

MANAGING DIE-OFF SYMPTOMS.

*How to manage detox side-effects and
symptoms on an eradication protocol*



THE FUNCTIONAL
Gut Health Clinic
BY BELLA LINDEMANN

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Author: Bella Lindemann, FDN-P

Bella is the founder of The Functional Gut Health Clinic and a Functional Diagnostic Nutrition® Practitioner. Having suffered from constipation and IBS for almost three decades, Bella now specializes in cases of chronic constipation, SIBO and other digestive complaints.

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Part 1.

Introduction to die-off

*An overview of what die-off is and some of the
common causes we see in clinical practice*



What is 'die-off'?

noun: an increase in symptoms of a pathogen or parasite infection occurring in some persons after starting a protocol.

The die-off process is broken down into three distinct phases:

1. Cell death
2. Immune response
3. Detoxification

1. Cell Death

As we address pathogens like parasites, bacteria and yeast, they begin to die. This 'cell death' starts a cascade of reactions in the body that often end in new or increased symptoms. The two phases of cell death are:

Phase 1 – Biofilm breakdown

As we break down the matrix-like homes pathogens live in, it can release the individual pathogens out into the GI tract

Phase – Release of glycoconjugates

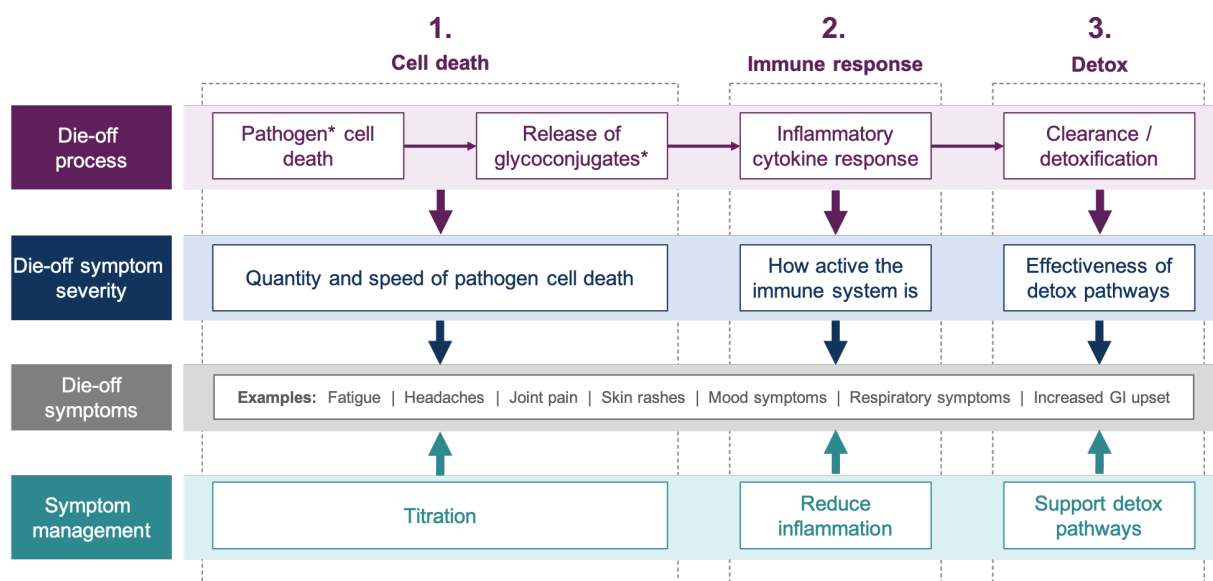
When pathogens' cell membranes start to breakdown, glycoconjugates (e.g. endotoxins) will be released, triggering an inflammatory response.

2. Immune Response

As toxins are released, our immune system starts working overtime to kill and clear these toxins from the body. While inflammation is a natural response of the immune system and needed to overcome infection, it can, in the short term, lead to symptoms like aches and pains, skin rashes, headaches, etc., which we often describe as die-off.

3. Detox

All of the broken down biofilm and released toxins need to go somewhere. This is not necessarily a problem in those with well-functioning detox pathways. Unfortunately, for many of those suffering from years of chronic digestive symptoms, these detox pathways can become blocked or sluggish. This means the body struggles to eliminate these toxins and allows them to recirculate in the body, increasing the severity and duration of die-off symptoms.



Common causes of die-off

What causes sudden cell-death and the onset or increase in symptoms that we call 'die-off'?

If die-off symptoms are the result of cell death, the release of toxins, inflammation and the body's inability to clear these toxins, then the next question is: what causes such changes to occur? The three most common causes of die-off symptoms we see are:

1. Starting an elimination diet.

Switching to a real-food based diet that eliminates processed foods, sugar and other ingredients that indirectly feed pathogens will often cause the bad bugs to starve as we cut off part of their food supply. This effect is enhanced on certain IBS elimination diets like low-FODMAP, Paleo AIP and SIBO Bi-Phasic which are more extreme in the removal of foods that feed pathogens (e.g. sugar and other carbs).

2. Introduction or increase of probiotics.

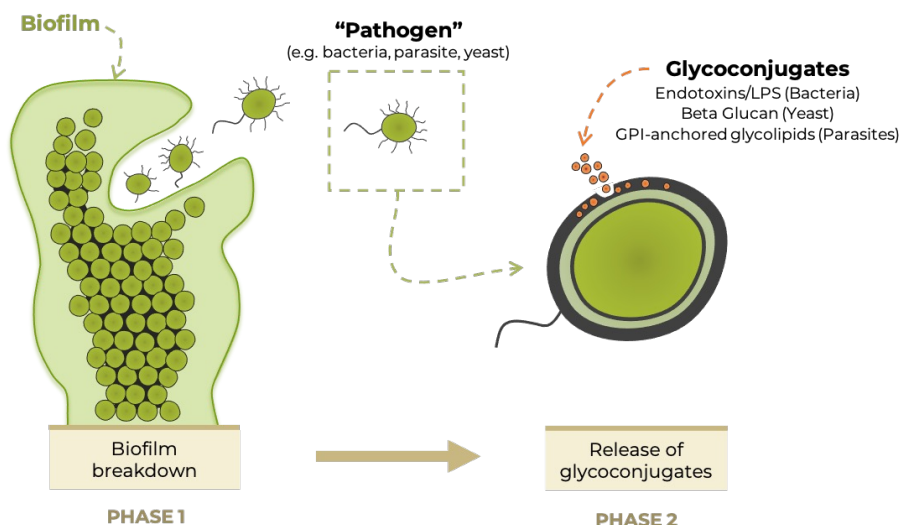
Starting a probiotic protocol can effectively kill pathogens by overpowering them with the presence of 'good guys' as they move through your GI tract.

3. Starting a protocol of antimicrobial, anti-fungal or anti-parasitic supplements.

This is the most common and effective way to kill pathogens quickly and typically results in the most die-off symptoms.

Many people introduce more than one of the above strategies at the same time, which can increase the severity of die-off symptoms.

Pathogen cell death & 'toxin' release





Common die-off symptoms

Often more intense than pathogen infections themselves as toxins are released in larger amounts in a shorter space of time during a protocol.

> Fatigue

Healing can be hard work, especially if your body is trying to fight a heavy load of pathogenic infections or parasites.

> Headaches

Detox and headaches often go hand in hand for many clients, particularly with the removal of certain inflammatory foods like caffeine and sugar from their diet.

> Body aches and pains

Inflammatory response of the immune system to the release of toxins that if overactive, can create these symptoms of muscle soreness and aching joints.

> Skin rashes or reactions

The body may try and eliminate excess toxins via the skin if the other systems of the body are overworked, which can lead to worsening of rashes, eczema, skin breakouts, etc.

> Mood symptoms (e.g. anxiety and depression)

Given the strong gut-brain connection, mood symptoms such as anxiety and depression can often flare during pathogen eradication.

> Respiratory phlegm or stuffy nose

The body uses mucus and phlegm to capture and eliminate toxins. For this reason runny or stuffy noses are common during the die-off phase.

> Increased GI upset

Increases in the severity of GI symptoms like diarrhea or constipation, bloating, gas and abdominal pain are often reported as pathogens die and excrete toxins into the gut.

> Flu-like symptoms (e.g. fever and chills)

Flu-like symptoms are the original Herx reaction observed in the treatment of spirochetal infections (e.g. syphilis and Lyme disease) using conventional antibiotics.



Part 2.

Symptom management

*Ways to prevent and minimize die-off
symptoms naturally.*



Symptom severity

Effectively managing die-off symptoms requires an understanding of the various mechanisms causing them.

The three variables that impact die-off symptom severity are:

1. Quantity and speed of pathogen cell death

This will determine the size of the 'toxic burden' your body has to manage. The faster you eradicate pathogens, the more die-off symptoms you may experience.

2. How active your immune system is

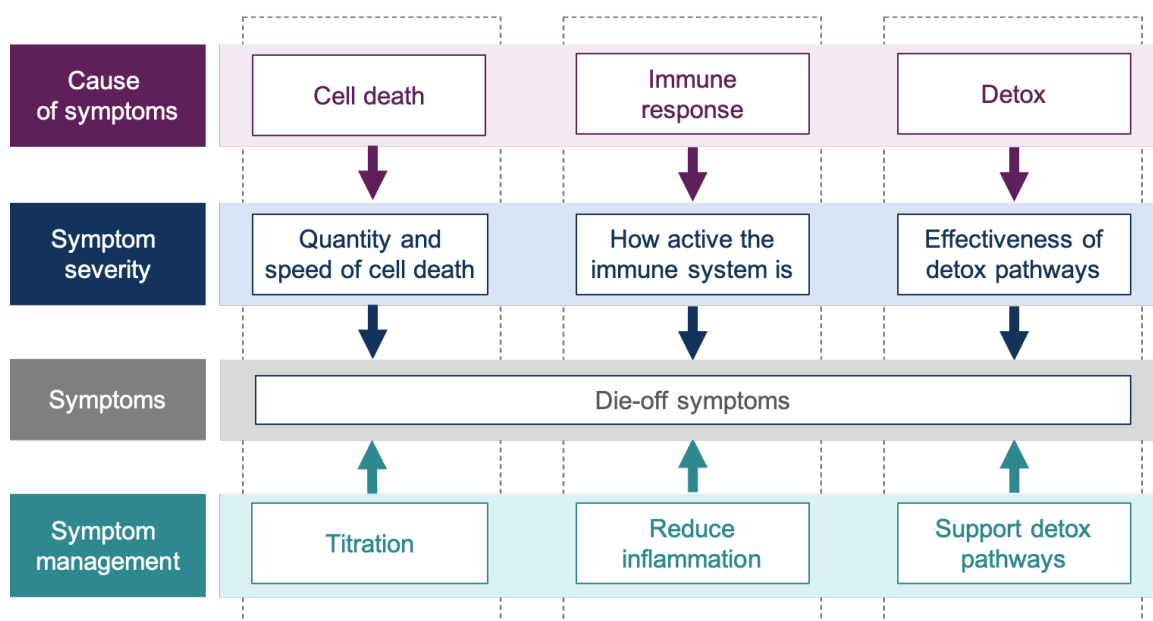
And therefore the amount of inflammation your body creates. The more active or sensitive your immune system is, the more die-off symptoms you may experience. Where the immune system is 'tanked out' and not functioning properly, it may not be able to mount much of a response and therefore die-off symptoms may be less noticeable.

3. Effectiveness of detox pathways

How effective your detox pathways are at clearing toxins from your body. Where you have sluggish clearance, the toxins will likely build up and increase die-off symptoms.

With this in mind, our approach to minimizing die-off symptoms has three corresponding elements which we will discuss in more detail on the following pages:

- 1. Titration** - layered introduction of diet and supplements.
- 2. Reduce inflammation** - helping calm the body's immune response.
- 3. Support detox pathways** - assisting the body with clearing toxins through detox organs.





1. Titration

The gradual introduction of specific diet and supplement recommendations.

The faster and more intense an intervention, the bigger the release of toxins from dying pathogens will be in a short space of time. To prevent or minimize the amount of die-off symptoms that our clients have to cope with, we use natural antimicrobials (rather than conventional antibiotics) and the following titration strategies for diet and supplements:

1. Diet introduction

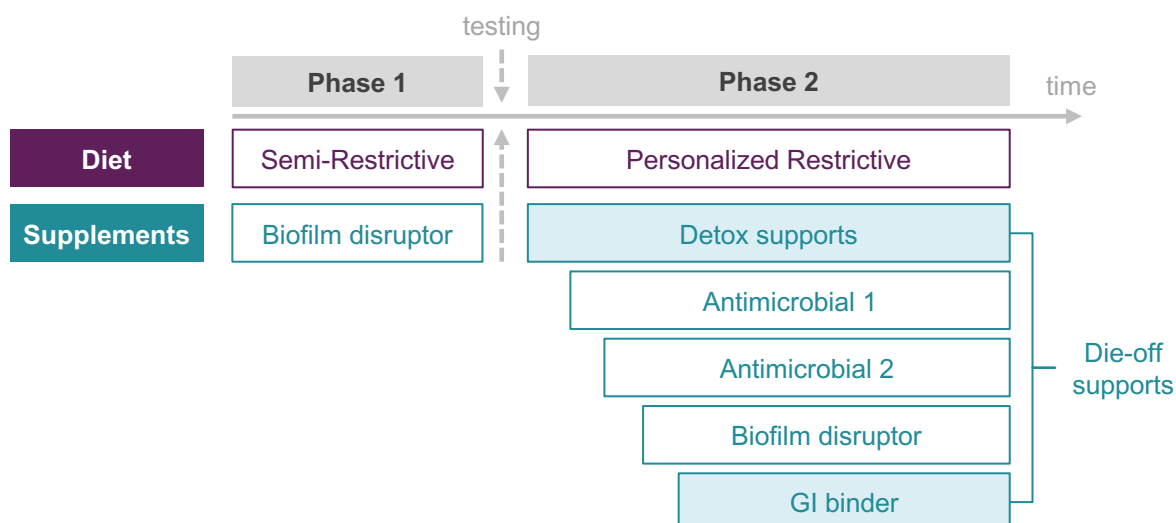
We like to start clients on an introduction gut-healing diet after our initial consultation and before we receive test results back. This is best described as a 'semi-restrictive' diet and typically gives us around a month for any negative symptoms from diet changes to settle down. Depending on what is identified on testing, we then often create a personalized short-term restricted diet during the eradication phase of a protocol.

2. Supplement titration

Before testing, we introduce a biofilm disrupting agent to breakdown the protective matrix built by pathogens to improve detection on testing. This is normally a two week process.

Depending on what is identified on testing, we then introduce:

- **Detox support products** to help prepare our detox pathways for eliminating toxins.
- **Antimicrobials** one product and capsule at a time to build up slowly to full dose before moving onto the next. This means there is a slow build-up to the pathogen eradication process, reducing the quantity and speed of cell death your body has to manage.
- **Biofilm disruptor** to boost the effectiveness of antimicrobials once they have been fully titrated in.
- **GI binders** to bind up toxins like a magnet and carry them all the way through the digestive tract to be eliminated via the stool.





1. Titration

How to translate a protocol into a titration schedule, gradually introducing each supplement to reduce die-off symptoms.

When beginning a new protocol, we recommend adding in one supplement at a time, rather than starting them all at once, as a strategy for minimizing die-off symptoms. Slow titration begins with only one supplement, starting with one capsule on the first day and increasing by one capsule per day until you have reached the full dose. Once the first supplement has been added you can move onto the next, as shown below:

Example schedule

#	Product	AM	Noon	PM	Duration
1.	Supplement A	2		2	Maintain for 15 days
2.	Supplement B	1	1	1	Maintain for 30 days
3.	Supplement C	2		2	Maintain for 30 days



Example titration schedule

Day	Product	Number of capsules			
		AM	Noon	PM	
1	Supplement A	1			
2		1		1	
3		2		1	
4		2		2	Maintain for 15 days
5	Supplement B	1			
6		1		1	
7		1	1	1	Maintain for 30 days
8	Supplement C	1			
9		1		1	
10		2		1	
11		2		2	Maintain for 30 days



2. Reduce inflammation

Die-off symptoms like fatigue as well as body aches and pains are common amongst those with high levels of inflammation.

If you have a very active (or overactive) immune system, you can experience quite a lot of inflammation-related die-off symptoms. Symptoms like fatigue as well as body aches and pains are common amongst those with high levels of inflammation. There are two main ways we can support the body with managing inflammation:

1. Rest and reducing stressors

Giving your body the space to fight and heal from pathogenic infections is an important part of managing inflammation.

> **Rest** – This means prioritizing plenty of good quality sleep, especially between the hours of 10pm and 2am, as this is when the majority of physical repair happens in the body.

> **Reduce stressors** – It also means avoiding activities that will add additional stress to your body - like intense or excessive exercise. It can be challenging for your body to overcome inflammation if you are constantly adding more sources to the pile.

2. Anti-inflammatory foods and supplements

Giving your body a natural anti-inflammatory boost can assist with reducing the severity of inflammation-related die-off symptoms. Our go-to anti-inflammatory supports include:

> **Omega-3's** - from good quality fish oil supplements or food based sources such as flaxseed, chia seeds, walnuts and oily fish.

> **Anti-inflammatory spices** - adding turmeric, ginger and cinnamon to your food or having them in tea is an easy option.

> **Antioxidants** from green leafy vegetables and dark colored berries.

> **Additional supplements** like glutathione, quercetin and vitamin C can also help when needed.

3. Support detox pathways

Detox Support

The liver is the primary organ we focus on to remove bacteria and their lipopolysaccharide (LPS) from the bloodstream. The same applies for other glycoconjugates from parasites and yeast. It is this removal function that helps to reduce die-off symptoms.

Our goal is to support both phase 1 and phase 2 liver detoxification pathways, typically using supplements that are a blend of naturals like N-Acetyl-Cysteine (NAC), St Mary's Thistle, Dandelion and many more. We are also able to use markers on lab testing to assess phase 2 liver detoxification to know whether additional support in this area will be required during your protocol.

We commonly recommend either one or the other of the following products to clients to help with supporting liver function and detoxification:

Brand	Product Name	Manufacturer directions & titration
CellCore Biosciences	KL Support	Take 2 capsules twice daily or as otherwise directed by your healthcare practitioner. Please consult your healthcare practitioner before use if you are pregnant, breastfeeding, or considering use for a child. Titrate: Titrate this product in over 4 days (or slower), beginning with 1 capsule once daily on the first day.
CellCore Website (15% off RRP)	https://cellcore.com/products/kl-support Patient Direct Code: IVrSZkKn	
Pure Encapsulations	Liver-G.I. Detox	Take 2 capsules daily, with a meal. If you are pregnant or lactating, have any health condition or are taking any medication, consult your health professional before use. Titrate: Titrate this product in over 2 days (or slower), beginning with 1 capsule once daily on the first day.
Fullscript Portal (20% off RRP)	https://us.fullscript.com/welcome/blindemann/	

Note: It is not recommended to take both products unless recommended by your health practitioner.



3. Support detox pathways

GI Binders

GI binders can be used to bind up toxins like a magnet and carry them all the way through the digestive tract to be eliminated via the stool. By cleaning up these excess toxins, it prevents them from being absorbed (or reabsorbed) into the bloodstream and causing inflammation and further die-off symptoms.

There are a few binders that we have found work well to minimize die-off symptoms:

- 1. Activated charcoal** – broad spectrum binder. It binds to microbes as well as minerals, vitamins and nutrients so is best used on a short-term basis and taken well away from other foods, medications and supplements.
- 2. Zeolite clay** – more selective (less broad-spectrum) than charcoal. As a more gentle form of binder, it can be taken for weeks rather than days.
- 3. Blends** – The two blends below are our go-to options for clients on protocols and both have worked extremely well at minimizing die-off symptoms.

Brand	Product Name	Manufacturer directions & titration
CellCore Biosciences	BioToxin Binder	Take 2 capsules twice daily or as otherwise directed by a healthcare practitioner. For most potent dosage, take an hour away from food. Please consult your healthcare practitioner before use if you are pregnant, breastfeeding, or considering use for a child. Titrate: Titrate this product in over 4 days (or slower), beginning with 1 capsule once daily on the first day.
CellCore Website (15% off RRP)		https://cellcore.com/products/biotoxin-binder Patient Direct Code: IVrSZkKn
BioBotanical Research	GI Detox +	Take 2 capsules once daily on an empty stomach with a full glass of water or as directed. Take minimum 1 hour apart from other medications and supplements. Do not use during pregnancy. Consult your physician before using any supplement, especially if you are nursing, have a medical condition, or are taking medication. Titrate: Titrate this product in over 2 days (or slower), beginning with 1 capsule once daily on the first day.
Fullscript Portal (20% off RRP):		https://us.fullscript.com/welcome/blindemann/

Note: It is not recommended to take both products unless recommended by your health practitioner.



Part 3.

Next steps

For those that need more support.



Fullscript Dispensary

Access the supplements in this E-guide from our online Fullscript Dispensary at up to 20% OFF RRP

LINK:

<https://us.fullscript.com/protocols/blindemann-die-off-supports>

Note: You will need to sign-up and create a Fullscript account to access these products at up to 20% OFF RRP from our online dispensary. Here is a preview (from the saved Protocols section of our Fullscript Dispensary) of the 'Die-Off Supports'.



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Bella Lindemann
Die-Off Supports

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Here are our 3 main die-off supplement support recommendations.

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Rosita Extra Virgin Cod Liver Oil Softgels

Rosita Real Foods

90 Softgels

🕒 3 gels once per day
With a meal.



Liver-G.I. Detox*

Pure Encapsulations

120 capsules

🕒 2 capsules once per day
With a meal.



G.I. Detox™ +

Biocidin Botanicals

60 capsules

🕒 1-2 capsule three times per day
⌚ **Until symptoms resolve**
Between meals. 1-2 hours apart from other supplements/medications.
Acute symptom flare: 1-2 capsules 3x daily.
Maintenance: 1-2 capsules daily.
Maximum protocol length: 3 months.



Work with our team

Digestive experts who understand the theory, clinical practice and practicalities of the gut healing journey.

If you're currently experiencing die-off symptoms or not getting the results you'd like and are looking to work with a team of digestive health experts, we're here to help.

We are a team of functional nutrition experts who are passionate about helping people like you identify the root cause of your digestive symptoms and use natural therapies to remove imbalances and take back control of your digestive health.

We have been right where you are as clients ourselves; doing the testing, changing foods, shifting exercise, prioritizing rest, and introducing supplements. Through our own personal experience and those of our clients, we know that there isn't a one size fits all approach that will work for everyone.

Beyond the free and paid resources we've created, we also work with clients one-on-one in our online clinic. With a team of practitioners specializing in IBS, SIBO and other digestive conditions, we are able to support clients from the USA, Canada, UK, Australia and New Zealand to dig a little deeper into the root cause of their symptoms. In the last five years alone, we've helped over six hundred clients take back control of their gut and their life. It's our life's passion and we'd be honored to help you on your gut-healing journey.

If you'd like to learn more about working with our team, please head to the 'Work With Us' page of the website for more information: <https://bellalindemann.com/workwithus>



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