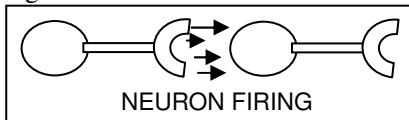


The PST Connection

Some people have too little of an important enzyme called phenol sulfotransferase (PST).¹ It is made in the intestines, which need PST to metabolize (detoxify) the phenolic compounds in many foods, including salicylates and the high-phenolic petroleum-based additives. However, the brain also requires PST for “housekeeping” duties involving neurotransmitters – those chemicals which jump the tiny space (synapse) between brain cells (neurons). Each time a neuron “fires” and the neurotransmitter “jumps” that space, PST must prepare the space to “fire” again. This is measured in *nanoseconds*, occurs millions of times a second all over the brain and must be perfectly synchronized.



If a person is marginal or low in PST, and eats lots of high-phenolic foods and additives, there may not be enough PST left to do the “clean up” work in the brain, thus preventing neurons from firing effectively.² Moreover, it seems that salicylates (which are also phenolic compounds) not only need PST but actually suppress its production,³ making PST levels even

lower. This explanation is over-simplified and the evidence is indirect, but it may help explain why the avoidance of salicylates at the start of the Feingold Program is important. Once suppression is stopped, there may be some recovery, leading to the later tolerance of salicylates usually seen. Surely, this is only part of a larger and complex picture, but in this area the circumstantial evidence is mounting. *See more at pages 8 and 38.*

In practice, the Feingold Program guides parents in choosing a low-phenolic diet, taking stress off a fragile sulfation system.⁴ This may be especially important for people with autism, who have been shown to have extremely low PST levels. Other interventions that may help include avoiding sources of sulfite (SO₃), while increasing sources of the sulfate (SO₄) which is needed for PST production. Some people increase sulfate through the skin (Epsom salt baths) or by drinking Evian water.

The Gluten/Casein Connection

A baby nurses, and usually falls asleep when full. This is due partly to endorphins made by the baby when tasting milk, and partly to the milk protein itself which enters the baby’s blood in a morphine-like form.⁵ This “leaky” gut is normal in babies, and is one reason that babies may develop allergies if given solid foods too early – because when other partially digested proteins get through the gut wall and into the blood, where they don’t belong, they may be treated as invaders by the infant’s developing immune system. Toward the end of his first year, the baby’s intestinal wall becomes less permeable, allowing tolerance for new foods. However, if anything has happened to prevent this, damaging the delicate intestinal system, the growing child may experience symptoms of digestive distress, allergies, or cognitive problems. It has long been known that incompletely digested proteins can cause allergies. Less well known is that the incompletely digested casein protein (*casomorphin*) and gluten protein (*gluteomorphin* or *gliadorphin*) both act as morphines, possibly causing symptoms of autism, ADHD, or even schizophrenia.

Unfortunately, many children with autism crave the casein and gluten that hurts them – like little drug addicts, they need their “fix.” Parents of such children report that their child’s whole diet consists of macaroni & cheese, cereal & milk, bread & butter, pizza, cheese puffs, cheese sandwiches, puddings, etc. Moreover, these children may have sensory problems related to diet – some tolerate only soft foods, while others cannot stand the feel of soft foods and require crunchiness. Removing casein and gluten quickly from such a child’s diet may be a Mission Impossible task. We recommend a slower approach, beginning with the much easier “regular” Feingold Diet – which alone may decrease some symptoms and improve appetite. Meanwhile, several tests provided by the Great Plains Laboratory⁶ can help determine whether the child actually needs a gluten/casein free diet, whether he may be deficient in zinc or other minerals, etc. If necessary, casein and gluten items can be replaced very slowly, a tablespoon per day, for example. Remember that this is an addiction condition, and the child may have serious withdrawal symptoms, including behavioral deterioration, if changes are made too quickly.

1. **Alberti** 1999; **Scadding** 1988; **Sinaiko** 1996
2. **Bamforth** 1993; **Harris** 1996; **Sinaiko** 1996
3. **Harris** 1998
4. **McFadden** 1996
5. **Blass** 1996
6. **Great Plains Lab:** 1-913-341-8949, GPL4U@aol.com