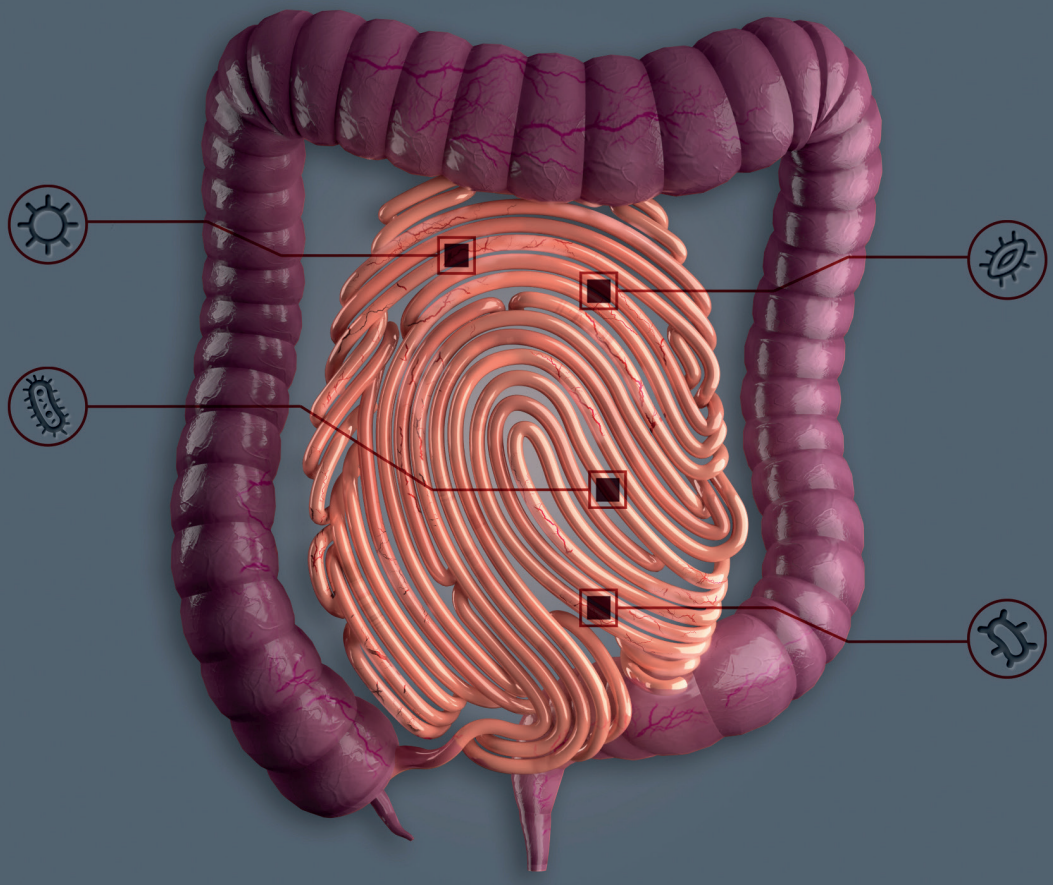
# IBSYNCRASY

NOT EVERY IBS IS THE SAME **FIND YOURS**



INDIVIDUALIZED IRRITABLE BOWEL SYNDROME TREATMENT BASED ON **OVER 1400 REAL CASES**

THEODOROS **PREVEDOROS**
Biochemist MSc

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2022

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# Disclaimer

The therapies described in this book require supervision by an experienced medical professional. Nutrient overloads or deficiencies can have a powerful effect on body functioning and improper treatment can cause harm. The gastrointestinal system is a very complex organ, and accurate diagnosis of nutrient imbalances requires testing of blood, stools and urine, together with a detailed knowledge of a person's medical history, traits, and symptoms. Readers must not attempt self-treatment based on information in this book. The case histories in this book provide examples of the treatment approach (supervised by their primary physician) for specific biochemical imbalances and describe the experiences of real patients. Names and certain other information have been changed to protect patient confidentiality. The case histories are intended to illustrate the clinical process and should not be regarded as evidence of treatment effectiveness.

# Acknowledgements

I would like to thank two people who inspired me in this project.

**Galanopoulou Dia** Professor of Biochemistry: When I was in Chemistry school, I used to think that just by applying logic to several variables you could explain any system. This was true when it came to solving difficult chemistry equations, or achieving complex experiments and it helped me understand the chaotic world of chemistry and biochemistry and to get me my first job before I had even graduated. However, logic will take you as far as your senses can reach. In order to go beyond that you have to add imagination, and once you have imagination combined with logic, you stop being a scientist and you start thinking more like an artist.

Prof. Galanopoulou was my biochemistry supervisor and a professor at the University of Athens. She was a great storyteller, but, most of all, she would persuade you to doubt everything. You had to discover even the simplest of things by yourself. She would use analogies and examples that everybody would understand and her classes were the only ones in my whole academic course that I never wanted to end.

I now teach biochemistry to high school students myself and it is marvelous to see what Mrs Galanopoulou saw back then; students that are not talking, not moving their eyes and sometimes even forgetting to breathe for a while, waiting for the story to come to an end. Even if the story includes liver enzymes being attacked by paracetamol molecules.

**Evan (my son)**: Well, he didn't really help me write this book. In fact, when I started writing it he could not even speak but he was the very first reason I decided to write it. Anyway, I wanted to thank him... just because.

# Instead of preface

Human homeostasis is not something that can be described in a textbook. It cannot even be defined properly because parts of its definition are still not known. It is the sum of all the trial-and-error procedures happening in the human ecosystem, and all the ecosystems before humans, that led to the concept of human life. So, trying to heal a disordered homeostasis by giving a supplement or a drug is not an option, or at least not a viable one. Supplements and drugs are tools. Tools that work only when used properly and timely. The very first prerequisite for healing and curing a diseased state is the adherence to our evolutionary standards and respect to all the components that make us what we are; a multi-system symbiotic multi-cellular machinery with the highest degree of sophistication known so far.

Theodore Prevedoros

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## SECTION B

# Section A

*The whole difference between construction and creation is exactly this: that a thing constructed can only be loved after it is constructed; but a thing created is loved before it exists.*

Charles Dickens

# Introduction

## 1.1 Gastrointestinal biochemistry: How it came to be

*or From advanced biochemistry to 4,500 medical histories*

Working in the medical sector was never my intention; as a biochemist I was always fascinated by science at a different level, **the molecular one.** Back in 2006, I was a scientific advisor in a center for advanced diagnostics in Athens. Luckily for me, this start-up company was very interested in bringing new knowledge to doctors and trying to incorporate these new tests in their daily practice. I was in charge of locating every new non-imaging laboratory biomarker in the market. For this reason, every time a new test was commercially available, I would be educated on its usefulness and then try to enlighten other practitioners. This was not an easy job since most doctors are quite reserved when it comes to innovation in their field, especially if this new knowledge does not stem from a pharmaceutical company representative.

During the first two years I managed to draw the attention of only 9 doctors. Mostly gastroenterologists and pediatricians, these MDs eventually incorporated several new biochemical tests into their daily practice. However, even this small sample of doctors was enough to shift my career from a biochemistry freak to a scientific advisor for several of the greatest medical centers in Greece.

To be exact, it was just one gastroenterologist who changed everything. This one doctor (who I was kindly asked not to name) is the head gastroenterologist in the biggest private hospital in Athens, accepting over 600 new patients per year. Due to our frequent engagement, our common interest in

improving the diagnostic resolution of each patient individually and our personalized disease approach, it did not take long before he asked me to help him take an extensive medical history for some of his patients. Later, I would give him a full report, along with my diagnostic suggestions, depending on the patient's history. The diagnostic center I was working for agreed to let me spend one weekday in the gastroenterologist's office and so the journey began.

In the beginning, it was just three or four patients per week, however, even then, just taking notes of symptoms was not enough. I always delved deeper into their medical, pharmaceutical, nutritional, lifestyle and family history, ending up with over 10 pages of notes. The report I prepared for the MD was extremely analytical. It was not just note taking that made the difference, though; every single one of the patients I took histories from were delighted by our conversation and were talking to the doctor and their friends and relatives about their consultation. Not only did this please the MD, but he started receiving recommendations from other doctors with whom he had no relationship with.

Gradually more doctors asked me to consult with them on difficult cases they had and, within 9 months from when I spoke to the first patient, scientific consulting became my primary job; and it still is. I have consulted with over 35 doctors on over 4,500 patients, mostly belonging to the fields of gastroenterology, pediatrics (autism and functional childhood disorders), autoimmunity, and several rare infectious cases. The basic principles that helped me reach this point, and also helped so many patients and their doctors to make the right diagnostic decisions are twofold: **Biochemical data mining** (embedment of biochemistry in mainstream medi-

cal practice) and **storytelling** (bridging the communication gap between the doctor and the patient).

## 1.2 Biochemical data mining: Fishing for enzymes in a sea of molecules

*or How biochemistry can expand diagnostic accuracy*

There are about 23,000 genes imprinted in our DNA, which ultimately get translated into proteins [1]. Their translation will take place at different times and under specific conditions or requirements. From being a bit of information imprinted inside the double helix of DNA, to performing meat protein degradation inside the stomach, these molecules undergo many different steps, requiring different enzymes and co-factors and different conditions. All these processes are tightly supervised by several homeostatic and regulatory mechanisms which ensure that the end product will have the structure that its corresponding gene dictated. While these mechanisms are extremely accurate and there are additional repair systems in case something goes wrong, each one of the 23,000 molecules may go bad and produce pathology, some more frequently than others. Just this number could explain the vastness of the different biochemical alterations that underlie a diseased state.

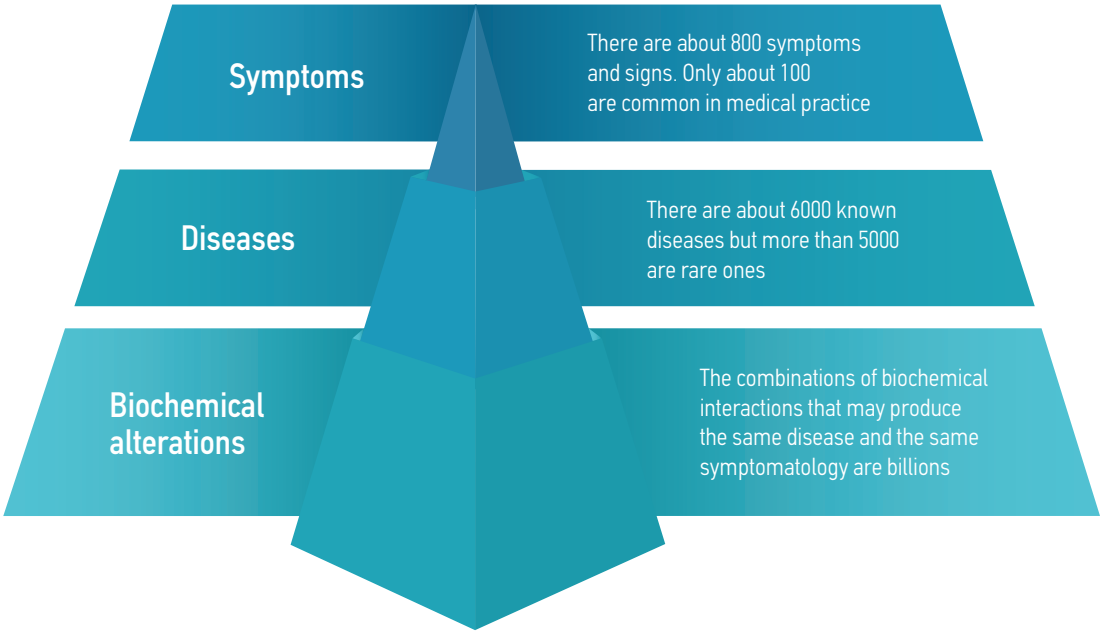
Now add to this all the post-translational modifications these proteins go through and the transcription errors that go unrepaired. What's more, even correctly produced molecules may go bad, influenced by external factors and aging. Moreover, what about coexisting factors? What about toxic substances that enter our body daily? The list of the processes that may produce malfunction at the molecular level is huge. Each one of these malfunctions has the potential to predispose us for

a specific disease. Taking all these into consideration, there are probably billions of different combinations of biochemical predispositions that could lead to disease.

**How can so many different molecular alterations only produce the generally accepted 800 symptoms that exist?**

It is easily understandable that there are plenty of different combinations that may bring the same disease or the same symptom to the surface.

Finite diseases and symptoms but infinite possible biochemical substrates




END OF 1st PREVIEW

# Case Study 2

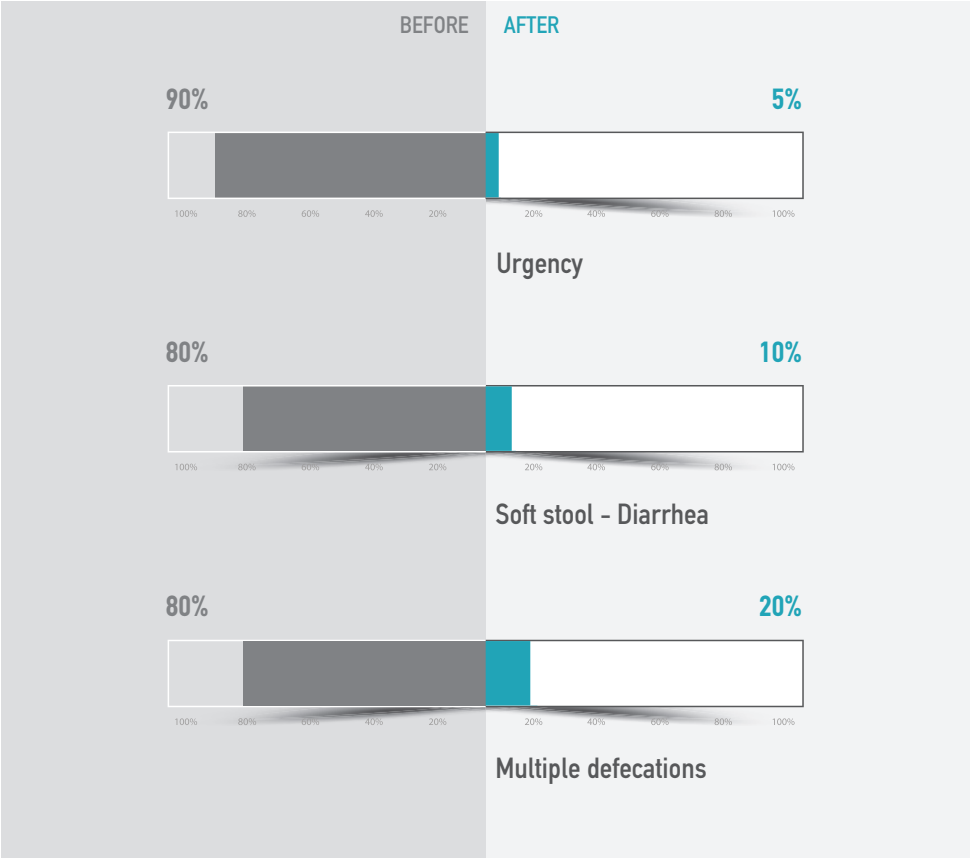
# Post-cholecystectomy syndrome

IBS patients who presented with symptoms after gallbladder removal or their symptoms exaggerated after the surgery
IBS may manifest directly after the removal until 7 years later

## Case Statistics

| | | | |
|---|---|---|---|
| Number of cases: | 339 | Mean age: | None |
| Rate of success: | >95% | Common statistic: | After giving birth or weaning |
| Most common symptom: | Diarrhea | Treatment length: | 2-12 weeks |

## Patient reported symptom score (Before-After)



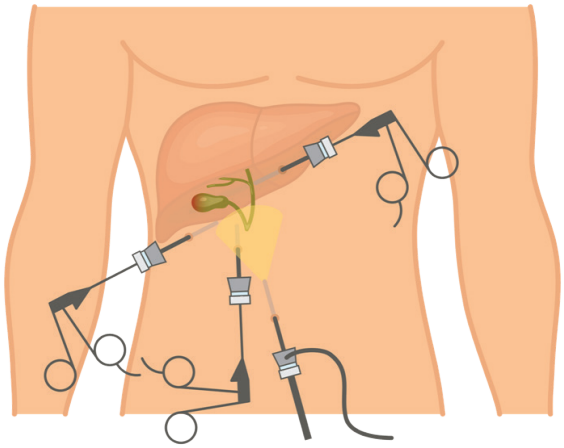
## Case abstract

**Explanation:** This is one of the most common cases. The spectrum of the symptoms is similar when it comes to gallbladder removal. It is the physiological change that takes place inside our GI system and some extra-bowel organs that most of the time gives rise to the classic post-cholecystectomy IBS. It is highly treatable but there are some behavioral and nutritional guidelines that should be followed even after treatment has finished. Do not forget, our gallbladder has evolved over several hundred thousand years, coexisting and communicating with many other organs either directly or indirectly. Inevitably, its removal alters this communication along with many of the digestive processes. Oddly, in several cases, some symptoms existed even before cholecystectomy, usually in a milder form, which means that gallbladder stones were not the problem in the first place.

**Similar cases:** Almost all IBS cases that exacerbate after gallbladder removal present with several episodes of diarrhea. Depending on the microflora status of the patient, there could be alternations between diarrhea and constipation. Some secondary bile acid metabolites (e.g deoxycholate) may bind to specific receptors and promote constipation. This is discussed in another case study, but it is just the other side of the same coin. In addition, post-cholecystectomy patients often report stomach burning sensation and bad odor after waking up. Again, bile may flow upwards to their stomach as they sleep and promote alkaline gastritis, which is a common finding in upper GI endoscopies.

**Treatment implementation:** Usually, patients respond very well to the treatment and they overall feel better. They may have 1 or 2 exacerbations during treatment but usually these resolve quickly. During treatment and follow up they have to be constantly reminded that there is no magic pill which will restore their physiology. They will still be missing their gallbladder, so they have to adjust their lifestyle to the new requirements of their GI system. The patients that realize this parameter usually have a very good outcome and stay asymptomatic for a very long time.

# Case Introduction



Normally, bile is secreted inside our gut in order to emulsify and help the absorption of fats after a meal, finally reaching the last part of the small intestine, the terminal ileum. There, under normal conditions, bile will be reabsorbed and circulated back to the liver. This recirculation ensures that our liver will not produce new molecules of bile, since it is a very expensive metabolic substance. Only minor quantities of bile will pass to the large intestine and only traces will leave the body with stool. When this process is regulated, most of the bacteria in our colon do not come into contact with bile. They continue to thrive by fermenting fiber and other useful molecules that our stool is full of.

What happens when this process is disrupted? There are several reasons why bile can bypass the ileum and reach the colon. As bile moves through our colon it forces it to secrete water and mucus in order to get rid of the extra alkalinity.

The more bile in our colon the softer our stool become. This happens because bile is a foreign substance for the colonic environment, and the only defense our colon possesses is diarrhea. This is true for other non-friendly substances besides bile. Additionally, bile is toxic to our flora, since it destroys several friendly colonies and makes the environment favorable for other microbes to colonize. When this destruction becomes extended, days or even years after gallbladder removal, bloating and gas start to appear due to the inappropriate fermentation of starch and fiber.

## Meeting with Athina

Athina was a 46 years old mother of 2 boys and visited my office in June 2016. She was a lawyer and she reported an urge to visit the toilet that was difficult to reconcile with her professional life. From her history I found out that two close relatives had removed their gallbladder around the same age as she did. When there are more than two first degree relatives that have removed their gallbladder, one should take into consideration conditions that make more bilirubin or that make their gallbladder form stones more easily.

When I started talking with Athina I could see how frustrated she was. She had already done every endoscopic test that exists and had already tried several drugs, mostly spasmolytics. Of course nothing worked, since the problem was not the bowel moving too fast, but rather the substances that flowed into her large bowel and made it want to get rid of them.

For example, if bile (an alkaline substance) enters your colon (acidic environment), the bowel cannot tolerate it. So it starts

excreting water from its wall in order to get rid of it, thus giving rise to diarrhea. This may happen several times within a day as the bile keeps flowing down.

She had already removed most vegetables from her diet. She told me that she would get bloated about an hour after consuming broccoli, brussels sprouts, cabbage, even cucumber sometimes. Her diet consisted mostly of chicken, beef and pasta, though these sometimes gave her bloating too. Usually she would go to the toilet 2 to 5 times but only at the first time could she notice a formed stool. All the other times her feces were very soft and after the 4th time they would be diarrhea. She also complained about sweating and irregular heart beating before and after she passed her stool. This is called vagotonia and is a nervous system activation due to false signals from the stomach and the gut.

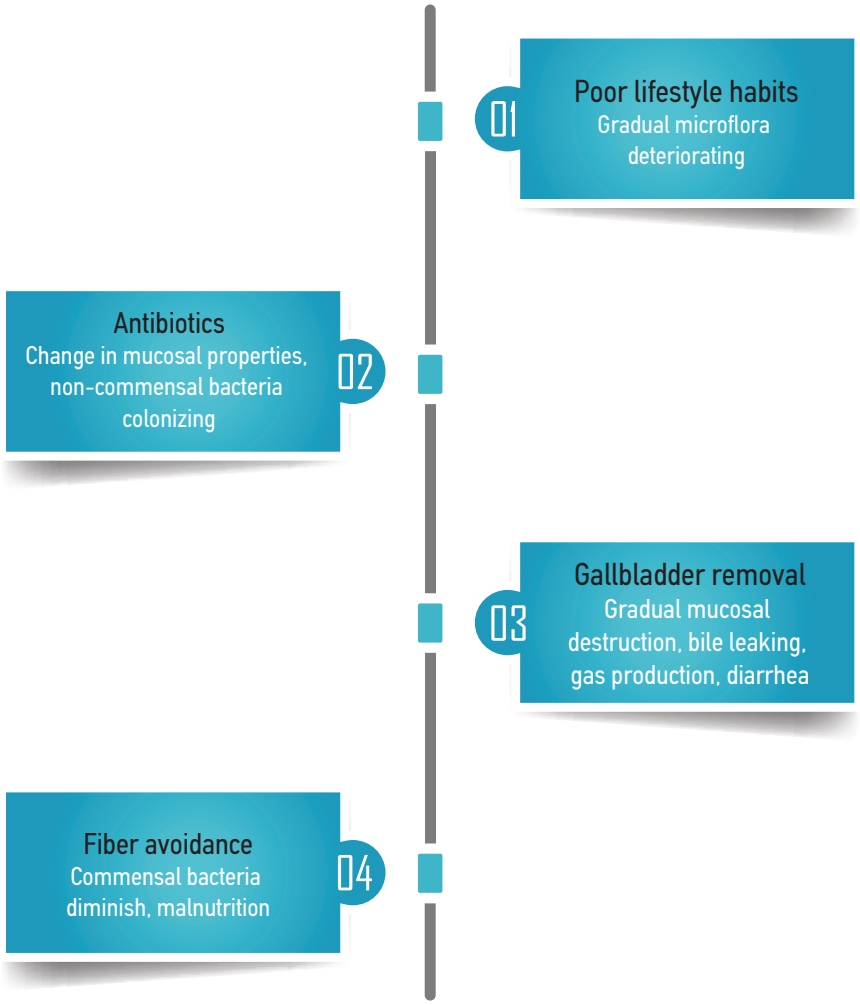
Her colonoscopy was fairly recent and showed nothing but a polyp, whose significance was very low. Her gastroscopy revealed a small quantity of a green liquid at the lower part of her stomach (bile). Her anus was reddish probably due to the multiple times she was defecating. Her blood tests were indicative of malabsortpion explaining her fatigue.

After we finished discussing her medical history, I told her that she should start incorporating several lifestyle changes immediately in order to diminish her bile flux towards her large bowel and her stomach. First, she should elevate her bed about 10 degrees from her waist in order to stop bile going upwards when she slept. There are wedges sold for this purpose but anyone can build a custom wedge from old sheets and blankets. Also, she should limit for a while the fat content of her meals to 5% of total calories. At any given time,

the bile available to emulsify fat inside her duodenum will not be sufficient to absorb the fat, which later will pass into the large bowel giving rise to steatorrhea (fat diarrhea). Also, very importantly, she was advised to stop drinking water, or other beverages, during and 45 minutes after her main meals.

## Trigger- effect timeline

Post-cholecystectomy syndrome




END OF 2nd PREVIEW

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