Restless Legs Syndrome

Dr. John Bergman

What is Restless Legs Syndrome?

- a neurological disorder characterized
  - throbbing,
  - pulling,
  - creeping,
  - or other unpleasant sensations in the legs and an uncontrollable, and sometimes overwhelming, urge to move them.

Symptoms

- "an itch you can't scratch"
- a "buzzing sensation"
- an unpleasant "tickle that won't sto
- a "crawling" feeling
- limbs jerking while awake

- RLS patients have difficulty falling asleep and staying asleep
  - As a result, the condition causes exhaustion and daytime fatigue,
  - Impaired memory, or fail to accomplish daily tasks
  - Eventually, RLS can cause depression

Epidemiology

- **Effects 10-15% of the U.S. population**
  - 3% experience daily or severe symptoms
  - Childhood RLS is estimated to affect almost 1 million school-age children

- 25% of pregnant women developed RLS during the third trimester
- RLS becomes more common with age

RLS is Associated with Several Conditions

- Varicose veins
- Folate deficiency
- Magnesium deficiency
- Fibromyalgia
- Sleep Apnea
- Uremia
- Diabetes
- Thyroid disease
- Peripheral Neuropathy
- Parkinson's Disease
- Kidney Disease
- Spinal Stenosis
- Lumbosacral Radiculopathy
- Sjogren's Syndrome
- Celiac Disease
- Rheumatoid Arthritis
- Periodic Limb Movement Disorder (PLMD)
- ADHD

Causes of RLS- According to Medical Doctors

- the cause of RLS is **unknown (Idiopathic).**
- may have a **genetic** component: Specific gene variants have been associated with RLS
- low levels of **iron** in the brain
- dysfunction in the brain's basal ganglia circuits that use the neurotransmitter **dopamine**, which is needed to produce smooth, purposeful muscle activity and movement.
- Most research on the disease mechanism of restless legs syndrome has focused on the **dopamine and iron system.**

The Medical Solution

- **Dopaminergic Agents** (drugs that increase dopamine)
  - long-term use can lead to worsening of the symptoms in many individuals.
- **Benzodiazepines** (clonazepam, diazepam)
  - may induce or aggravate sleep apnea
- ***Opioids*** (codeine, propoxyphene, or oxycod
  - Side effects: dizziness, nausea, exacerbation
  - sleep apnea, and the risk of addiction
- ***Anticonvulsants*** (gabapentin, pregaba
  - Side effects: dizziness, fatigue, and sleepine

"RLS is generally a **lifelong condition** for which there is **no cure**. Nevertheless, current therapies can control the disorder, minimizing symptoms and increasing periods of restful sleep.

National Institute of Neurological Disorders

"There is currently **no cure** for RLS, but many treatment options are available to help **manage symptoms**."

Restless Legs Syndrome Foundation

Antidepressants

1 in 10 Americans are taking Antidepressants
-and *1 in* 4 among women aged 50 to 64

Effects of Antidepressants

- may double your risk of **bone fractures**
- 45 percent more likely to suffer a **fatal stroke**
- 32% increased risk of **heart disease**
- Linked to violent behavior, murder, suicide and more

Anti-Seizure Drugs

- gabapentin (Neurontin, Grails, Horizant)
- pregabalin (Lyrica)

Effects

- increased risk of **suicidal thoughts and behaviors**
- increased risk of **memory loss and dementia**

Opioids

- oxycodone (Percocet, OxyContin)
- hydrocodone (Norco, Zohydro)

Effects

- Opioid drugs cause over **13,800 death each year**
- All illegal drug overdoses= **10,000 per year**
- **700,000** emergency room visits each year from adverse drug reactions

U.S. Food and Drug Administration (FDA)

- Properly prescribed and administered drugs cause about **106,000 deaths each year**
- prescription drugs are the **4th- leading caused of death** in the U.S.

The Controversy

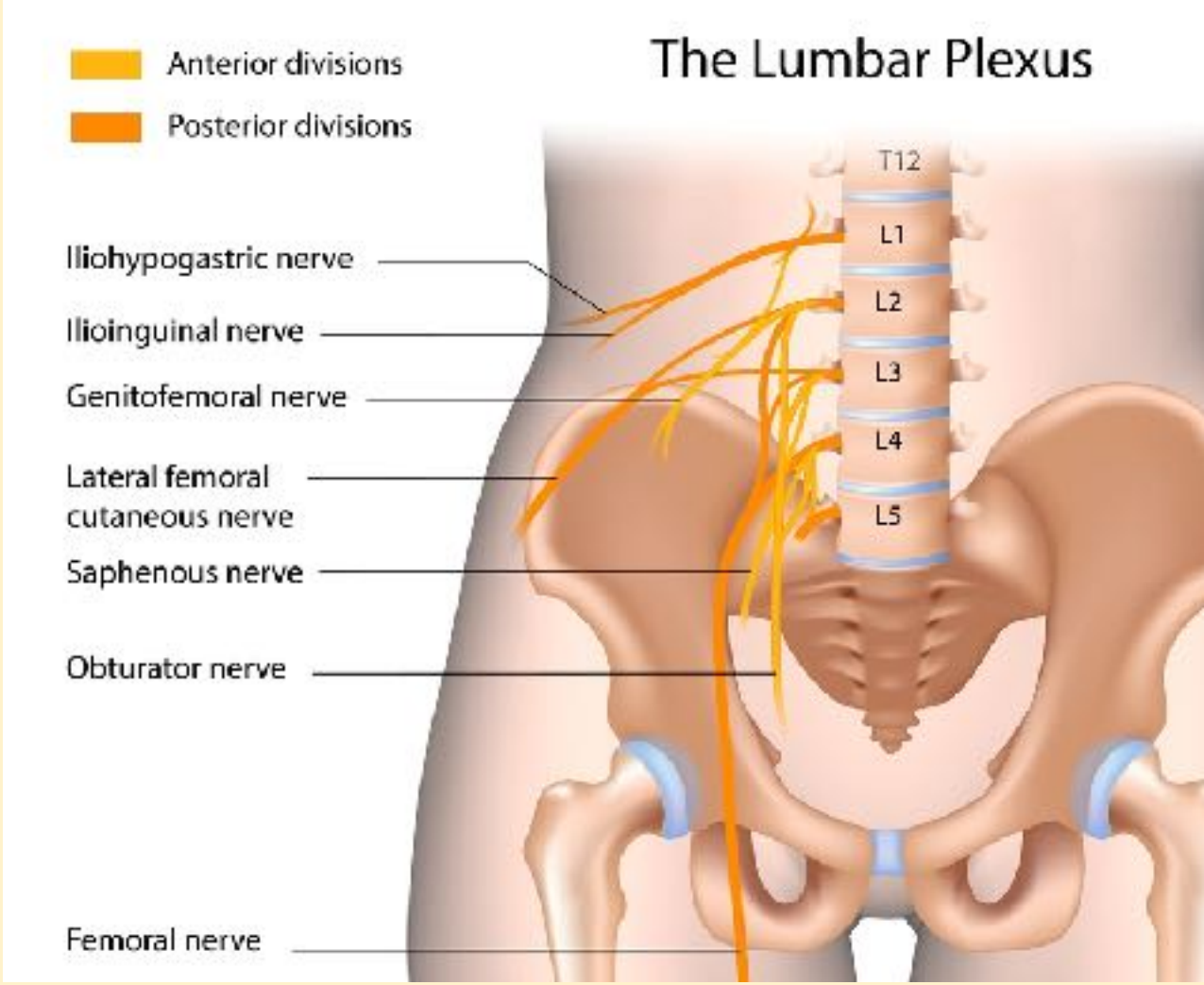
- Many Doctors express the view that the incidence of restless leg syndrome is **exaggerated by manufacturers of drugs used to treat it.**
- The Restless Legs Syndrome Foundation received 44% of its $1.4 million in funding from pharmaceutical groups.

"The pharmaceutical giant **Glaxo Smith Kline (GSK)** has been reprimanded by an industry watchdog for promoting an **unlicensed drug** to treat the disputed condition of restless legs syndrome."

(The Sunday Times, August 6, 2006)

Innervation of the Legs

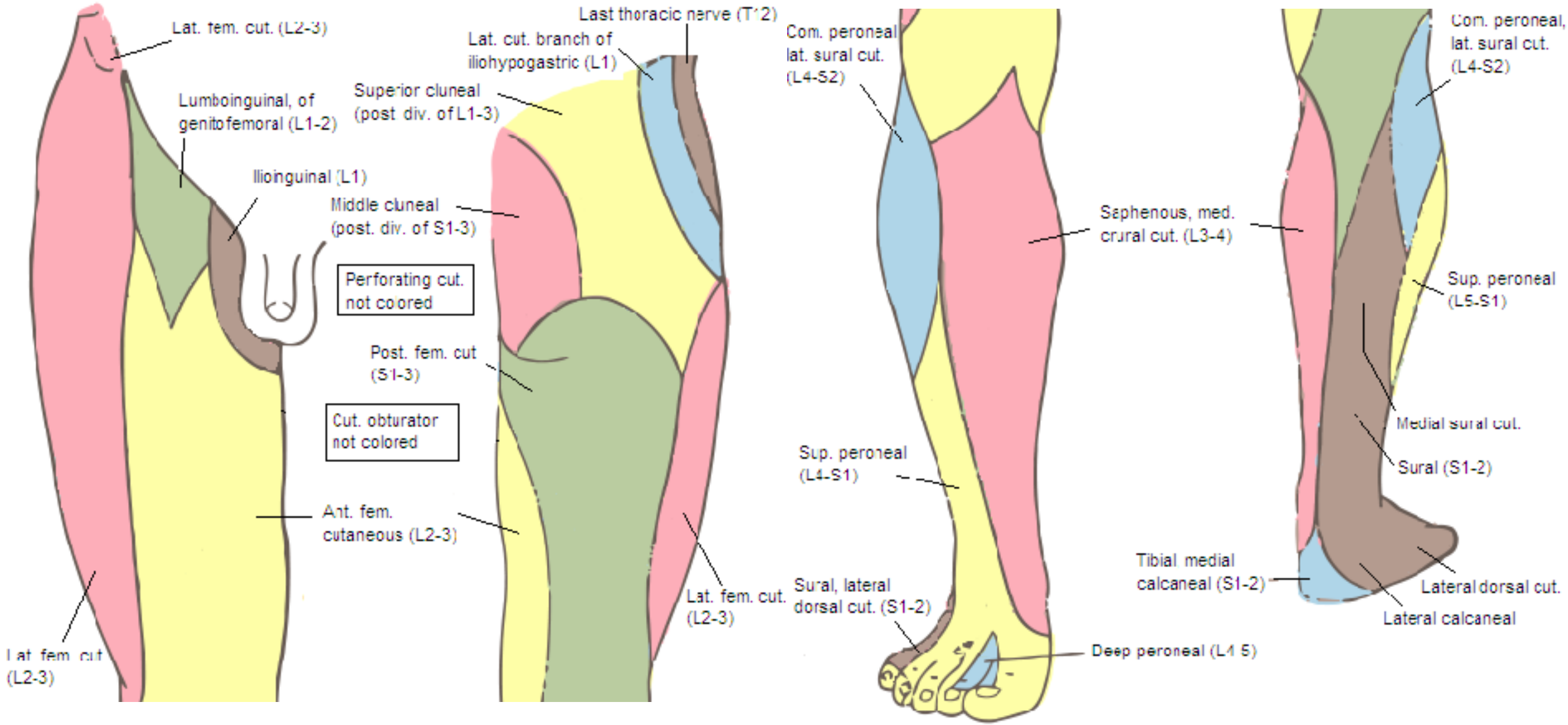
- Innervation of the legs =
  - **T12- S3**
- Compression or Interference of these nerves can disrupt nerve flow



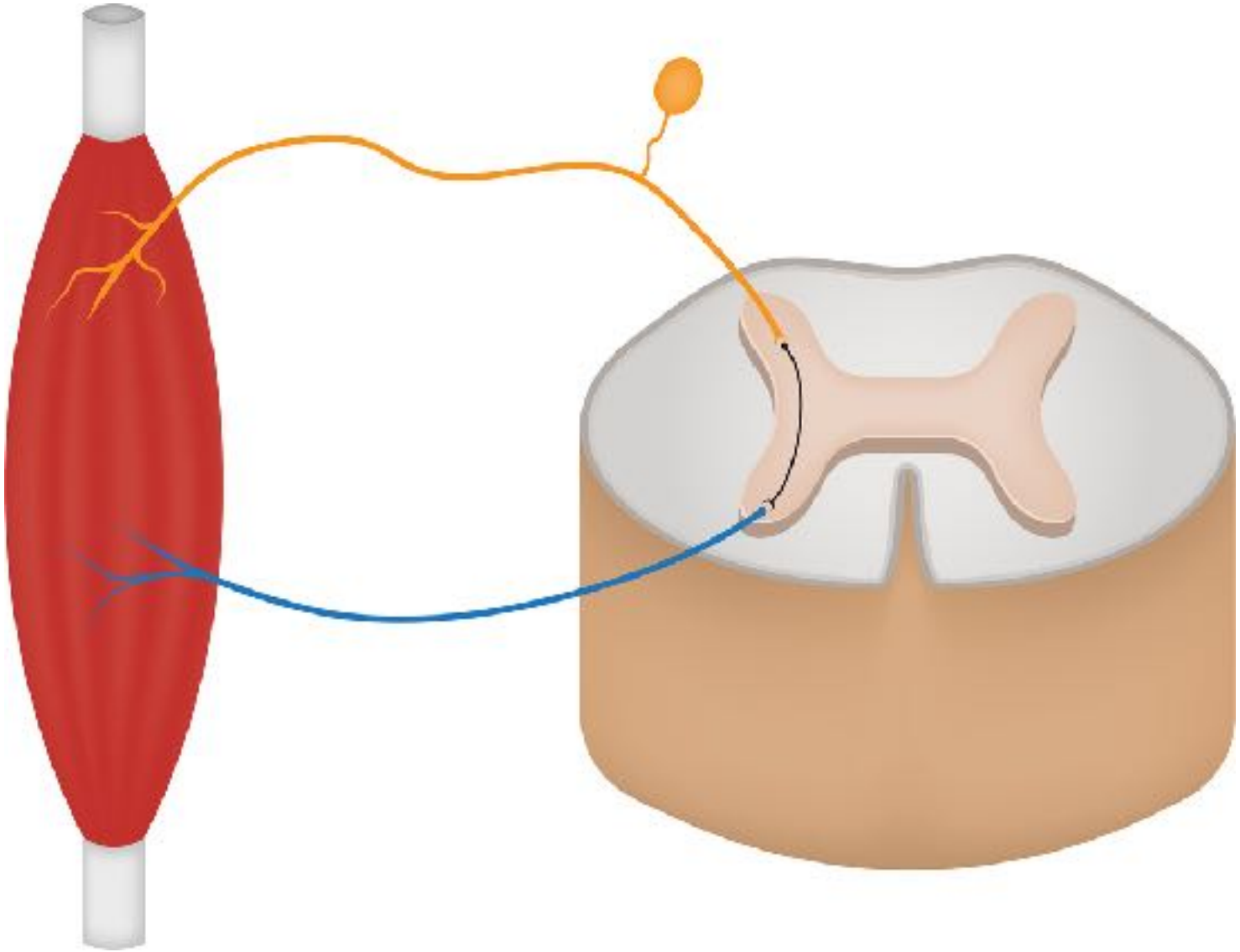
"In conclusion, our report suggests that restless legs syndrome may occur secondary to spinal cord lesions"

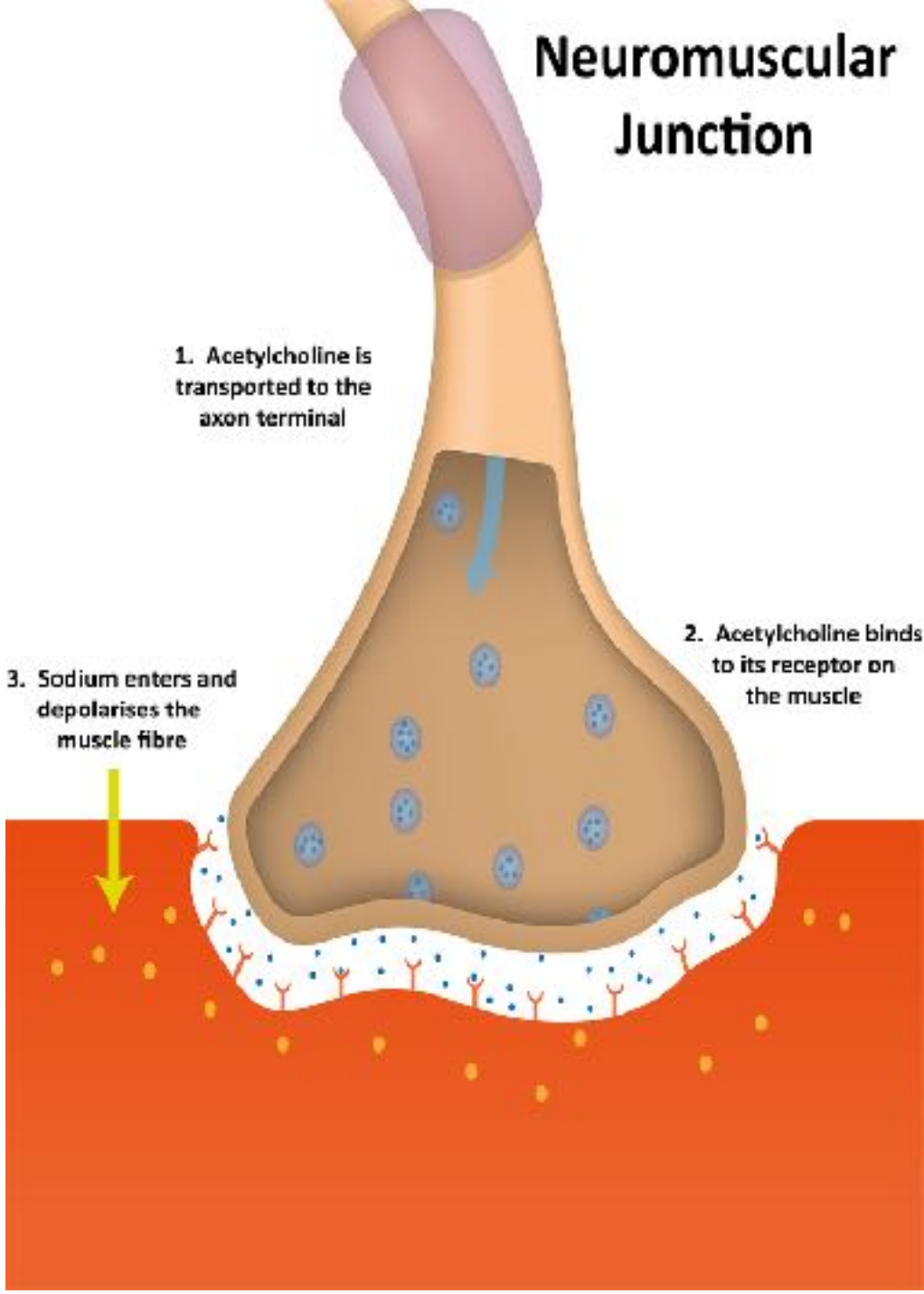
Journal of Neurology

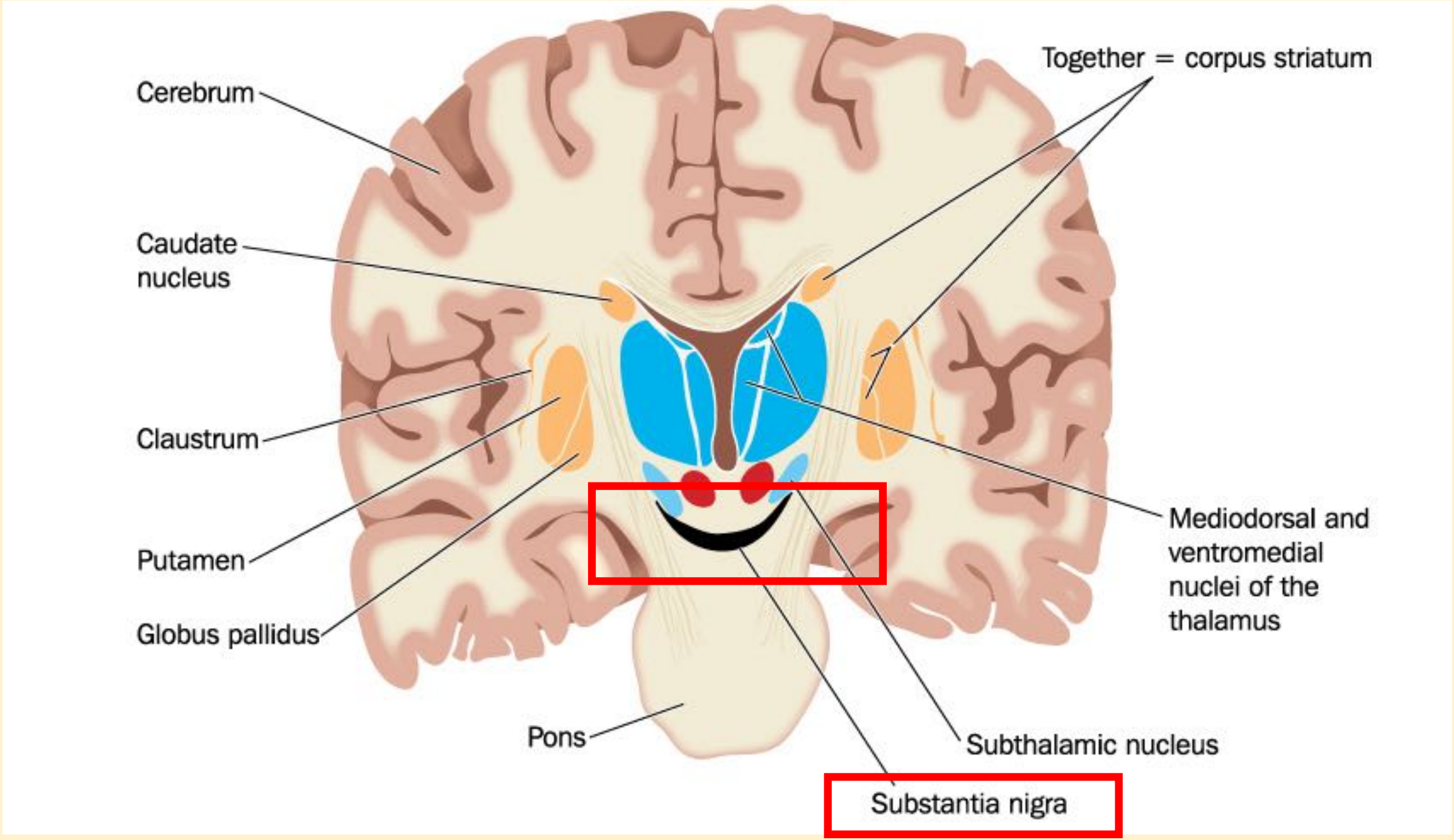
Innervation of the Legs



Neuromuscular Junction






Cerebrum
Caudate nucleus
Claustrum
Putamen
Globus pallidus
Pons
Together = corpus striatum
Mediodorsal and ventromedial nuclei of the thalamus
Subthalamic nucleus
Substantia nigra

Iron

- Iron is a vital for the proper functioning of dopamine neurotransmitters.
- RLS is commonly associated with iron deficiency, however,
- **75%** of individuals with RLS symptoms may have increased iron stores
- Only **1 in 5** RLS patients were actually iron deficient.
- RLS has nothing to do with the amount of iron in your blood, however, there is a direct connection to **low iron levels in your *brain***

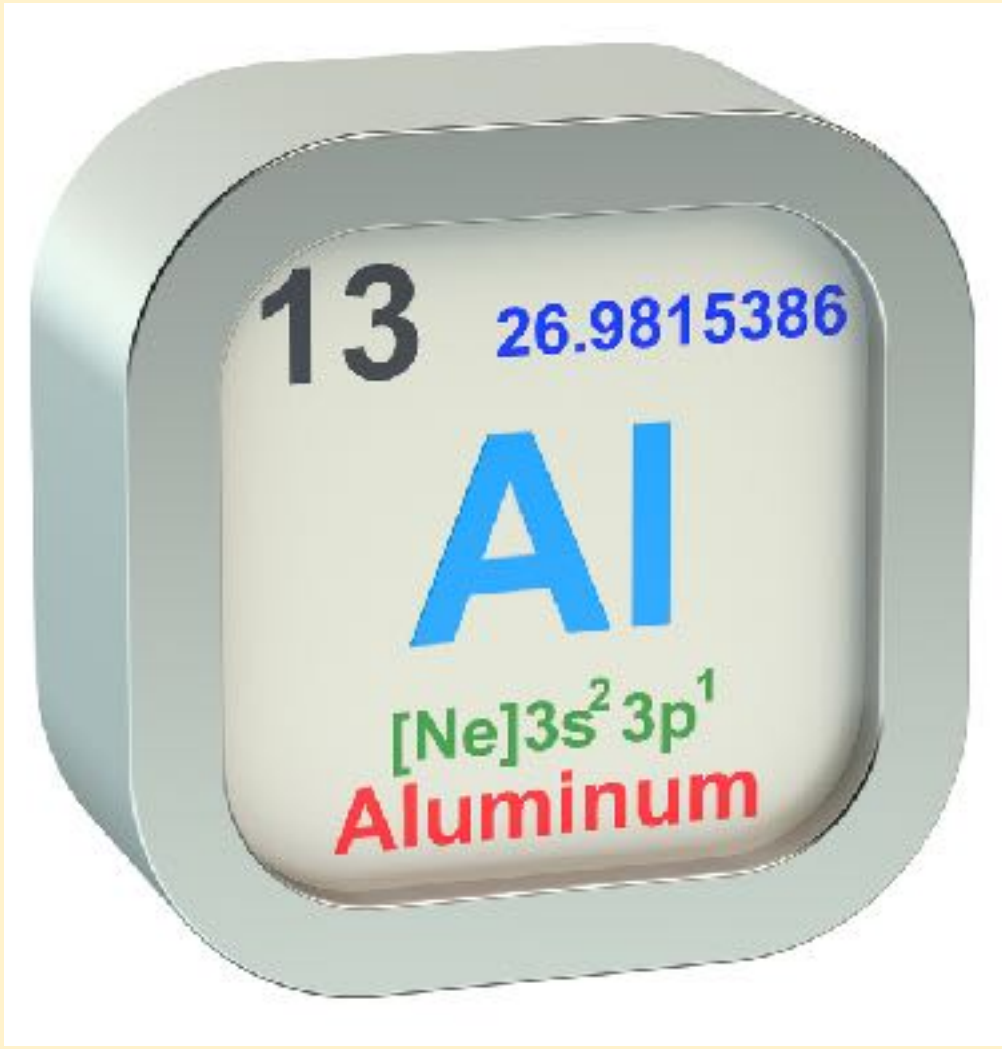
Dopamine

- Most RLS sufferers have one thing in common:

Their dopamine neurotransmitters aren't functioning properly.

- Studies indicate that aluminum and other toxins clog receptor sites, causing even further malfunction.

Dopamine Disruptors and Neurotoxins



Aluminum and Glyphosate

Aluminum

- Aluminum is a known **neurotoxin**
- Almost **ALL** Vaccines contain aluminum
- Is directly linked to dementia, autism, and parkinson's
- Orally ingesting aluminum: body will absorb between 0.2-1.5%
- **Injected aluminum: your body absorbs 100%**
- Fully vaccinated children are exposed to **6,150mcg of aluminum**

Adverse Effects of Aluminum

- DNA alterations, abnormal regulation of gene function
- Gene expression interference
- Damages cell membranes
- Disrupts energy metabolism
- Coagulates proteins
- Increased vascular endothelial adhesiveness resulting in increased cardiovascular disease
- Enhanced excitotoxicity in the brain and increased brain inflammation

The Confusion over Aluminum

"Aluminum is considered to be an essential metal with quantities fluctuating naturally during normal cellular activity. It is found in all tissues and is also believed to play an important role in the development of a healthy fetus."

Dr. Paul Offit, Vaccine Education Center, April 2013

- ***Dr. Offit holds a patent on a childhood vaccine***

"Aluminum is a widely recognized neurotoxin that inhibits more than 200 biologically important functions and causes various adverse effects in plants, animals and humans."

Dr. Kawahara (International Journal of Alzheimer's Disease)

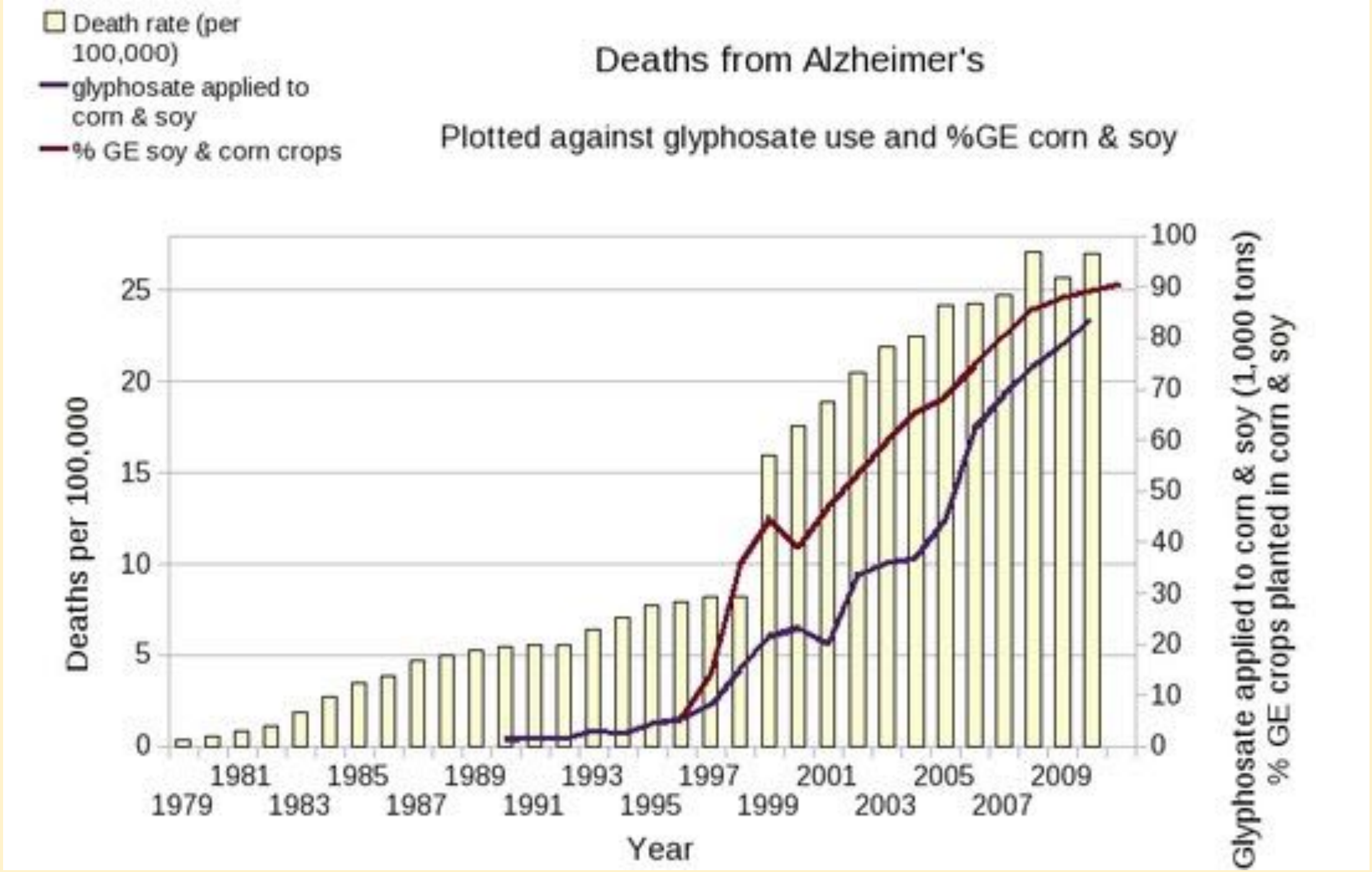
Glyphosate

- GE crops absorb glyphosate through direct application and from the soil and **it cannot be washed off**
- Glyphosate has also been found in rivers, streams, air and rain.
- Genetically engineered corn has been found to contain 13 ppm of glyphosate, compared to zero in non-GMO corn.
- ***13 ppm* is more than *18 times* the "safe" level of glyphosate set by the EPA.**
- Organ damage in animals has occurred at levels as low as **0.1 ppm.**

The Mechanism of Glyphosate

- The **Shikimate pathway**
  - This pathway is absent in all animals which is why Monsanto claims it's harmless to animals and humans
  - However, the Shikimate pathway is present in bacteria
  - Bacteria outnumber your cells 10 to 1: for every cell in your body you have 10 microbes which will respond to glyphosate

- Causes **extreme disruption** of the microbe's function and lifecycle
- Primarily affects *beneficial* bacteria, allowing pathogens to overgrow and take over


Death rate (per 100,000)
glyphosate applied to corn & soy
% GE soy & corn crops
Deaths from Alzheimer's
Plotted against glyphosate use and %GE corn & soy
Deaths per 100,000
Glyphosate applied to corn & soy (1,000 tons)
% GE crops planted in corn & soy
Year
0
5
10
15
20
25
0
10
20
30
40
50
60
70
80
90
100
1979
1981
1983
1985
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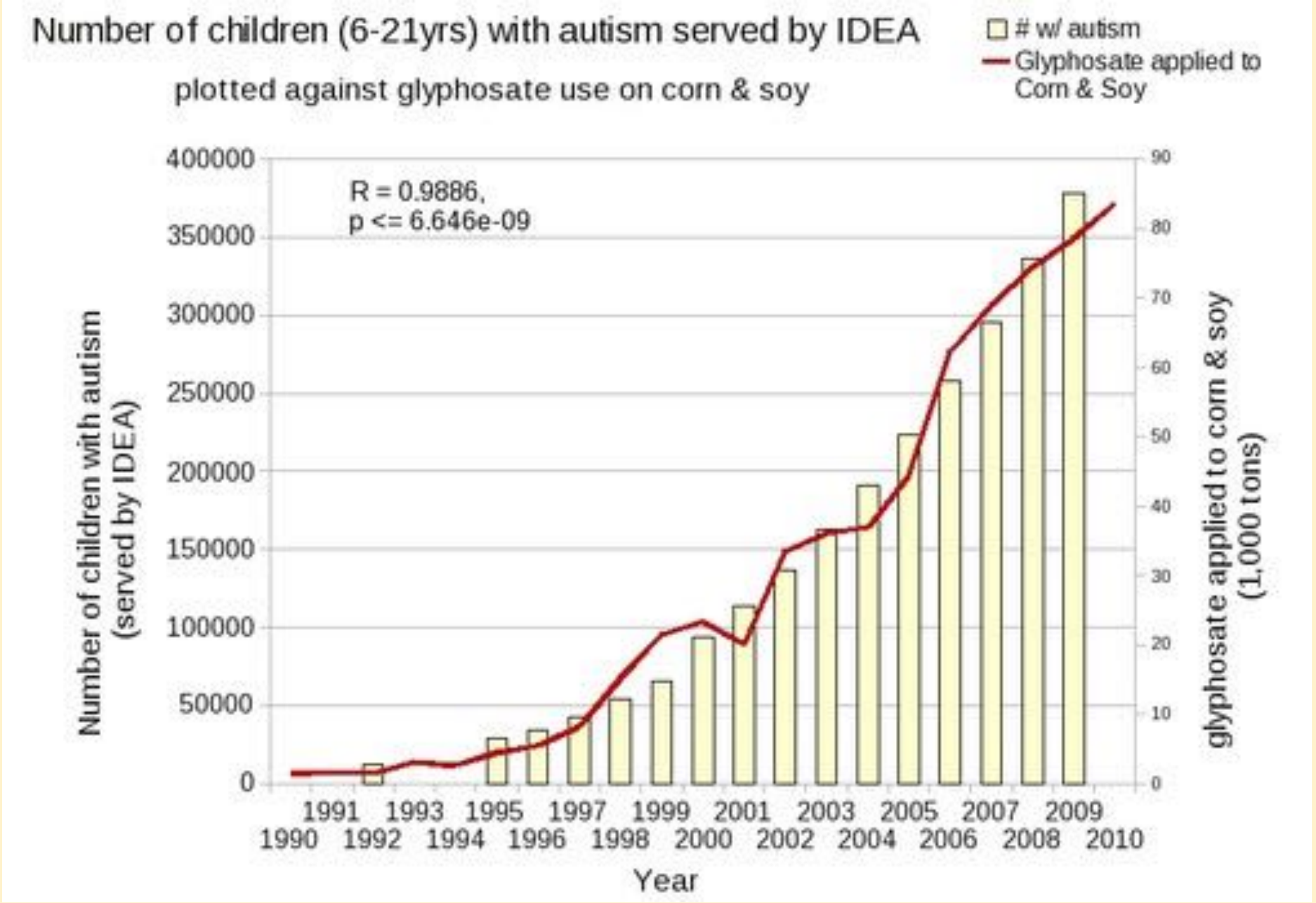
2007
2009


Number of children (6-21yrs) with autism served by IDEA
plotted against glyphosate use on corn & soy
w/ autism
Glyphosate applied to Corn & Soy
R = 0.9886,
p <= 6.646e-09
Number of children with autism (served by IDEA)
glyphosate applied to corn & soy (1,000 tons)
Year
400000
350000
300000
250000
200000
150000
100000
50000
0
90
80
70
60
50
40
30
20
10
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010

Glyphosate

- In 2009, a French court found Monsanto guilty of lying; falsely advertising its Roundup herbicide as "biodegradable," "environmentally friendly" and claiming it "left the soil clean.”

“Glyphosate is possibly the most important factor in the development of multiple chronic diseases and conditions that have become prevalent in Westernized societies."

Dr. Stephanie Seneff, Research scientist at

Massachusetts Institute of Technology (MIT)

The Solution

- Relieve Nerve Compression
- Correct Spinal Misalignments
- Regenerate Intervertebral Discs

Movement Increases Dopamin

The Solution

- Detox your Body
  - **Chlorella**: binds to heavy metals and flushes them out of your body
    - Benefits of Chlorella: Repairs Nerve tissue, Improves digestion, normalizes blood pressure

Magnesium

•80% of RLS sufferers are found to be deficient in magnesium

•magnesium malate: able to cross the blood-brain barrier

•Once absorbed, it magnetically binds with aluminum and other toxins that clog dopamine receptor sites, safely flushing these toxins from the body.

The Solution

Probiotics

- **helps iron cross the blood-brain barrier**
- breaks down vitamins and minerals from food so that they are more bio-available and useful to the body

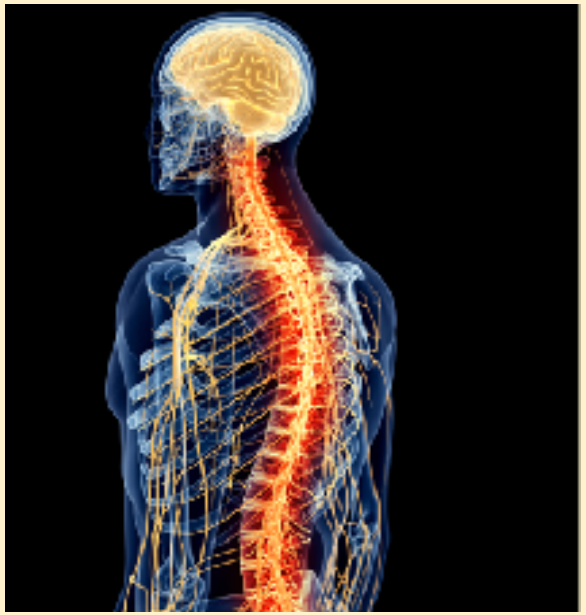
Folic Acid

- A vitamin B complex and a key component to nerve health
- Allows **for clearer communication between neurotransmitters within your cells.**

Vitamin E

- improves circulation in the legs
- Protect nerves: **involved in maintaining the myelin sheath**

The 5 Keys to Health and Healing



Proper nerve supply

Regular Exercise

Proper Nutrition

Sufficient Rest

Prayer and Meditation

References

1. "Restless Legs SyndromeFact Sheet", NINDS, Publication date September 2010. NIH Publication No. 10-4847
2. http://www.ninds.nih.gov/disorders/restless_legs/detail_restless_legs.htm
3. http://www.rls.org/about-rls/treatment-options
4. Earley, Christopher J. (2003). "Restless Legs Syndrome". *New England Journal of Medicine* **348** (21): 2103–9. doi:10.1056/NEJMcp021288. PMID 12761367.
5. Skidmore, F M; Drago, V.; Foster, P S; Heilman, K M (2009). "Bilateral restless legs affecting a phantom limb, treated with dopamine agonists". *Journal of Neurology, Neurosurgery & Psychiatry* **80** (5): 569–70.
6. Allen, R; Picchietti, D; Hening, WA; Trenkwalder, C; Walters, AS; Montplaisi, J; Restless Legs Syndrome Diagnosis Epidemiology workshop at the National Institutes of Health; International Restless Legs Syndrome Study Group (2003). "Restless legs syndrome: diagnostic criteria, special considerations, and epidemiology A report from the restless legs syndrome diagnosis and epidemiology workshop at the National Institutes of Health". *Sleep Medicine* **4** (2): 101–19.
7. Xiong, L.; Montplaisir, J.; Desautels, A.; Barhdadi, A.; Turecki, G.; Levchenko, A.; Thibodeau, P.; Dubé, M. P.; Gaspar, C.; Rouleau, GA (2010). "Family Study of Restless Legs Syndrome in Quebec, Canada: Clinical Characterization of 671 Familial Cases". *Archives of Neurology* **67**(5): 617–22.
8. "Restless legs syndrome: detection and management in primary care. National Heart, Lung, and Blood Institute Working Group on Restless Legs Syndrome". *American family physician* **62** (1): 108–14. 2000.
9. Rangarajan, Sunad; d'Souza, George Albert (2007). "Restless legs syndrome in Indian patients having iron deficiency anemia in a tertiary care hospital". *Sleep Medicine* **8** (3): 247–51.
10. Nagandla, K; De, S (July 2013). "Restless legs syndrome: pathophysiology and modern management.". *Postgraduate Medical Journal***89** (1053): 402–10.
11. Clemens, S.; Rye, D; Hochman, S (2006). "Restless legs syndrome: Revisiting the dopamine hypothesis from the spinal cord perspective". *Neurology* **67** (1): 125–130.
12. Allen, R (2004). "Dopamine and iron in the pathophysiology of restless legs syndrome (RLS)". *Sleep Medicine* **5** (4): 385–91.
13. "Restless legs syndrome: detection and management in primary care. National Heart, Lung, and Blood Institute Working Group on Restless Legs Syndrome". *American family physician* **62** (1): 108–14. 2000.

References

14. Rangarajan, Sunad; d'Souza, George Albert (2007). "Restless legs syndrome in Indian patients having iron deficiency anemia in a tertiary care hospital". *Sleep Medicine* **8** (3): 247–51.
15. McDonagh, B; King, T; Guptan, R C (2007). "Restless legs syndrome in patients with chronic venous disorders: an untold story". *Phlebology* **22** (4): 156–63.
16. Attention deficit hyperactivity disorder – Other Disorders Associated with ADHD, University of Maryland Medical Center.
17. Cortese, S; Konofal, E; Lecendreux, M; Arnulf, I; Mouren, MC; Darra, F; Dalla Bernardina, B (2005). "Restless legs syndrome and attention-deficit/hyperactivity disorder: A review of the literature". *Sleep* **28** (8): 1007–13.
18. Rottach, K; Schaner, B; Kirch, M; Zivotofsky, A; Teufel, L; Gallwitz, T; Messer, T (2008). "Restless legs syndrome as side effect of second generation antidepressants". *Journal of Psychiatric Research* **43** (1): 70–5.
19. http://seratame.com/Seratame/?gclid=Cj0KEQjwid63BRCswIGqyOubtrUBEiQAvTol0QFSLYnU-sEVhFUM-Zm9Yz_-acEZo2GHfyaZj8YT7Z4aAqoo8P8HAQ
20. Coccagna, G; Vetrugno, R; Lombardi, C; Provini, F (2004). "Restless legs syndrome: an historical note". *Sleep Medicine* **5** (3): 279–83.
21. Woloshin, Steven; Schwartz, Lisa M. (2006). "Giving Legs to Restless Legs: A Case Study of How the Media Helps Make People Sick". *PLoS Medicine* **3** (4): e170.
22. Marshall, Jessica; Aldhous, Peter (2006). "Swallowing the best advice?". *New Scientist* **192** (2575): 18–22.
23. Profile of altered brain iron acquisition in restless legs syndrome James R. Connor,corresponding author1 Padmavathi Ponnuru, Xin-Sheng Wang, Stephanie M. Patton, Richard P. Allen and Christopher J. Earley http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3069701/
24. Restless legs syndrome and low brain iron levels in patients with haemochromatosis J Haba-Rubio, L Staner, C Petiau, G Erb, T Schunck, J P Macher http://jnnp.bmj.com/content/76/7/1009.full
25. The neurobiology and treatment of restless legs syndrome Jones R, Cavanna AE. http://www.ncbi.nlm.nih.gov/pubmed/22713426
26. Magnesium therapy for periodic leg movements-related insomnia and restless legs syndrome: an open pilot study. Hornyak M, Voderholzer U, Hohagen F, Berger M, Riemann D. http://www.ncbi.nlm.nih.gov/pubmed/9703590

References

28. Systems genetics analysis of iron regulation in the brain. Leslie C. Jellen, John L. Beard, and Byron C. Jones,* http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2742566/
29. Scientific American August 27, 2014
30. PLOS Medicine February 26, 2008
31. BMJ December 8, 2015
32. Arch Intern Med. 2007 Jan 22;167(2):188-94.
33. Archives of Internal Medicine December 14/28 2009;169(22):2128-2139
34. Study presented at the American College of Cardiology meeting, New Orleans, LA April 5, 2011
35. Entropy 2013, 15(4), 1416-1463
36. NVIC.org April 10, 2013
37. CDC Health Statistics, Report 65
38. Sustainablepulse.com April 27, 2013
39. Medicine.net December 2, 2013
40. http://www.examiner.com/article/data-show-correlations-between-increase-neurological-diseases-and-gmos
41. Journal of Medical Case Reports February 10, 2104
42. Vactruth.com February 26, 2015
43. CHOP Vaccine Education Center
44. Journal of Exposure Science & Environmental Epidemiology 2010 Nov;20(7):598-601
45. International Journal of Alzheimer's Disease 2011 Mar 8;2011:276393