

About Health TV with Jeanne Blake
Type II Diabetes
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JEANNE BLAKE: Welcome to *About Health TV*. I'm Jeanne Blake. Millions of Americans live with diabetes, a disease that is marked by the body's inability to use or metabolize food. On this program we turn our attention to type II diabetes. Historically, this is a disease that's been seen in people over the age of 40, but the face of type II diabetes is changing. To talk with us about type II diabetes, we're joined by Dr. Lori Laffel, who is the chief of the pediatric and adolescent unit at Joslin Diabetes Center. Thanks, Dr. Laffel, for coming back to talk with us again about diabetes. The reason that we're seeing type II diabetes now in younger people, in children, is a reflection of the obesity epidemic in this country. What is the correlation?

DR. LAFFEL: Type II diabetes occurs when the body isn't making enough insulin for that individual's needs to use the food for energy. You need more insulin in the setting of obesity and inactivity because those conditions lead to a condition called insulin resistance. If you're developing resistance and your body can't make enough insulin, you can come down with type II diabetes. We're now living in an era where there's a lot of fast food, there's less indications to be physically active when you could be on the Internet or playing video games ...

JEANNE BLAKE: Or watching television.

DR. LAFFEL: Or watching television. And that's just a setup for children to be gaining weight and falling into this epidemic of being overweight or obese as a child.

JEANNE BLAKE: To differentiate, when someone has type I diabetes, they have to take an insulin shot. Type II diabetes, what happens?

DR. LAFFEL: Type II diabetes probably develops in two major stages. One is this condition called insulin resistance, where the body is making plenty of insulin but it's as if you think about insulin as a key that has to open a lock on a cell to let the sugar molecules in to provide energy from the food that we eat. If insulin resistance develops, it's as if somebody took that key and bent it so it no longer opens the lock on that cell to allow the sugar in. So insulin resistance develops, or that lock and key don't fit anymore, in the setting of conditions like obesity, inactivity, pregnancy, just going through normal puberty, what all boys and girls have to do as they go from being children into adolescents and

young adults. The state of puberty induces insulin resistance, and aging induces insulin resistance. So some of the natural phenomena of life bring insulin resistance to all of our bodies, but environmental exposures, outside factors such as less activity and extra calories from high-fat calorically dense fast foods, that also brings extra insulin resistance. In that setting, the body is asked to make more insulin to overcome the insulin resistance, so you're trying to straighten out that bent key to fit into the lock again.

JEANNE BLAKE: So someone comes to you that's a young person with type II diabetes. Are they always overweight? Is there always a presence of obesity that's causing that?

DR. LAFFEL: Almost all children with type II diabetes are overweight or obese.

JEANNE BLAKE: Okay. So do they all have to start taking insulin?

DR. LAFFEL: Children who are overweight or obese because of this epidemic, we know we need to screen them for type II diabetes. Not all overweight and obese children have diabetes, but ...

JEANNE BLAKE: Right, but once it has been determined that a child does have type II diabetes, is an immediate treatment that they begin taking insulin?

DR. LAFFEL: That's a great question. Often when they're diagnosed with type II diabetes, children may start on insulin. It doesn't mean they need to stay on insulin, because their body is still making some insulin. That imprint is just not working effectively or efficiently. So what they have to make that body accept insulin better is, it's great to begin healthy eating and a physical activity program, so lifestyle modification, so that you reduce some of that insulin resistance. Then the body may work effectively again. Sometimes you do give insulin at the beginning to get over that period of high blood sugars. As you know, adults with diabetes can use a constellation of many, many oral drugs that can lower your blood sugar. Children with diabetes haven't had the opportunity to use all these drugs, because they haven't been tested in children yet.

JEANNE BLAKE: That's right. I was going to ask that question. That really presents a potential serious complication for you as a physician trying to treat ... I guess not necessarily a complication, but a challenge, as you're trying to give your patients the best care that you can, and if they need a medicine, you certainly look at who it's been tested on and who it's supposed to be given to.

DR. LAFFEL: Right. Well, we learn a lot from our adult colleagues and the adult patients who have used these medications, so we can often follow that example. But we're also fortunate because physicians and pharmaceutical companies and research institutes are trying to study all these medications in kids. So almost all the medications approved in adults are also being evaluated for safety and efficacy in children. So right now we have one oral medication that is approved for use in children as well as the ability to use insulin to treat children with type II diabetes.

JEANNE BLAKE: Okay. Well, we're going to learn something about the practical application of everything that you've been talking about by meeting one of your patients, and we're going to do that in one minute. When we come back we'll talk with Andrea Levine. We'll be right back. ... We continue our discussion now about type II diabetes, and we're joined by Andrea who at 12 years old was diagnosed with type II diabetes.

ANDREA: Yeah. I was 12 and I was taken to the doctor's because I had boils and I had a lot of health problems, sleeping a lot, a lot of lethargic behaviors, things like that. My mom did some research and she found out that could be a sign of diabetes.

JEANNE BLAKE: You have a pretty astute mom to dig into that. But there was a reason that she was suspicious, right, Andrea?

ANDREA: Yeah. We have a large family history of diabetes in my family. My grandmother, great-grandmother, my aunt all have diabetes.

JEANNE BLAKE: So she was on the lookout.

ANDREA: Yeah.

JEANNE BLAKE: So you went to the doctor and you learned you had diabetes?

ANDREA: Yes, I did. And at first they put me on Glucophage, metformin.

JEANNE BLAKE: Which is?

ANDREA: It's a pill. It's an oral medication that you take. It's supposed to help the insulin get to where it needs to go.

JEANNE BLAKE: Okay.

ANDREA: And after about three months I was put on insulin in small dosage, and then I worked my way up to a much higher dosage.

JEANNE BLAKE: Andrea, what was your reaction to finding out that you had this disease?

ANDREA: It was pretty scary at first.

JEANNE BLAKE: What was scary about it?

ANDREA: Knowing that most likely for the rest of my life I was going to have to give myself shots and watch my health very carefully.

JEANNE BLAKE: Because you grew up knowing other family members that had it?

ANDREA: Yes. I was around my grandmother all the time, and she would do shots around me, she would do finger sticks, everything, so I was very used to the idea, but not for myself.

DR. LAFFEL: And you told me that you were playing softball and you really felt fine, and suddenly your mom had got you.

ANDREA: Yeah. I was in the middle of a softball game and I was pulled out and I was taken to the hospital and I stayed there for three days.

JEANNE BLAKE: And that was your introduction to finding out you had diabetes.

ANDREA: Yes.

JEANNE BLAKE: Let me ask you this. I'm wondering if other young people that found out that you had diabetes picked on you. Did you ever get teased about it?

ANDREA: No. Most kids didn't really know a lot about it and had tiptoed around the topic. People would come up to me and ask me if I was okay because I was in the hospital for a couple of days. But there was no teasing or anything; it was mostly concern, actually.

JEANNE BLAKE: Dr. Laffel, Andrea had a family history, so her mother knew to be on the lookout, and yet there are other indicators that would suggest that a child who is overweight should be screened for diabetes, because oftentimes they don't have symptoms or at least they can't verbalize what they are.

DR. LAFFEL: That's right. The example that Andrea was playing softball and she didn't even realize that she had an undiagnosed condition called diabetes and had to be whisked off to the hospital to control her high blood sugars. So the things that pediatricians and physicians are asked to look for now and families are asked to look for is if a child is overweight, you should be thinking about diabetes, and then they should be screened for diabetes if they have one of the three other following risk factors. The first one is a family history, like Andrea's family history of diabetes. The second is if the person comes from a racial or ethnic minority group, because Native Americans, African-Americans, Pacific islanders, Latinos, and Caucasians ... all groups get diabetes, but the first four that I mentioned, those ethnic and racial minorities, are more prone to get type II diabetes. And then the third other risk factor is if you have other findings that sometimes march along with insulin resistance, and that's high blood pressure or high cholesterol. And sometimes people see like a darkening ring around the neck.

JEANNE BLAKE: In a child, though, you would see that?

DR. LAFFEL: Sometimes you'll see that, and that's a sign of insulin resistance.

JEANNE BLAKE: Really? Hmm.

DR. LAFFEL: And parents may think that a child is just not washing, but it actually has a very large medical name, and that's another sign.

JEANNE BLAKE: Andrea, once you learned that you had diabetes, Dr. Laffel spoke earlier about lifestyle changes. Have you made those adjustments? Have you tried to make those adjustments?

ANDREA: Lifestyle changes are extremely difficult, obviously. I have had a constant battle for the past three years in trying to change my eating habits, my exercise habits, making sure I get all my medications when I need to get them. You have to rearrange your life around it.

JEANNE BLAKE: As we've learned in earlier programs about diabetes, it really does become the focal point of one's life. So how have you changed? What kind of an exercise program do you have yourself on?

ANDREA: I don't have one currently. We never really focused on it. The biggest focus at first was my eating habits.

JEANNE BLAKE: And how did they change?

ANDREA: I was put on a 2,200 calorie diet, which is probably about 2,000 calories now. It was more foods I would make, vegetables, not grabbing something off the snack cart at school or whatever. I started bringing my own lunch to school and things like that.

JEANNE BLAKE: And the exercise that you get in your life?

ANDREA: Exercise isn't really a planned thing for me currently. We're trying to work on that, but it's hard to control everything all at once.

JEANNE BLAKE: Does your mom try to get you to exercise more?

ANDREA: Yes, she does. She offers to do it with me, she tries to help me out.

JEANNE BLAKE: Why do you think you resist that?

ANDREA: I just think it's something ... I mean, for a while I was doing it. I just think it's something you have to get used to doing all the time. It's not something that, like, you know, you can say you're going to start ... it's just a really hard change to make.

JEANNE BLAKE: You know about some of the complications, the potential complications of living with diabetes long term.

ANDREA: Yes, I've been made aware of kidney failure, everything, all the problems that I can have. You know, if you don't take care of your body, if you don't take care of cuts you can lose limbs, you've got to watch your feet, circulation, everything. It's definitely made me pay much more attention to every little cut or scrape that I get on my body.

JEANNE BLAKE: Dr. Laffel, Andrea is your patient. What kinds of things do you talk with her about in terms of living an overall healthy lifestyle?

DR. LAFFEL: I give Andrea a lot of credit, because it's always important to look forward and always at your next meal try to do better, and even next season try to add some more physical activity to your lifestyle and not look back and say what you didn't do right. And Andrea does have periods in her life when she's able to incorporate physical activity and it's just natural and it's fun and that's really the way it is for kids.

JEANNE BLAKE: Well, that's right. We know that if it's not going to be fun for any of us we're not going to want to do it. And there are times in our lives when we have other priorities.

DR. LAFFEL: Right. Well, I think that Andrea for a while had this group of friends that would all go out dancing, and wasn't that wonderful physical activity and that was fun. And we've talked about it. There are some times when it's just easier to pay attention to these lifestyle issues and other times that it's just a greater challenge. But we need to look forward, and each time you sit down to a meal it's another time to try to do your best because, you know, diabetes didn't happen in a day. We can control it in a number of weeks or months, but Andrea is doing a great job and she just isn't giving up. And that's what's important.

JEANNE BLAKE: Dr. Laffel, you've written that we need a community-wide approach to diabetes and you're calling on communities and schools and families to be more proactive. Talk with us about how families can play a role in helping to manage diabetes.

DR. LAFFEL: Well, when a child has diabetes the family has diabetes. And when a child is at risk for diabetes, then the whole family will have those problems associated with the diagnosis. So healthy eating is ... we're not talking about a diet, that's a four-letter word we don't use. Even meal planning, you don't even have to use that word anymore, but just healthy eating for the entire family. And physical activity, just incorporating, taking a walk. If you like sports, doing sports. I mean, I loved when you were talking about playing softball when you were in middle school. I mean, you don't

always have those opportunities in high school, because it's much more at a competitive level, but if there can be community-based intramural programs, after-school programs for kids. It doesn't need to be at a highly competitive level, but programs that encourage the physical activity and the self-esteem building. So not necessarily the competitive approach. Back to the healthy eating. The vending machines in schools is a big problem, because there's fruit juices, which are high-calorie, the regular sodas, which are very high in calories, and not to mention the candies and the chips. Do we need vending machines in schools today?

JEANNE BLAKE: Andrea, let's talk with you about the choices that you have in school to eat healthfully.

ANDREA: The whole cafeteria lunch food, they give us ... actually in my high school we have quite a few options. There's a salad bar, there's diet drinks in some of those machines, you know. We have options, actually, and you can also bring your own lunch if you want to, so it's not really a big problem for me, actually.

JEANNE BLAKE: That's good.

DR. LAFFEL: And you've said it was easiest for you when you brought your own lunch.

ANDREA: Yeah, and another thing that I think is important is for my peers to be aware, because I feel like a lot of them don't understand or know what it's like. I don't think there's a lot of knowledge given to kids about diabetes and about other kids who have diabetes, and I think it would make it easier on my friends to understand what's going on with me than not having a clue.

JEANNE BLAKE: What would you want them to know?

ANDREA: I would like for people to know just about it, just know what it is, that it's chronic, that it's not going away, it's something I have to deal with, and so it would kind of make people be a little more considerate with me. Because I have times where I'm not in the mood to do certain things and whatnot because, you know, my diabetes is acting up or whatever, and people don't tend to understand that as much.

JEANNE BLAKE: What does that mean? You have an opportunity now, if someone were listening and you wanted them to understand what that mean. So when you say, "My diabetes is acting up,"

what does that mean?

ANDREA: High blood sugars, low blood sugars. Sometimes when your blood sugar is high you become more irritable, and sometimes I don't want to be around certain people and they don't seem to understand that it's because of certain things that are going on with my body and not because of me. I'm not always myself when I have high or low blood sugars.

DR. LAFFEL: And if you're running high blood sugars for quite a long time, and we don't want that to happen, but if you are you can almost feel like you have the flu all the time, and you know what it's like when you have the flu. I mean, you really don't feel like you want to do anything.

JEANNE BLAKE: Dr. Laffel, at Joslin you are on the cutting edge of research. What kinds of hope have you been able to give patients like Andrea about how their lives might change in the future based on research that's going on?

DR. LAFFEL: Well, there are new medications to help manage type II diabetes coming out all the time, and a lot of medications in adults are now being evaluated in children. We are part of a large national trial which is trying to identify the best way to treat type II diabetes in youth. This is an NIH-funded trial, and we will be a center along with the Mass General Hospital trying to help figure out how lifestyle modification can be incorporated into a child's life and into a family's life. What are the best oral medications to help combat the insulin resistance that I mentioned, the insulin resistance that leads to type II diabetes, and how we can manage type II diabetes, possibly without insulin. As Andrea shared with us, I mean, Andrea does need insulin now. She takes an oral agent as well as insulin because she really needs both of them to try to bring her sugars down. Taking insulin, I think, for you was one of the big challenges.

ANDREA: Yeah, at first when I had to take insulin I didn't ever think I'd be able to do it myself, and now I take two shots a day, you know. I think that people don't understand that ... a lot of people say that they could never do that if they were me, and it's not a choice really. It's something you have to do if you want to live, you know, be healthy.

JEANNE BLAKE: Live and have some independence, too, so your mom doesn't always have to.

ANDREA: Exactly. I can't take out the car unless I do my insulin, you know, and I take care of myself.

DR. LAFFEL: Well, I thank your mom because she's helping to keep you healthy, isn't she?

ANDREA: Yes, she is.

DR. LAFFEL: By a routine?

ANDREA: Yes, she is.

JEANNE BLAKE: Dr. Laffel, Andrea spoke very clearly about what some of the potential complications are long term of diabetes type II, and if her disease is not managed well she could experience some of those down the road. Every person who lives with diabetes knows that that threat is there, and yet generally diabetes type II was being diagnosed historically in older patients. What concerns do you have now as a physician and as a researcher that children are going to be living with those complications and the challenge of diabetes for so many more years now? I mean, Andrea was diagnosed at 12, not at 42.

DR. LAFFEL: I think as a community, as a nation, we're very concerned about this epidemic of obesity and this epidemic of type II diabetes in children, because getting diabetes as a younger age means that by the time you're in your early 20s or 30s and barely 40, you've already been living with diabetes for decades. And there is a preliminary study that has shown in a very small subset of individuals, children developing type II diabetes in their teenage years, look like they were getting complications in their third and fourth decade of life, which is frightening. Now I can look at Andrea and I can tell her that she can prevent complications, we can prevent complications together, because I know she can remain healthy, and I think the important thing by what her mother did was that she found the diabetes. Diabetes is often silent, and it may not even be diagnosed, so children may be living with these high sugars, living with the abnormal metabolism, for many, many years. Getting treatment and treatment that may be very difficult to implement, because someone's been so used to living with high sugars there's not an interest to try to improve them, that there is a risk for complications. But I'm optimistic that these are preventable complications.

JEANNE BLAKE: When you spoke ... I don't want to stay so focused on the potential complications, but the last time we spoke about diabetes you gave a very articulate, clear description of what's going on inside the body when it's not being managed and why it can lead to higher levels of heart disease and other complications. Can you, just for the purposes of this program also, just review some of those? What's going on inside the body when it's not being taken care of?

DR. LAFFEL: Well, again, the body needs sugar. Sugar is not a bad thing. Sugar provides us energy so that all of our cells can have the nutrition to do the cellular work and go on with our daily living. To get that sugar in the cells you need insulin. Even if insulin is there, like it is in type II diabetes, but it isn't able to work efficiently, the sugar levels back up in the bloodstream. With the backup of the sugar levels, the body is trying to recruit other fuels, other fuels such as fats and lipids, and that's why often in type II diabetes you also, besides seeing high sugars, you also see high cholesterol level, high triglyceride level. And also you will see rising blood pressures. You see high blood pressure as part of the syndrome of insulin resistance. So it's that combination in type II diabetes of high blood sugars, high blood pressure, high lipid levels that really in combination are potentially affecting the blood vessels in our body, the blood vessels that feed our heart and our limbs. This isn't a problem for Andrea. I mean, she's healthy; she has a long life ahead of her. But the potential is there for future problems if someone with diabetes continues to have high blood sugars and has these high lipid levels and high blood pressure levels.

JEANNE BLAKE: Yeah, because it's obvious when you spell it out like that you can see that anybody that's being challenged like that is going to age more rapidly. Go ahead, Andrea.

ANDREA: If your blood sugar is controlled, I think it's the easiest time in your life to take care of other things. When I feel good, my body feels good. It makes it a lot easier for me to go out and do exercise, for me to, you know, hang out with friends, to do anything, school work. I think I excel more. I think the most important thing for people with type II diabetes to know is, if you keep your body, your blood sugars, in control, the rest will fall into place.

JEANNE BLAKE: And to other young people who are feeling the challenge as you've described, sometimes you just don't feel like doing it, what would you say, Andrea?

ANDREA: I think that everyone goes through hard times with diabetes. It's not an easy chronic illness to control, but you can't give up. Like, it's your life; there's no choice.

JEANNE BLAKE: I have a funny feeling that your mom, Wendy, wouldn't let you, right?

ANDREA: No.

JEANNE BLAKE: Which we've all said before. Dr. Laffel, you've said it many times before, and you said it earlier in this program, diabetes is a family disease, and certainly having support like you have from your mom is a big help.

ANDREA: Yes.

JEANNE BLAKE: Andrea, thank you for coming in to talk and to share what it's like for you to live with diabetes as a young person. And Dr. Laffel, thank you.

DR. LAFFEL: Thank you.

JEANNE BLAKE: And we want to thank you for joining us on *About Health TV*. I'm Jeanne Blake and I'll see you next time.

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