

A microscopic view of numerous red blood cells, appearing as bright red, biconcave discs, scattered across the frame. The cells are in various stages of focus, with some in sharp foreground and others blurred in the background, creating a sense of depth. The overall color palette is a rich, monochromatic red.

# **Pyrrole Disorder** *for Therapists*

Caryn Talty  
Matthew Dahlitz

**Recognizing Symptoms**  
**Dealing with Comorbid Diagnoses**  
**Tips for Using Therapy Strategies**  
**Biochemical Treatments**

**M**oody. That's the word loved ones, friends, and co-workers usually use to describe the person in their life suffering from untreated pyrrole disorder. Everyone walks on eggshells whenever this person is around. No one ever knows what's going to set them off. Like a time bomb ticking away, stress continually builds inside the pyroluric's body until a full-blown eruption occurs. Then the damage is done. Bridges are burned, feelings hurt, and grudges formed. It's not uncommon to see patterns of relationship issues with pyroluric patients, both adult and adolescent.

Often, the person with untreated pyrrole disorder arrives at your clinic with obvious coping issues. Although they can also suffer from debilitating depression, they don't always present with obvious symptoms. What they do all have in common is an inability to handle stress without "blowing a gasket". There is an inner tension that these clients attempt to tame, often quite unsuccessfully. Without warning there can be fluctuations in mood and behaviour. The sufferer may blame others, be quick to argue, and deny charges laid against them by family members.

A sudden move, a change of jobs, the death of loved one, or divorce in the family can create elevated stress levels which worsen the biochemical imbalance caused by pyrrole disorder. This is true for both diagnosed and undiagnosed sufferers. This is why it is important for therapists to recognise the possible symptoms of pyrrole disorder in the clients that they see. It's also important when dealing with those currently being treated for pyrrole disorder. But often, therapists are the first line of defence for clients with pyroluria. When you recognise the signs and symptoms of this biochemical imbalance, you can help initiate a quicker resolution in your clients.

### **What is pyrrole disorder?**

Pyroluria, or pyrrole disorder, is a condition caused by stress that depletes the body of certain vitamins and minerals before they are able to be absorbed.

In short, there are three main nutrients that are not properly absorbed in the pyroluric sufferer:

- vitamin B6
- magnesium
- zinc.

This trifecta of deficiencies can cause a debilitating combination of symptoms that will vary from person to person. Most naturopaths will tell their patients that a good B complex is necessary to promote positive mood, and that magnesium is a wonderful mineral to promote a sense of calm. B6 in particular is necessary for the creation of red blood cells. It increases energy levels and proper cognitive function. A deficiency of B6 will often cause inflammation, depression, and sometimes anaemia. Magnesium is often used as a muscle relaxant for athletes, and a deficiency can be the cause of painful neck aches, sleeplessness, constipation issues, and even nervous twitching. Zinc, on the other hand, is vital for concentration, memory, and good digestion, and when lacking, can lead to anorexia, leaky gut syndrome and digestive disease.

One person in treatment for pyroluria recently described in an interview his symptoms during a flare-up. He said he often had issues with concentration and a decreased energy level when dealing with stressful situations at work or at home. He often developed insomnia and had very restless sleep patterns. The lack of sleep exacer-





bated his condition, making it harder to concentrate and focus on what needed to be done. "Procrastination is a coping mechanism sometimes," he joked. "Of course it only makes things worse. Before diagnosis, I found it harder to deal with everyday problems without feeling anger and resentment toward the people that were dependent on me to do things. After treatment I've noticed a mighty overall change in my mood. Now when my stress levels rise and I start to feel that tension build, I know it's time for a temporary increase in my dose."

### The client with pyroluria

The presence of pyroluria in our clients can have a profound effect on their mental and physical well-being due to the deficiency of these vitamins and minerals in their system. The client with undiagnosed

pyroluria might snap at people who pile added demands onto an already excessive stress load. This creates a negative pattern of behaviour and a sense of self-loathing that grows over time. Years of bad choices result in behavioural patterns that can damage the best of long-term relationships in families and especially married couples.

The disorder is still relatively unknown to the general population and under-diagnosed when reporting symptoms to a GP. Dr. Albert Mensah, a specialist trained to diagnose and treat pyrrole disorder and other types of depression, says, "The frequency of pyrrole disorder in the population at large has been grossly underestimated. That's because many times individuals have been diagnosed as being bipolar and even just [having] unipolar depression when in reality they truly do have pyrrole disorder" (Mensah's interview with Healthy Family can be found at <http://healthy-family.org/pyrrole-disorder-podcast/>).

As well as learning to identify the typical symptoms in a new client, it is important to recognise how pyroluria affects marital and parent/child relationships in the longer term. Therapy should include coping strategies for both pyroluric clients and family members living with them. It is also important to recognise the possibility that more than one family member may be affected with pyrrole disorder. The condition is hereditary and tends to run in families at a higher rate than most diseases and conditions. It is also not uncommon for the adult patient suffering from undiagnosed pyrrole disorder to self-medicate with alcohol, which exacerbates the condition.

### When it looks like anxiety: A case in point

I (Matthew) was terrified by the long line ahead of us waiting to go through the screening gate at L.A. International. Loaded with bags, kids in tow, I desperately scanned for signs of a restroom in case my nausea and diarrhoea escalated into an emergency race to the toilet. The tricyclic antidepressant wasn't working, as usual, and I was feeling increasingly trapped in this awkward and uncomfortable social situation. My wife gave me a

knowing look. "Are you OK?" I grimaced. She knew exactly what was going on.

If I recounted a dozen or so similar stories, from my adolescence to middle age, you would probably give me a preliminary diagnosis of general anxiety disorder, maybe agoraphobia or social anxiety disorder. I have been through many tests to see if my nausea, stomach cramps, diarrhoea and fatigue have any organic basis, but no biological cause was ever identified. The best that GPs could come up with was a vague diagnosis of "some sort of chemical imbalance in the brain", to which a tricyclic antidepressant was the best available answer (although I had experimented with beta blockers and Phenergan with similar results). My career as an advanced care paramedic was mentally and physically demanding—rotational shift work; physical, mental and emotional challenges all the time. But my body was letting me down whenever I got too emotionally or physically stressed, mostly with stomach cramps and nausea. I thought I handled stress on a cognitive and emotional level very well—but my body didn't. After a decade of shift work with the ambulance service I threw in the towel. But to my dismay, other less demanding work didn't seem to change the fact that I was continually getting sick.

I had a degree in psychology; I knew the signs and symptoms of anxiety, knew I was developing some anxiety about my body letting me down, especially in public, but I also knew there was a biological cause of my sickness despite the medical profession denying there was anything wrong with my body. I knew when I didn't eat well I was more liable to get sick, and intuitively knew there was something physical going on. I tried some elimination diets and guessed there was probably a milk allergy, but it wasn't the complete answer.

Recently I visited a GP who is also a naturopath to have a complete check-up and find out, once and for all, what allergens might be plaguing me. It was through the ensuing battery of tests that I discovered there were some allergens, including milk, but more importantly, the GP suggested that I be tested for Pyrrole Disorder. The tests came back positive, and suddenly, after reading

the symptoms of pyroluria, for the first time my history of illness made sense.

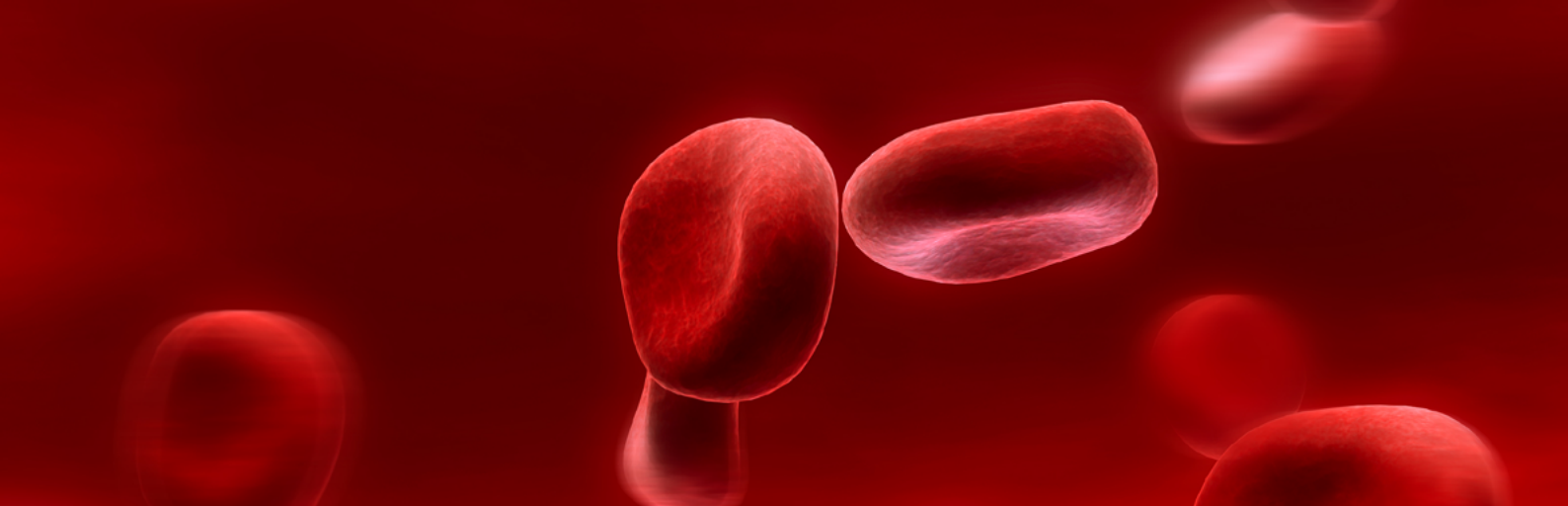
Now, with my system topped up with zinc, magnesium and B6, I am not getting sick like I used to. I probably have some implicit memories of getting sick in the past that could trigger some anxiety, but I also now have a clear cognitive awareness of what is really going on in my body, to overcome such implicit triggers. I am much more conscious of my diet to improve nutrient uptake, and monitor my stress levels and general metabolism to know when to increase nutrient supplements and when I can pull back. I am on a steep learning curve, and my health is a work in progress, but identifying and treating pyroluria has been life changing.

## The history of pyrrole disorder

During the 1950s, Abram Hoffer and a team of Canadian researchers discovered a compound (called "mauve factor" for its chromatographic appearance) in the urine of schizophrenic patients. In the early 1970s, physician and biochemist Carl Pfeiffer and team identified this compound as hydroxyhemopyrrolin-2-one (HPL), referred to as "urinary pyrrole" or simply pyrrole, a haemoglobin metabolite that binds with pyridoxine (vitamin B6) and zinc. Clients who produce excessive amounts of this haemoglobin waste product are deficient in B6 and zinc because these elements are bound up by the HPL, rendering them unavailable for normal functions, and are excreted from the body via the urine.

## Recognising pyrrole disorder

Today, pyroluria is referred to as pyrrole disorder, pyrroluria, mauve factor, hemopyrrolactamuria, or erroneously as kryptopyrrole or kryptopyrroluria (based on an early case of mistaken identity of the HPL molecule). A simple Google search using the term "pyrrole disorder" returns plenty of useful results. The condition has many and varied signs and symptoms, making it impossible to diagnose from history and observation alone. Clients may present with a "pot belly", an inability to remember



dreams, difficulty concentrating, inability to handle stressful situations, and so on (a list of common symptoms is provided toward the end of this article). Therapists should be aware of the common signs in order to identify clients who might benefit from urine screening for the condition—the only definitive way of knowing if pyrrole is playing a role.

### **Mental conditions that have been associated with pyroluria<sup>1</sup>**

If you are currently working with a client who has been diagnosed with one of the following conditions and is struggling with treatment and exhibiting symptoms, a urine screen for pyroluria may be a good idea:

- acute intermittent porphyria
- ADHD
- autism/Asperger's
- rapid cycling bipolar disorder
- depression
- Down's syndrome
- learning difficulties
- schizophrenia
- Tourette's syndrome
- alcoholism
- also associated with violent and criminal behaviour and substance abuse

### **Working with clients suffering from pyrrole disorder**

There is a strong need to combine counselling with biochemical treatments to successfully deal with pyrrole disorder. As a specialist in the treatment of biochemical imbalances, Mensah, formerly of the Pfeiffer Treatment Center, suggests cognitive therapy, behavioural therapy, combined CBT, and counselling are all very helpful treatments for pyrrole disorder.

It may be tempting to believe that simply treating the biochemical imbalance with nutrient therapy will resolve the problem. But this is often not the case. Patients with pyrrole disorder can benefit greatly from cognitive therapy and other therapeutic techniques used concurrently with their nutrient therapies. Similarly, psychotherapeutic techniques will not be effective without the biochemical treatment. The best result will be achieved through a synergistic approach.

Mensah says, "Our brain patterns tend to shift as we start to get accustomed to behavioural lifestyles. And while we can treat the pyroluria and the tendency toward irritation and irritability, there still comes a cycle, kind of like an automatic reflex, that can be laid down in the brain itself. To undo that reflex, patients need to work with a counsellor. Through a combination of therapies the pyroluric patient can learn how to correct and undo those processes."

1. The above associations have been gathered from a number of different reports available on the web with a view to possible avenues for research, and should not be taken as a definitive, scientifically validated list. One two-part study providing reliable quantitative data is *Discerning the Mauve Factor* (McGinnis et al., 2008), with a summary of statistics available here: <http://naturalinsight.hubpages.com/hub/Pyroluria-A-Hidden-Disorder>

It is interesting to note that acute schizophrenia has up to an 80% correlation, Down's syndrome 71%, alcoholism 84%, and adult criminal behaviour (sudden deviance) correlates to 71%, with many others up to the 50% mark—some high correlations indeed!



## Children with undiagnosed pyrrole disorder

Children in a pyroluric state are volatile, angry, and tend to cry easily. They are often calm one moment and angry the next for no apparent reason. They have a great deal of inner tension, and often manifest their symptoms with impulsive unfiltered behaviours. If you are working with a child who goes into frequent rages and is inconsolable and continually acting out, this can be a sign of pyrrole disorder. Children with pyroluria may have sensory issues. They are often sensitive to tags on clothes and certain fabrics against their skin. These children need down time to calm down after an up-cycle of bad behaviour. They may prefer to be alone or find themselves isolated and alone because others prefer not to be with them. These children often experience a worsening of symptoms during growth spurts. One possible but not definitive sign of pyroluria in children is multiple white spots on the fingernails.

### Is it bipolar disorder or pyroluria?

Mensah says that far too often, patients given a clinical diagnosis of bipolar disorder are actually suffering from biochemical pyrrole disorder. The symptoms can be very similar, especially with rapid cycling bipolar disorder. Once patients are treated with nutrient therapy, their symptoms from pyrrole disorder can be corrected. Most cases of pure pyrrole disorder with no concurrent disorder can be resolved in 3 to 12 weeks,

and when treated, any apparent symptoms of bipolar disorder will also wane.

### The signs & symptoms

The only definitive test for pyrrole disorder is a urine screen, and a GP can order such tests from a pathology clinic set up for HPL analysis. The diagnosis for pyroluria is as follows:

- Less than 10 micrograms of HPL per decilitre is normal
- Between 10 and 20 µg/dL of HPL is considered borderline
- Over 20 µg/dL is considered pyroluria

### Physical signs & common symptoms<sup>2</sup>

- white spots on the fingernails
- abnormal fat distribution / larger mid-section
- irritable bowel syndrome
- delayed onset of puberty / irregular periods / amenorrhea
- pale skin that burns easily / inability



to tan / thin skin / anaemia

- overcrowded teeth and poor tooth enamel (teeth in upper jaw are often overcrowded)
- joint pain / creaking knees / cold hands and feet, even in summer
- anxiety / withdrawal
- low stress tolerance
- mood swings / explosive anger / tantrums / aggression / argumentative
- depression / pessimism / disorganisation
- reading / mental focus difficulties
- motion sickness
- auditory processing disorder
- memory loss / poor short-term memory
- insomnia
- poor or no dream recall
- fatigue
- hyperactivity / irritability
- craving for high-sugar and high-carbohydrate foods
- poor morning appetite / tendency to skip breakfast
- frequent infections
- allergies
- impotence
- Hypoglycaemia / glucose intolerance
- sweet, fruity breath and body odour
- paranoia / hallucinations
- seizures
- intolerance to bright light, loud noises and strong smells

The severity of symptoms is exacerbated by stressful and traumatic situations (due to higher haemoglobin metabolism) and/or poor diet (lack of nutrients in the system), and/or allergies.

## Concurrent overmethylation or undermethylation

Another consideration in relation to pyroluria is the patient who is also overmethyating or undermethyating. Treatment for patients with both a methylation problem and a pyrrole disorder is tricky and may take longer to resolve. It is important to recognise when a patient on antidepressants may need to be tested for pyrrole disorder.

A patient who is overmethyating has a dysfunctional overproduction of serotonin, dopamine and noradrenaline because of too many methyl groups being donated in their system. The overmethylation may be associated with panic, anxiety, anxious depression, hyperactivity, learning disabilities, low motivation, paranoid schizophrenia and hallucinations, chemical/food sensitivities or autism. Below is a short list of possible correlating characteristics:

- nervousness / anxiety / panic
- poor achiever / low motivation
- low libido and fatigue
- overweight
- easily frustrated
- sleep disorders and paranoia
- depression / self-isolation
- self-mutilation
- tinnitus (ringing in the ears)
- chemical or food sensitivities / allergies
- high pain threshold
- ADHD
- hirsutism (excessive hairiness on women)
- grandiosity
- eczema / dry skin

Then there is the issue of *under*-methylation, with its own set of unique needs. A good naturopath or medical doctor well versed in

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2. Obviously all of these signs and symptoms can have many different causal factors and may not be associated with pyroluria—the only way to diagnose is by urine analysis.



these issues is vital in assisting to assess, diagnose, and manage clients who may be suffering from such biochemical underpinnings of presenting disorders. It is highly advisable that the psychotherapist consider referring clients to a competent specialist who can rule out or treat conditions such as pyrrole disorder and overmethylation. Pharmaceutical compounding companies can produce capsules of minerals and vitamins designed to balance the biochemistry of the pyrroluria patient; these are often a mixture of a dozen different elements with various supplemental and supportive roles, the core elements being vitamins C, E, B6, B5, magnesium and zinc.

### **Patients already on antidepressant medication**

Mensah believes it is possible for patients with pyrrole disorder to respond well to SSRI medication, but this kind of treatment does not work for the patient's pyrrole disorder symptoms. If you have a client receiving partial benefit or no benefit from SSRI medication, a first course of action should be to test for pyrrole disorder rather than suggest a change in their antidepressant medication from an SSRI to another form.

In many cases patients can present with both a methylation disorder and pyrrole disorder concurrently.

It is important to understand that partial relief from symptoms with SSRI medication can mean that undiagnosed pyrrole disorder is present. In such a case, a patient not finding relief from SSRI medication could be switched to a different form of antidepressant, and this would make their symptoms of depression worsen. Pyrrole disorder must therefore be treated separately from under- or overmethylation.

### **Genetic predisposition**

Pyrroluria is genetic, and therefore symptoms are likely to be seen in the family lineage. Symptoms can fall anywhere on a continuum of mild to severe and manifest in any number of combinations, so it can be very difficult to pin a preliminary diagnosis on anyone without a definitive urine test. But if one member of the family has tested positive then it would be prudent to test other members who are genetically related.

### **Complication with allergies**

Pyrrole disorder often comes with food allergies, and food allergies can affect the treatment of pyrrole—both should be treated at the same time. So a part of the “package” of dealing with the disorder is dealing with any allergies and getting the gut and immune system back on an even keel. This



is where a good naturopath can test for allergies and help with a management plan. Heavy metal toxicity can also play a part, as well as digestive disorders. Irritable bowel syndrome and other digestive disorders can exacerbate pyrrolic symptoms and are often coupled with leaky gut syndrome. Patients with digestive issues need proper treatment to heal their digestive symptoms and improve vitamin and mineral absorption. Zinc deficiency often leads to leaky gut syndrome, as it increases intestinal inflammation. Vitamin and mineral therapy will counter the biochemical imbalances, but pyrrole disorder is a lifelong condition that must be managed with extra nutrients during times of great stress when pyrrole levels rise.

### Further reading

McGinnis, W. (2004). *Pyroluria: Hidden cause of schizophrenia, bipolar, depression, and anxiety symptoms*. Retrieved from <http://www.alternativementalhealth.com/articles/pyroluria.htm>

McGinnis, W. R., Audhya, T., Walsh, W. J., Jackson, J. A., McLaren-Howard, J., Lewis, A., . . . Hoffer, A. (2008). Discerning the mauve factor, Part 1. *Alternative Therapies*, 14(2): 40–50.

McGinnis, W. R., Audhya, T., Walsh, W. J., Jackson, J. A., McLaren-Howard, J., Lewis, A., . . . Hoffer, A. (2008). Discerning the mauve factor, Part 2. *Alternative Therapies*, 14(3): 50–56.

### Websites:

The following websites are only a small sample of the information available on the web. We do suggest that a medical professional be consulted prior to treatment, preferably a qualified naturopath who has experience with pyrrole disorder and allergies. Have yourself tested if you feel you may suffer from this disorder, rather than self-medicating based on articles you read online.

<http://healthy-family.org/why-am-i-so-edgy-learn-about-pyrrole-disorder-pyroluria/>

<http://health.groups.yahoo.com/group/Pyroluria/>

<http://www.orthomolecularvitamincentre.com/vitaminb6.php>

<http://www.kingswaycompounding.com.au/News/tabid/103/ArticleType/ArticleView/articleId/147/Pyrrole-Disorder-Review.aspx>

<http://www.vitalityandwellness.com.au/pyroluria>

<http://www.safelabs.com.au/>

<http://naturalinsight.hubpages.com/hub/Pyroluria-A-Hidden-Disorder>

**Caryn Talty, B.S.Ed., M.A.,**

is the publisher and lead journalist of [healthy-family.org](http://healthy-family.org), a website devoted to a wide spectrum of family health issues.

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