of the five mechanisms outlined by Michael Brownlee in a second.

And this is a list, this is a leave-behind slide,

this is a list of the biochemistry.

Let's look at some examples of what you can expect.

Kidney disease, what happens, I will tell you one of the effects...

You have high blood sugar, there are cells in your body that freely admit glucose.

They exist in the nervous system, in the eye,

in the blood brain barrier and in the kidney.

Glucose goes into this cell, into the kidney cell

and there's a mechanism Brownlee talks about, called Aldose Reductase.

What does that mean?

The glucose goes in and it gets converted through this enzymatic process to sorbitol, through osmosis water rushes in and the cell gets bigger.

The cell pops literally

and the structures in the kidney are made up of these cells

and you can see the structures degrade over time.

This is a non-diabetic kidney and a diabetic kidney...

You can see all these complicated structures made up of cells degrade.

Another one you hear a lot of, retinopathy, what's that like?

Here's a picture of a non-diabetic looking at his kids.

And here's what happens when you have retinopathy.

Black spots.

And again it's due to these cells being destroyed.

By the way 80% retinopathy at 15 year mark...

My son was diagnosed at nine,

so pretty much guaranteed he'd have some form of retinopathy by the time he is 24.

No way, not on my watch.

Well, we have all these new devices and pumps...

Things are getting better, right?

No, they are getting worse. Diabetic complications are on the rise.

In the old days there was some restraint with the dietitians and doctors on food.

Now it's unrestrained carbohydrate consumption and industrial amounts of insulin.

What about... this one gets people's attention...

The child type 1 brain, we're learning more about that on a monthly basis.

Even the American Diabetes Association in their own journals

admits that negative effects are happening,

a differentiation between gray and white matter in the brain,

actually detectable already at diagnosis from undetected high blood sugars,

which are already occurring well within the current treatment guidelines.

Smoking gun right there.

They published it in their own journal.

The papers coming out on type 1 brains... very sad.

Hyperglycemia, the biochemistry of the brain,
you are finding chemicals in the brain,
which are the same chemicals you'll find during a brain trauma.
Well okay these kids maybe they're going to run ketones,
so that's why we need the carbohydrate.

No.

The probability of going into DKA,
which is a near-term complication that kills kids,
goes with A1c.

Dave's probability of going into DKA is very small.

If you run high A1c's, high blood sugars all time,
you are going to constantly be in and out of the state of the DKA.

The big fear of a type 1 parent's - death in bed...

Your kid may not wake up in the morning due to a low blood sugar.

Well if your kid goes to bed with 15 units of insulin on board
to cover a cake made out of wheat
versus one unit to go to bed with a cake made out of almond flour,
which kid has more probability of having hypoglycemia?

It's obvious.

What about hyperglycemia?

You are high all the time, how does that make you feel?

Well it's tough for us to know, because we'll never be that high,
but it makes you feel awful

and this is a collection of quotes from adult diabetics I share with parents who have young kids who are three or four and are unable to verbalize how horrible they feel.

What about depression? Guess what.

Suicide rate is double amongst type 1s, but as you normalize blood sugar, depression levels are also normalized.

You have to feed carbohydrate to kids so that they grow properly.

That's just all you have to buy.

No, it's a myth.

In the old days it was well known that high blood sugar stunted growth, the myth died somehow.

Recent studies confirm that stunting of growth is caused by hyperglycemia.

Kids do not need high blood sugars and fast acting carbohydrate junk to grow.

They need normal blood sugars and protein to grow.

Here's another one.

Ubiquitous in the diabetic community - gastroparesis.

Meaning your vagus nerve is unable to digest food on a regular basis.

A nightmare for type 1 diabetics,

because they are no longer able to time their insulin dosage with their food.

What about heart disease?

We covered a lot of it earlier.

For type 1 diabetics, well, it's the number one killer in non-diabetics.

And a huge problem, guess what, type 1 diabetics four times the rate.

The pathology is complicated.

What happens when you normalize your blood sugar?

Your risk goes down to normal.

As it goes up in the type 1 community, your risk increases.

What about mortality?

Type 1 is going to cause you to live not just shorter, about a decade shorter.

It's going to cause you to live a life of fair amount of agony
and you can learn a lot from non-diabetics.

If you are really interested in getting normal blood sugars,
don't be satisfied with an A1c of 6 or even 5.5.

You're still going to get some complications as time goes by.

And my go to source for that is the man

who has given thousands of physical exams in his life

and knows from experience,

but we also know that the studies are going to show this to be true.

Here's the blood sugars of someone who has a 5.81, not bad,

but look they are all over the map.

You really want to go for normal blood sugars

and keep your blood sugars flat and in the 80s.

The best you can.

A lot of papers on heart attack risk

they all show risk starting at about 5%.

Coronary heart events 3.8, below 5 out of 1200,

6.4 out of 1600...

So you do the math - your risk starts going up at 5.

This is an interesting study -

patients that underwent coronary artery bypass surgery,

there's 163 patients,

there is a distribution of this paper of what their A1c was.

None of them had an A1c less than 5.

So it's doable, you can get it under 5.

Another paper - "Non-diabetics" in Japan, big study.

A1c risk of stroke also correlated.

Lowest risk below 5, starts rising thereafter.

Lowest risk stroke, less than 5, starts rising thereafter.

So that's what we aim for.

What about type 1s? Can they get type 2 diabetes?

Yes, they can.

It's a complicated situation, I won't go into it too much,

but we know that A1c is also a predictor of type 2 diabetes.

You are below 5, low risk... starts to increase as you go up.

What about cancer?

Same thing.

"Non-diabetic" range, A1c levels

as they start going higher, your cancer risk goes up.

Check out Gary Fettke's work on YouTube on cancer.

Finally there is a great summary on Jenny Ruhl's page, "Blood Sugar 101"

and she goes through a huge amount of studies

on the negative effects of elevated blood sugars.

So what's the final result?

You'll live in a fair amount of agony and your lifespan will be short

if you follow your dietitian's advice.

How do you normalize blood sugars?

Let's go the opposite direction.

You want to read this book, it's a huge book...

everything you need to know about getting yourself or your kid under control.

This is the working man's book on how to deal with the situation.

What do you do.

You'll notice that the book is called "Diabetes Solution",

not diabetes cure.

What does that mean?

It means that although my son has an A1c of 4.6,

this is nonstop work, it's still diabetes, it's a 24/7 job.

I don't wake up, give him his morning insulin, feed him low-carb and walk away.

He has to constantly monitor his blood sugar.

But if he does the work and stays on his toes,

he will be just fine.

He will be able to play football, basketball, be a scholar

and do everything that a non-diabetic can do.

And he's doing it.

Here is Dr. Bernstein's food in a nutshell.

I chopped off the berries, because he does not approve

and that's a good, interesting argument to have.

He relies on protein foods, nuts and fibers veggies.

And if you've been following the World Of Low-Carb Cooking,

you'll know that that's not actually restrictive.

In practice Dave would eat protein foods, some fibers veggies

and the occasional low-carb treat of which there are many recipes you can find.

There is no deprivation in this diet.

It is a rich diet in nutrients and satisfaction

and I have never felt better, or been happier myself following such a diet.

So we don't eat grains, sugar, fruit or starch.

Having for three years, I don't do it, my wife doesn't do it,

my youngest son doesn't do it and Dave doesn't do it.

And these are the results - here's food pyramid one, look what happens.

Here's food pyramid two, which is recommended

by every professional Diabetes Association in the world,

your doctor and your dietitian and here's what you get.

Great, right?

Here's my counter to the 88 meal.

Let's have on almond flour cookie, they have some great ones outside, by the way,

my new friends were given us these cookies outside.

They are unbelievable.

Let's have a protein wrapped burger, let's use the lettuce instead of the bun.

Because the bun is garbage and aside, salad.

More protein, more fat, not just less carbs.

The carbs are slow and no rapid carbs.

We'll only use three units of insulin which is a predictable amount,

versus nine units which is an industrial amount

and could land you anywhere.

It's not just the food, this is important

and I cannot do this topic justice.

You have to know so much more about just diabetes management than just food.

You have to know how to split basal injections,

you need to know how to cover meals.

There's a real importance in not cheating,

it's the type of carbohydrate, how do you treat lows effectively,

what happens when Dave is high, how do I treat that because it'll happen,

what happens with hormones, how do I check them at night...

You have to check a lot.

There is no way around it, you have to wake up two, three times a night.

Where do you inject, how do you inject... You have to know a million things.

That's why if you go to a type 1 diabetes group,

there's all these tips and tricks being tossed around.

We encapsulated all that in these three videos.

Everything you need to know.

If you go to the book, there's much more being discussed.

I'll give you an example - hypothyroidism...

it's ubiquitous in the type 1 community.

But your endocrinologist has no idea how to test for it

and no idea how to treat it.

So you may be running around on blood sugars and still be miserable.

Let's get to the good news, now we got through the bad part,

let's talk about the success that you can have.

It's not just Dave.

There's hundreds of kids and hundreds of adults

who are achieving the same result.

There are babies, there are 80-year-olds,
there are teens, there are women in menopause,
they are all doing the same thing, they are following a low-carb diet.

Look at these kids!

Do they look depressed because they're not eating junk food?

No, they've been put in the scariest situation you could possibly imagine.

But they know what these numbers mean.

They know that they have control, they're captains of their situation.

Look at every single face.

They are not up-and-down all day.

They know how to control their blood sugars.

Here's Dave when he first got started.

You will meet him later if you're still here, he is a lot bigger now.

He's been running A1c's at 5% and lower for three years now.

I'm finally catching up to him. It took me a long time.

This is Oska.

He is in New Zealand, beautiful kid, 4.7 A1c.

No one in the world is doing what these kids are doing.

It wasn't thought possible, 4.9%.

A new parent comes into the group,

we teach them all the tricks, we point them in the right direction...

results right away.

You think, "Well look at this little boy, 5.3%.

Look at the pride on his face, he knows what these numbers mean.

This is the little boy's mom, is in the group.

She is in our audience right now, here she is.

I love this.

He just started, look at his face!

Look at the pride on his face.

He's a scientist.

Here is the dad.

He missed the diagnosis somehow, it got truncated,

but he went down, this is a 5% line right here...

for years in the 5%, they'll be fine.

This is an adult - "I got my life back."

Look, he's riding his bike many miles, 50 miles.

Blood sugar is normal the whole time.

If he glances down at his blood sugar and it's a little low,

he takes a little bit of glucose.

He doesn't have to slow down a big juice box and go roaring back up to 400

and wait for few hours to come roaring back down.

The level of control is awesome.

We do surveys from time to time in the group and all these kids...

Look at all their A1c's, they are all normal A1c's.

Look at this little boy, this boy is Devin, rocking a normal A1c.

You think, "Why don't you get a group of scientists to study this group?"

So we did.

Dr. Westman sent one of his protégés over, Dr. Anna Barton

and she conducted a survey

and, you know, I'd done this before, here's our resolve.

This is the 10% line in A1c while the Typeonegrit people are killing that.

Were all top 1% or better...

A1c's of 6% or better.

Dr. Barton did a real study of the group, pilot study.

Now it's being done by a much bigger group at Harvard.

Look, if we could invent a device to do this,

I would be watching someone accept the Nobel Prize,

because the results are so astounding.

Here's the result...

We took about 100 people who had been following

basically a version of Dr. Bernstein's approach.

Self-taught by the way,

these are not people that go to him for a week of intense learning.

They just read the book and went low-carb

8%, just like we thought 8%... A1c's... guess what happens?

5.2%.

Well that's a difference of blood sugar of about 200 or higher

down to about an average of about 110 around there.

Astounding!

Westman said it too.

You can make a drug to do this, you'd be a billionaire.

If we had a device to do this, it would change the world.

All it is is just not following your doctor and your dietitian's advice.

What about quality of life?

Diabetes management is easier.

It is easier, it's less intense.

Everyone feels their blood sugars are much better controlled,
much less hypoglycemia and when your hypoglycemia comes on...

Well, this is not a cure, you'll have hypoglycemia...

It's mild.

And of course you are more hopeful about this.

This is a disastrous situation to be in and people are in it for decades.

And as soon as they find a way out of it, it's like a new leash on life.

Here is my favorite quote from Dr. Bernstein,

"We're not doomed to share the fate of others who died prematurely

"after years of disabling or painful diabetic complications.

"With the ability to control our blood sugars

comes the ability to prevent the consequences of high blood sugars."

You're in control with this diet and proper insulin techniques.

And that's the end of my talk.

Diabetes can be controlled, look at the happy faces of these kids.