nextida·GC

Science

Targeting natural GLP-1 release with collagen peptides for glucose control

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Rousselot
by Darling Ingredients

Glucose: essential fuel that cannot be left unchecked

Glucose, a simple sugar, is a critical energy source for every cell in the human body – but it is also fast becoming the focus of serious health concerns.[1-5]

Increasingly aware of the negative effects fluctuating glucose levels can have on their wellbeing, consumers around the world are looking to take back control.

To offer an effective science-supported solution to this need, Rousselot developed Nextida GC, a specific natural collagen composition shown to stimulate the secretion of the hormones glucagon-like peptide-1 (GLP-1) and gastric inhibitory polypeptide (GIP), reducing post-meal glucose spikes.

It's time to explore the science behind this whole new approach to glucose control, and the many opportunities it offers as consumer interest in GLP-1 solutions continues to rise.

The incretin effect: The link between GLP-1, GIP and glucose control

Every minute of every day, the human body works to protect itself from extremes and keep its various systems at a health equilibrium.

The incretin effect is one of these essential methods by which the body preserves balanced glucose levels, involving the secretion of the hormones GLP-1 and GIP, which in turn trigger the production of the most important player in the regulation of our glucose metabolism: insulin.[6]

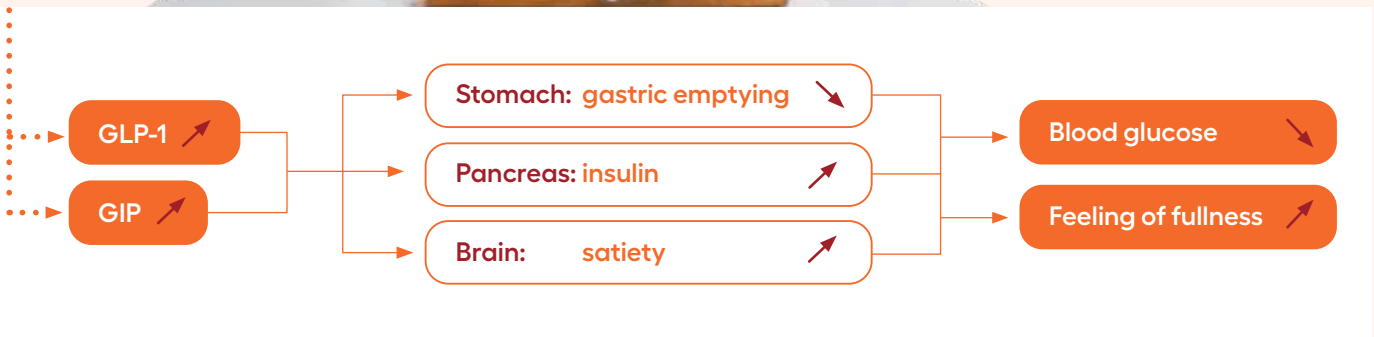


Figure 1: GIP and GLP-1 are secreted by cells located in the intestine. Their combined function is key to maintaining healthy glucose levels after a meal.

The endocrinological chain reaction unfolds as follows: the rapid entry of glucose into the digestive system following a meal triggers the release of GLP-1 and GIP.

This signals the body to increase insulin production, which facilitates the transfer of sugars out of the bloodstream and into the cells, returning glucose levels back to baseline.

In addition, the presence of GLP-1 causes a feeling of fullness by signaling the stomach to slow down gastric emptying, and suppresses hunger by stimulating the brain's satiety center.[6,7]

When the action of any of these hormones is halted due to diseases like diabetes, an individual's capacity for glucose management can be severely disrupted, leading to negative health outcomes. Therapies like Ozempic (GLP-1 agonist receptor analogue) and Mounjaro® (the first GIP and GLP-1 receptor agonist analogue), which were originally developed to treat diabetes, have gained attention in recent years thanks to their ability to mimic the function of these incretins. It's this feature that has become especially relevant to the modern consumer struggling with glucose management, and more recently, weight management.

Modern lifestyles: wreaking havoc on glucose control

Effective glucose management is often challenging due to the bad influence of current lifestyle and diet trends, characterized by the increased consumption of processed and carbohydrate rich foods, insufficient sleep and a sedentary lifestyle.

One consumer study showed that up to 80% of otherwise healthy participants experienced an excessive glucose spike after a simple meal of breakfast cereals and milk.[8] This situation can be compounded by chaotic schedules that push meal times late into the evening, a practice that has been linked to a worsened hyperglycemic state in healthy individuals.[9] Together, these factors disrupt natural regulatory mechanisms, making it more difficult for the body to maintain optimal glucose levels.

If large amounts of carbohydrates are consumed, this can result in the feeling of a 'sugar high' caused by the spike in blood glucose concentration. While this high can make us feel momentarily giddy and energized, it is inevitably followed by a 'sugar crash', where tiredness and sluggishness creep in as glucose levels decrease.[10,11]

Scientific studies show that high variability in blood glucose levels after a meal can lead to cravings and overeating, which begins a vicious cycle of glucose spikes and subsequent crashes.[11,12]

The glucose rollercoaster

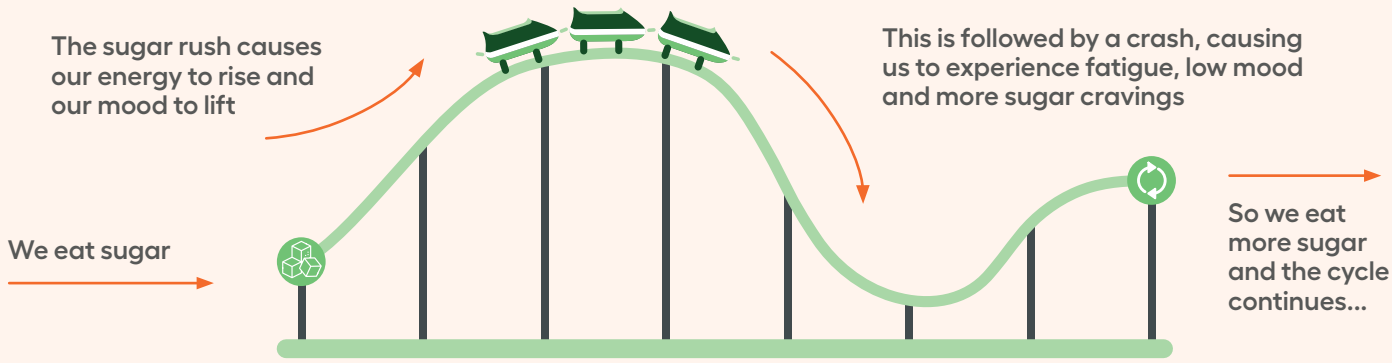


Figure 2: Illustration of post-meal glucose roller coaster

Frequent high variability in blood glucose levels can cause:

- **Fatigue**[10,15]
- **Mood and sleep disturbances**[11,13,14]
- **Food cravings and hunger**[11,12] potentially leading to overeating and weight gain
- **Stress**[13]

The glucose rollercoaster comes with another significant downside. When insulin levels are high, such as after eating a carbohydrate-rich meal, the body is prompted to store excess glucose as fat. Excessive insulin production, therefore, can result in fat storage beyond normal levels, leading to unwanted weight gain.[16] Additionally, these constant fluctuations can reduce cellular insulin sensitivity, making it harder for the body to regulate blood sugar effectively.

So, what can consumers do to step off the glucose rollercoaster?

To the rescue: putting the brakes on the glucose rollercoaster with Nextida GC

Recognizing the importance of incretin hormones like GLP-1, as well as the unexplored potential of collagen as a natural ingredient with multiple health benefits, researchers at Rousselot set out to investigate whether supplementation with a specific collagen peptide composition could increase GLP-1 secretion and support glucose metabolism.

First, a comprehensive library of specific collagen peptide compositions was screened for suitability, with all the viable candidates undergoing an *in vitro* digestive process to mimic human gastrointestinal digestion and maximize the physiological relevance of the results. Following a series of tests in this *in vitro* entero-endocrine intestinal cell model (Figure 3), the composition that became Nextida GC was selected due to its augmented ability to enhance natural GLP-1 secretion.[17]

Nextida GC collagen peptides delivered an increase in GLP-1 secretion when preclinically tested *in vitro*

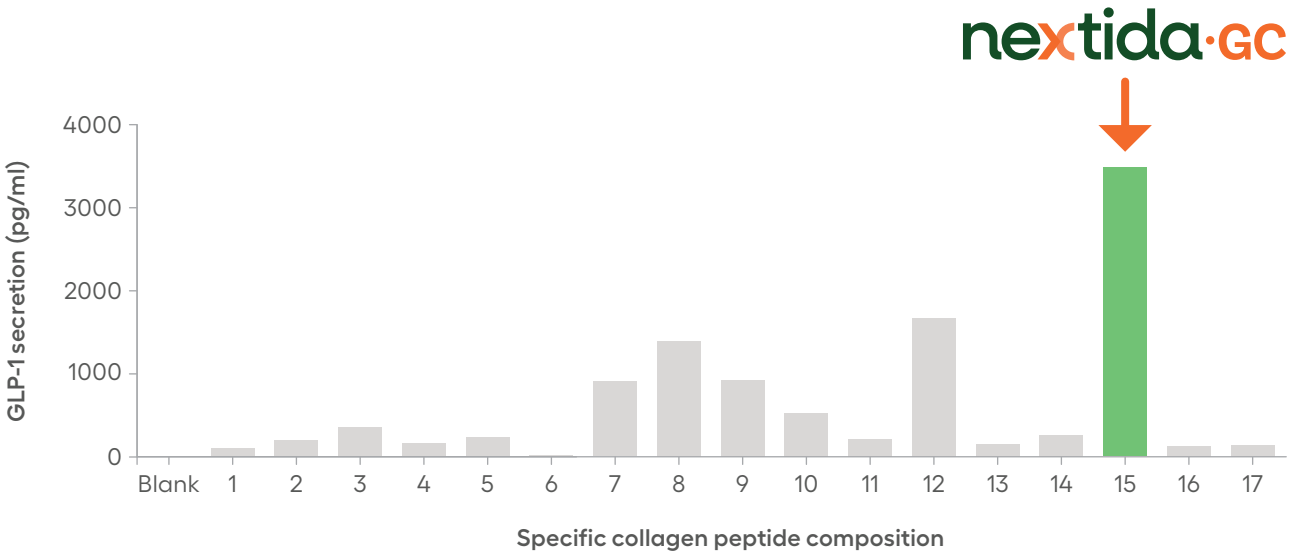


Figure 3: *In vitro* screening of a proprietary library of specific collagen peptide compositions for their ability to enhance natural GLP-1 secretion in murine, gastrointestinal enteroendocrine, STC-1 cells. All screened peptide compositions first underwent an *in vitro* digestive process to mimic human gastrointestinal digestion and maximize the physiological relevance of the results.

The discovery of Nextida GC is a major breakthrough, unlocking a new frontier for the potential of collagen peptides and their health benefits.

Science-backed benefits in focus

1. Nextida GC collagen peptides increased GLP-1 and GIP secretion

Once identified, the Nextida GC composition was tested for its ability to enhance natural GLP-1 secretion in a clinical trial.

In a randomized, double blind, placebo-controlled, crossover, clinical study, 16 healthy individuals (normoglycemic and prediabetic) took 5- or 10-grams of Nextida GC 30 minutes before consumption of a carbohydrate-rich meal (Figure 4). The impact of Nextida GC intake on GLP-1 and GIP secretion before the meal, as well as blood glucose and insulin levels both before and after the meal was investigated. The study was set up using a crossover design, meaning all 16 volunteers took both dosages with a 1 week wash out period in between to minimize the impact of interindividual variation.[17, 18]

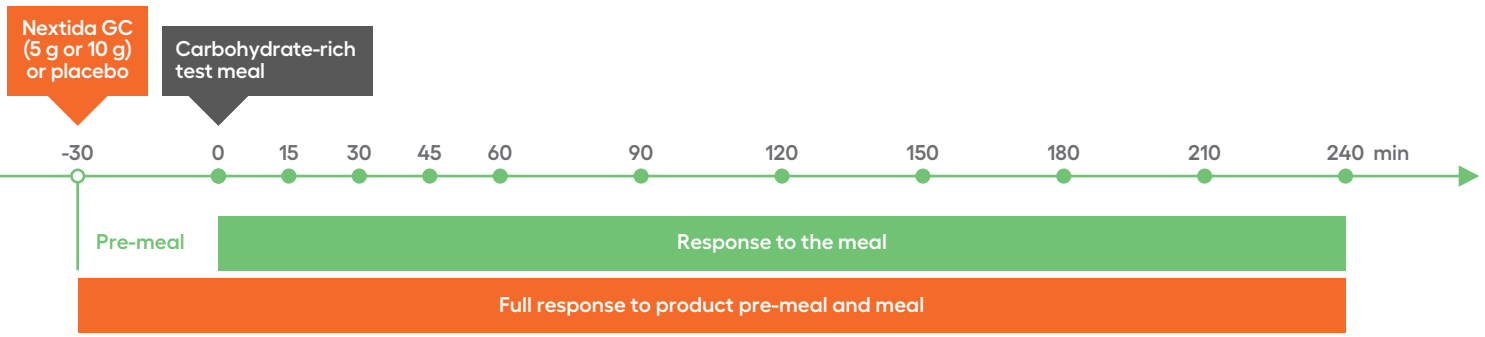


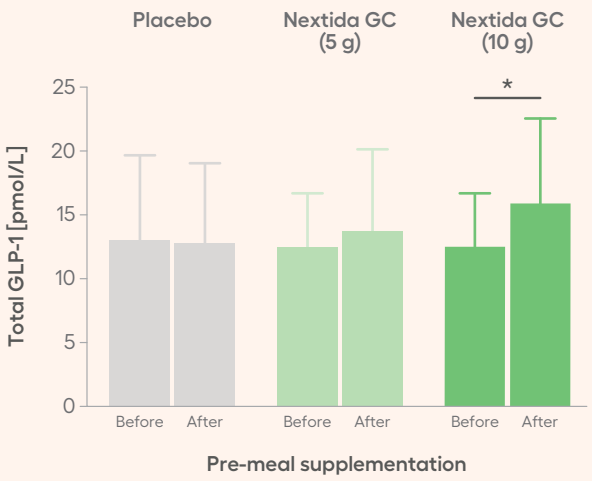
Figure 4: Schematic illustration of the first clinical trial protocol.

The results detailed in Figure 5A and B demonstrate that oral supplementation with 10 g Nextida GC significantly enhanced natural GLP-1 secretion in a healthy human population.

A trend towards increased GLP-1 secretion was also observed after intake of a 5 g dose of Nextida GC. Looking specifically at the data pulled from a prediabetic subgroup (imbalanced glucose metabolism) of this healthy population, both the 5- and 10-gram dose yielded a statistically significant GLP-1 increase.[19]

Safe to say these are promising results for supplement producers seeking to offer their customers much needed inner balance.

A) **Nextida GC naturally triggered GLP-1 secretion in a healthy heterogeneous population** (normoglycemic and with imbalanced glucose metabolism)



B) **Nextida GC naturally triggered GLP-1 secretion in a healthy homogeneous population** (with imbalanced glucose metabolism)

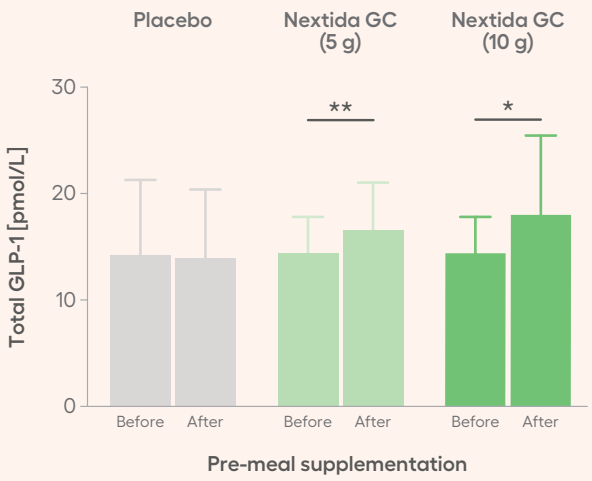
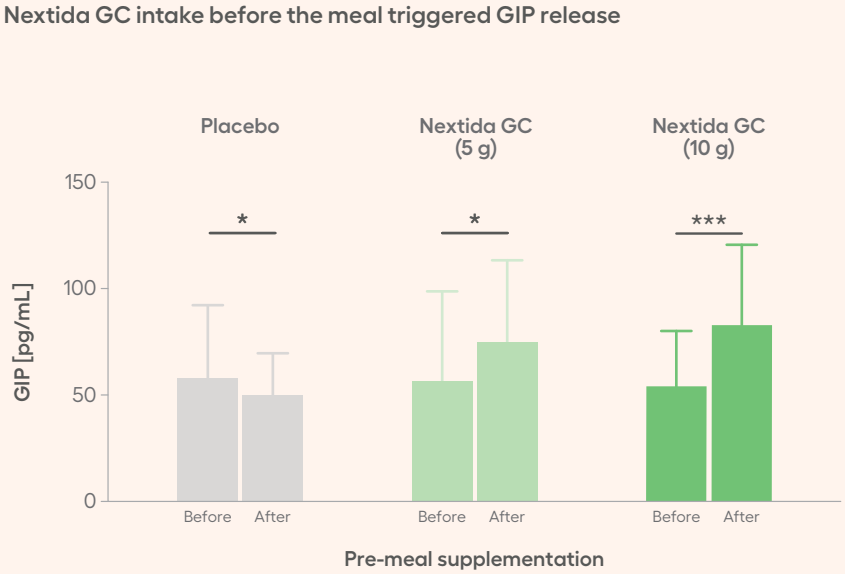


Figure 5: GLP-1 levels before and after Nextida GC intake in A) a healthy heterogeneous population (normoglycemic and with imbalanced glucose metabolism, i.e., prediabetic) and B) a healthy homogeneous population (with imbalanced glucose metabolism). GLP-1 levels before and after oral supplementation of placebo or Nextida GC are shown. * $p < 0.05$, ** $P < 0.01$.

Nextida GC stimulates the production of both incretin hormones (GIP and GLP-1)

Building on the evidence that Nextida GC enhances GLP-1 secretion (Figure 5), the clinical study also showed that supplementation with a 5- or 10-gram dose significantly increased GIP levels in a healthy population (Figure 6).[19]



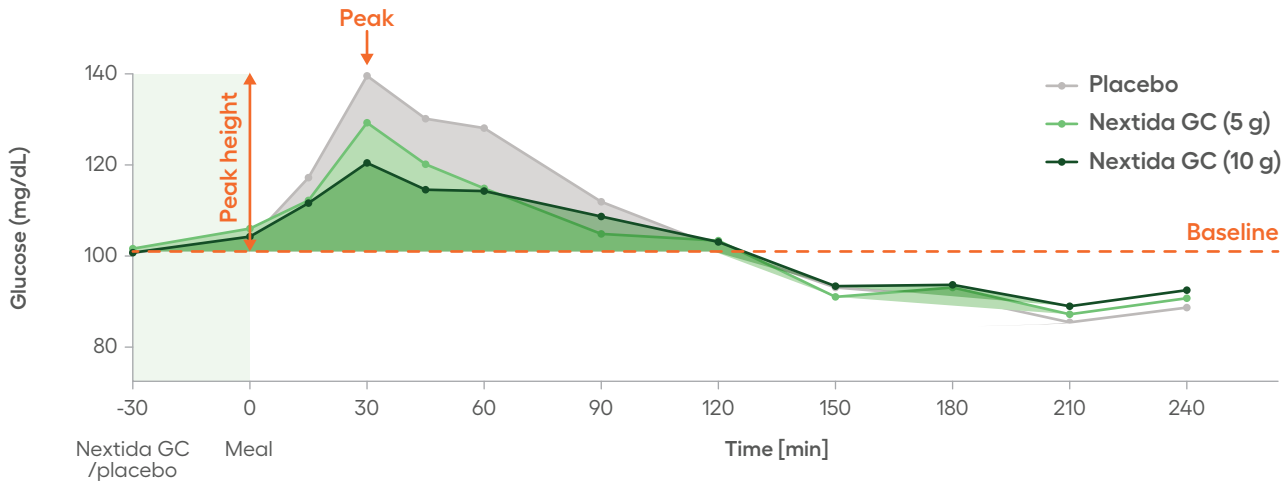
This clinical trial demonstrates Nextida GC's ability to boost the natural release of the incretin hormones GLP-1 and GIP.[19]

Figure 6: Oral intake of 5- or 10-grams of Nextida GC significantly increased GIP levels in the blood of a healthy **heterogeneous population** (normoglycemic and with imbalanced glucose metabolism). * $p < 0.05$, *** $p < 0.001$.

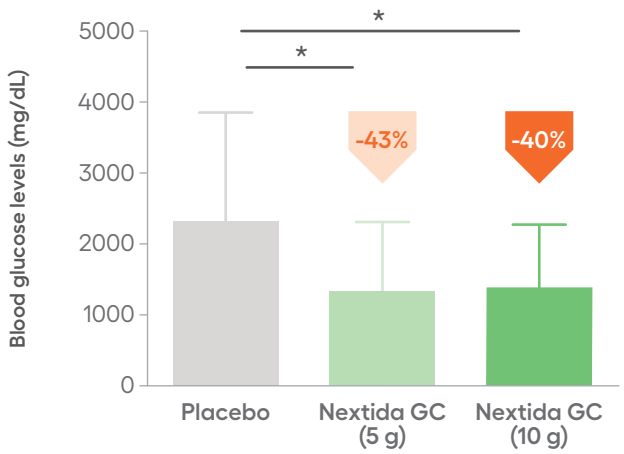
2. Nextida GC lowered the blood glucose spike in a healthy population

Continuing the notable findings, the same clinical study[17] showed that oral intake of 5- or 10-grams of Nextida GC 30 minutes before a meal significantly lowered post meal glucose spikes (-43% and -40% respectively, Figure 7B) and the glucose peak (-31% and -39% respectively, Figure 7C). This indicates that preemptive Nextida GC intake could result in a lower amount of glucose present in the body following a meal.

A) Glucose levels before and after a meal



B) Nextida GC lowered the glucose spike



C) Nextida GC reduced the height of the glucose peak

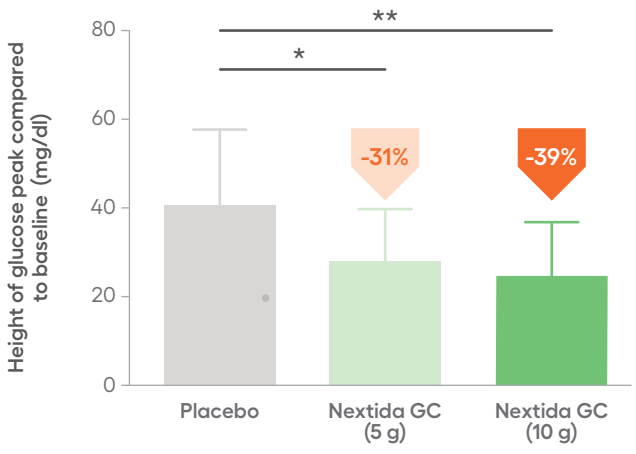
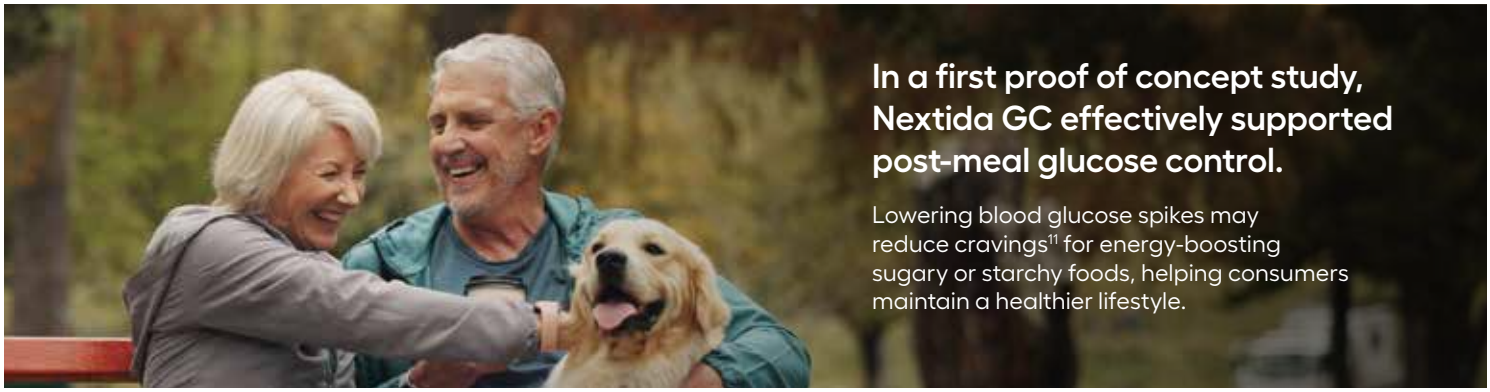


Figure 7: Oral supplementation with either 5- or 10-grams of Nextida GC 30 minutes before a complex meal (110 g white toast, 20 g butter and 43 g strawberry jam) *p<0.05, **p<0.01 lowered the blood glucose spike (iAUC 0-180 min) and the glucose peak in a healthy **heterogeneous population** (normoglycemic and with imbalanced glucose metabolism (A, B and C).



In a first proof of concept study, Nextida GC effectively supported post-meal glucose control.

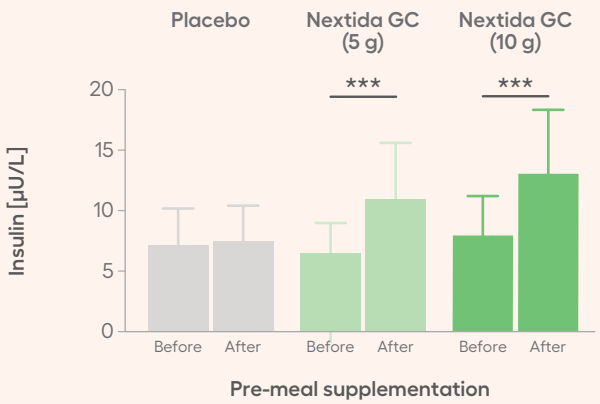
Lowering blood glucose spikes may reduce cravings[11] for energy-boosting sugary or starchy foods, helping consumers maintain a healthier lifestyle.

3. Nextida GC has been shown to improve insulin response

Increased GLP-1 and GIP levels following Nextida GC intake point towards its potential to activate the incretin effect, and so, logically, this should also affect insulin levels.[20] Figure 8A demonstrates that in healthy participants, insulin levels significantly increased after oral supplementation with 5- or 10-grams of Nextida GC before the meal, while post-meal insulin levels significantly decreased (Figure 8B).[18]

These findings indicate that oral supplementation with Nextida GC prepared the body to receive food by implementing a priming effect, where the body is readied for an incoming meal. This allowed the body to react more efficiently, lowering the post-meal spike without the need for excessive insulin production.

A) Nextida GC intake increased pre meal insulin levels



B) Nextida GC intake decreased post-meal insulin levels

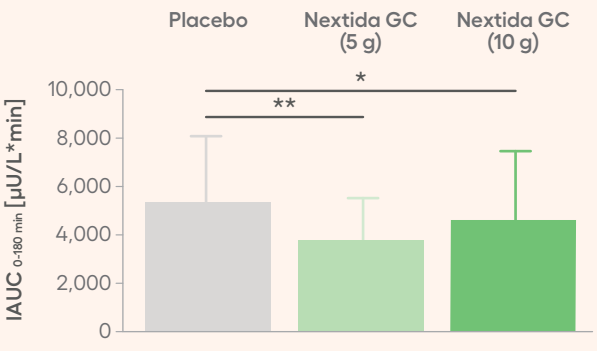


Figure 8: A) Before the meal, 5- and 10-grams of Nextida GC supplementation triggered a small but significant insulin increase compared to placebo. B) Post-meal, the insulin levels of individuals (normoglycemic and with imbalanced glucose metabolism) that took Nextida GC 30 minutes before the meal were lowered than compared to the placebo. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Nextida GC boosted GLP-1 secretion and lowered glucose spikes without increasing post-meal insulin.

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With its capacity to improve GLP-1 secretion, support balanced glucose levels and improve insulin response, Nextida GC's specific collagen peptide composition could positively impact everything from satiety and weight management to mood improvement and stress reduction. The results are promising, the potential is vast, and the future is bright for solutions that help keep the body in balance – the natural way.

Unlocking the power of collagen peptides for GLP-1, glucose control and beyond

Marketing data sources

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2. Semrush, 2023
3. Google Trends data 2025
4. MedtechDive/William Blair
5. EY, 2024

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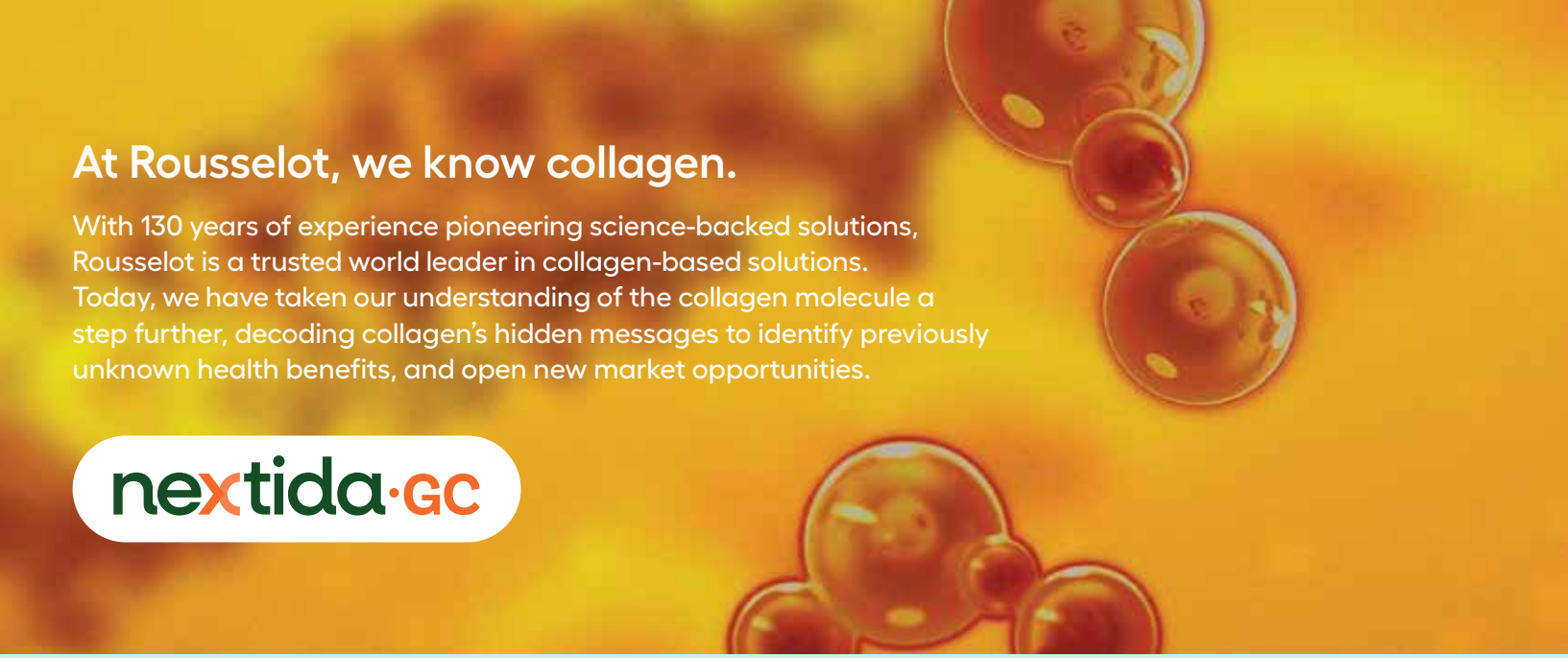

At Rousselot, we know collagen.

With 130 years of experience pioneering science-backed solutions, Rousselot is a trusted world leader in collagen-based solutions. Today, we have taken our understanding of the collagen molecule a step further, decoding collagen's hidden messages to identify previously unknown health benefits, and open new market opportunities.

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Whatever product development project you have in mind, we're here to support your vision with:

- Transparency
- Full traceability
- High standards of quality and safety
- Committed to the environment and to our clients
- Global support and expert advice

Your Rousselot sales contact information

About Rousselot Health & Nutrition

As Rousselot's strategic segment dedicated to health and nutrition, we are committed to developing innovative ingredients answering today's demand for solutions offering proven efficacy, full safety, and premium quality.

Our customers can rely on best-in-class products backed by trusted science, as well as on our expert support in formulation, product development, and regulatory advice. Our range of products includes Peptan®, Peptinex®, ProTake®, Colartix® and now Nextida™ for a healthier tomorrow.

Rousselot
@RousselotHealth

Rousselot B.V.
Kanaaldijk Noord 20
5681 NM Son
The Netherlands
+31 499 364 100

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