



# Understanding Toxins That Affect Gut Health and Inflammation

Your gut health plays a key role in your overall well-being. Certain toxins and compounds can disrupt gut function, trigger inflammation, and contribute to health issues. Below is a guide to some of the most common toxins and how they affect your gut and body.

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## Lipopolysaccharides (LPS)

- **What Are They?**
    - LPS are molecules found in the outer membrane of **gram-negative bacteria** (a type of bacteria).
    - They act as **endotoxins**, meaning they can trigger a strong immune response.
  - **How They Affect Gut Health:**
    - When the gut lining is compromised (**leaky gut**), LPS can enter the bloodstream and cause systemic inflammation.
    - They overstimulate the immune system, which can lead to chronic inflammation and contribute to conditions like autoimmune diseases, obesity, and metabolic syndrome.
  - **Common Sources:**
    - Gut bacteria imbalance (dysbiosis), especially overgrowth of gram-negative bacteria such as *E. coli* or *Salmonella*.
    - Poor diet (high-fat, low-fiber diets can promote LPS absorption).
    - Chronic infections or digestive disorders.
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## Peptidoglycans

- **What Are They?**
  - Peptidoglycans are structural molecules in the cell walls of **gram-positive bacteria**.
- **How They Affect Gut Health:**

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- Peptidoglycans can trigger an immune response, but their inflammatory potential is less than LPS.
  - Overgrowth of gram-positive bacteria can lead to their release and disrupt gut balance, contributing to inflammation and digestive discomfort.
  - **Common Sources:**
    - Overgrowth of gram-positive bacteria like *Staphylococcus aureus* or *Streptococcus pyogenes*.
    - Poor gut health, leading to bacterial overgrowth or infections.
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## Endotoxins

- **What Are They?**
    - Endotoxins are toxins released by bacteria, with LPS being the most well-known example.
    - These are released when bacteria die or multiply.
  - **How They Affect Gut Health:**
    - Endotoxins directly damage the gut lining and promote inflammation.
    - They contribute to gut barrier dysfunction, increasing the risk of "leaky gut."
  - **Common Sources:**
    - Bacterial overgrowth in the gut.
    - Infections caused by gram-negative bacteria.
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## Organophosphates

- **What Are They?**
  - Organophosphates are chemicals found in pesticides and herbicides.
  - They can accumulate in the body and disrupt cellular processes.
- **How They Affect Gut Health:**
  - Organophosphates harm beneficial gut bacteria, leading to dysbiosis.



- They can promote oxidative stress and inflammation in the gut lining.
  - **Common Sources:**
    - Conventionally grown fruits and vegetables (residues from pesticides).
    - Non-organic grains and processed foods.
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## Oxalates

- **What Are They?**
    - Oxalates are natural compounds found in many plant-based foods.
    - They can bind with minerals like calcium and form crystals, leading to kidney stones or joint pain.
  - **How They Affect Gut Health:**
    - Excess oxalates can irritate the gut lining and contribute to inflammation.
    - Imbalanced gut bacteria can reduce the body's ability to break down oxalates, worsening their effects.
  - **Common Sources:**
    - Spinach, rhubarb, beets, almonds, and other high-oxalate foods.
    - Poor gut health or lack of beneficial bacteria that break down oxalates (like *Oxalobacter formigenes*).
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## How to Protect Your Gut

1. **Strengthen Your Gut Lining:**
  - Eat a diet rich in whole foods, fiber, and healthy fats.
  - Include gut-healing foods like bone broth, fermented foods, and aloe vera.
2. **Reduce Exposure to Toxins:**
  - Choose organic produce to minimize pesticide exposure.
  - Filter drinking water to remove potential chemical residues.
3. **Support Detoxification:**

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- Use binders (like **G.I. Detox™+**) to help remove toxins during detox protocols.
  - Drink plenty of water to support your body's natural elimination pathways.
4. **Balance Your Gut Microbiome:**
- Take a high-quality probiotic to support beneficial bacteria.
  - Avoid antibiotics unless absolutely necessary, as they disrupt the gut microbiome.
5. **Minimize High-Oxalate Foods:**
- Limit foods rich in oxalates if you are prone to kidney stones or inflammation.
  - Pair high-oxalate foods with calcium-rich foods to reduce absorption.