

**TYPE 2  
DIABETES**

**GLYCEMIC  
CONTROL**

**GLP-1  
ACTIVITY**

**WEIGHT**

**CARDIOVASCULAR  
DISEASE**

WHEN IT COMES TO TYPE 2 DIABETES, THERE ARE A LOT OF THINGS TO TALK TO YOUR PATIENT ABOUT.

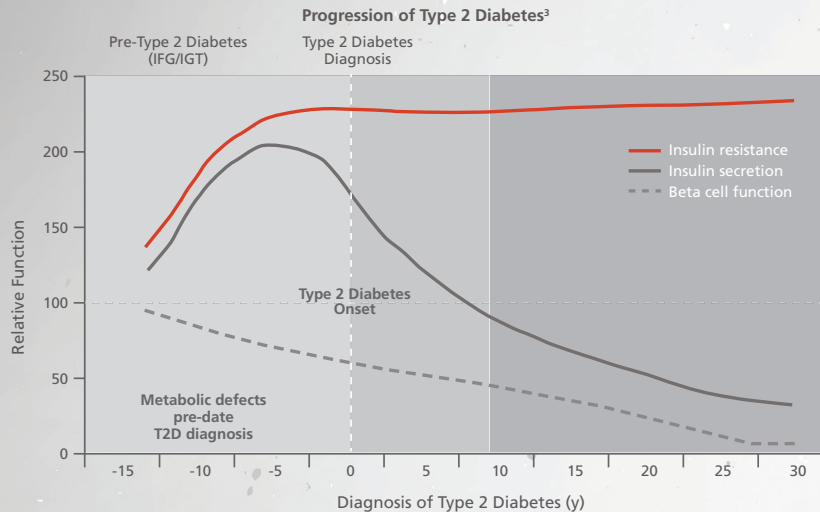
**BRING GLP-1 ACTIVITY INTO  
THE CONVERSATION EARLY<sup>1</sup>**

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# WHEN IT COMES TO TYPE 2 DIABETES, THERE ARE A LOT OF THINGS TO TALK TO YOUR PATIENT ABOUT

—including the decline of beta-cell response to many things, such as GLP-1 Activity<sup>2</sup>



Natural History of Type 2 Diabetes ©2010, International Diabetes Center at Park Nicollet, Minneapolis, MN.  
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IFG=impaired fasting glucose.  
IGT=impaired glucose tolerance.

**References:** 1. Herzberg-Schäfer S, Heni M, Stefan N, Häring H-U, Fritsche A. Impairment of GLP1-induced insulin secretion: role of genetic background, insulin resistance and hyperglycaemia. *Diabetes Obes Metab.* 2012;14(suppl 3):85-90. 2. Nauck MA, Meier JJ. GIP and GLP-1: stepsiblings rather than monozygotic twins within the incretin family. *Diabetes.* 2019;68(5):897-900. 3. Simonson G, Cuddihy R, Reader D, Bergenstal R. International diabetes center treatment of type 2 diabetes glucose algorithm. *Diabetes Manage.* 2011;1(2):175-189. 4. Leahy JL. Pathogenesis of type 2 diabetes mellitus. *Arch Med Res.* 2005;36(3):197-209. 5. DeFronzo RA. The triumvirate:  $\beta$ -cell, muscle, liver. A collusion responsible for NIDDM. *Diabetes.* 1988;37(6):667-687. 6. Calanna S, Christensen M, Holst JJ, et al. Secretion of glucagon-like peptide-1 in patients with type 2 diabetes mellitus: systematic review and meta-analyses of clinical studies. *Diabetologia.* 2013;56(5):965-972. 7. Holst JJ, Knop FK, Vilsbøll T, Krarup T, Madsbad S. Loss of incretin effect is a specific, important, and early characteristic of type 2 diabetes. *Diabetes Care.* 2011;34(suppl 2):S251-S257.

In the early stages of the development of Type 2 Diabetes, beta cells secrete additional insulin to compensate for insulin resistance—eventually, beta cells lose their ability to respond to high blood sugar (and blood sugar rises).<sup>4,5</sup>

Beta-cell response declines to GLP-1 Activity, along with many other stimuli.<sup>2</sup> This decline happens early on, even before the onset of Type 2 Diabetes.<sup>1,4,6,7</sup>

## BRING GLP-1 ACTIVITY INTO THE CONVERSATION EARLY WITH YOUR PATIENTS<sup>1</sup>

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