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RaphaN7™ FAQ

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1. Why should I limit the intake of dietary Glutamate?

Treating glutamate excitotoxicity with RaphaN™ is quite like treating diabetes with an anti-glucose drug. No amount of such a drug can effectively lower your glucose level unless you also limit

your intake of carbohydrates and sugar. Higher postprandial glutamate indicates your ability to metabolize dietary glutamate is lower, and you will need to be more stringent in limiting the intake of dietary glutamate. Without limiting intake of dietary glutamate, *RaphaN+*™ will not be able to metabolize dietary glutamate faster than you are taking it in, making the treatment less effective, and in some extreme cases, not effective at all.

2. Is there a best way to prepare *RaphaN+*™?

Yes. *RaphaN+*™ Part One is manufactured in a freeze-dried and starved condition. Preparing *RaphaN+*™ improperly will cause the treatment to not work as the bacteria will be too weak to compete against the existing bacteria in the small intestine. Please follow the following steps to prepare your *RaphaN+*™:

1. One hour after you finish your dinner, add one small scoop (1 teaspoon) of *RaphaN+*™ Part One and one big scoop (one oz) of *RaphaN+*™ Part two into a glass cup that is completely dry.
2. Blend well until you see an even color.
3. Add 8-10 oz of room temperature (about 21°C) bottled water with a pH of around 6.5.
4. Stir well until nothing floats on the top of the mixture and let it sit for 15 minutes before taking it.

3. Can I have protein shakes?

No. All proteins contain a high amount of glutamate and should be avoided if your post prandial serum glutamate is high.

4. Is there a best time to take the *RaphaN+*™?

Yes. 60 to 90 minutes after dinner is the best time to take *RaphaN+*™.

5. What happens if I do not wait for 15 minutes when preparing *RaphaN+*™?

You will not do well if you fail to wait 15 minutes for the bacteria to be properly activated from its hibernation stage. **Your condition could worsen simply by not following this simple yet critical step.**

6. What happens if I wait too long when preparing *RaphaN+*™?

Once activated from its hibernation stage, live bacteria need a constant supply of food and sugar to survive and multiply; without this **the lifespan of the activated bacteria can be as short as 25 minutes in extreme cases. Therefore,** if you wait longer than 25 minutes, there may be less or no bacteria left.

7. What is your recommended diet?

NBI strongly recommends a switch to a vegetarian diet because animal protein generally contains high amounts of glutamate and will offset or even ruin the *RaphaN7*™ treatment the same way excessive intake of carbohydrates and sugars undermines diabetic treatment.

The exception within a vegetarian diet is the following items with very high glutamate content. These must be consumed in limited amounts (less than 30g per meal):

1) Walnuts (2,720 mg/100g)
2) Fennel seeds (2,956 mg/100g)
3) Soybeans (3,047 mg/100g)
4) Caraway seeds (3,169 mg/100g)
5) Sesame seeds (3,500 mg/100g)
6) Oats (3,712 mg/100g)
7) Flaxseeds (3,714 mg/100g)
8) Cashews (4,116 mg/100g)
9) Sunflower seeds (4,629 mg/100g)
10) Mustard Seeds (5,000 mg/100g)
11) Almonds (5,188 mg/100g)
12) Peanuts (5,342 mg/100g)
13) Pumpkins seeds (5,581 mg/100g)
14) Sweet peas (5,583 mg/100g)
15) Cheese of all kinds (5,000 to 9,836 mg/100g)

8. What kinds of animal product are safe for me?

Animal products such as:

1) Scallops (140 mg/100g)
2) Goat milk (627 mg/100g)
3) Cow milk (631 mg/100g)
4) Yogurt (939 mg/100g)
5) Egg (1640 mg/100g) (one per meal)
6) Pork (2325 mg/100g) (60g per meal)

There may be other animal products that are safe for you; always check with the **"USDA glutamate database"** for the glutamate content of any food item. If you type the name of the food into the PDF "search" feature, you will find it instantly.

9. Why do I get skin rashes after taking *RaphaN7*™?

This only happens to those with overgrown pathogens in their gut. Taken in the optimal way, the bacteria in the *RaphaN7*™ can kill the pathogens. Dead pathogens release toxins that cause skin rashes. This is the Herxheimer Reaction or Die Off effect, and it should only last 3 to 14 days.

10. Why do I have diarrhea and rashes on my face after taking *RaphaN7*™?

When you take *RaphaN7*™ and experience diarrhea it is good for you.

This means the bacteria in the *RaphaN7*™ is purging existing pathogens out of your body; it also indicates you have a leaky gut syndrome problem that allows fine food particles to enter the blood circulation and finally settle in the capillaries. This transition phase is called Herxheimer reaction; in layman's terms it is also called the die-off effect and can last anywhere from 3 days to 3 weeks, depending on the extent of pathogen colonies in your body.

The reason for the diarrhea is similar to food poisoning which is due to pathogenic toxins in spoiled foods. When these existing pathogens are killed by the massive amount of probiotics you take, the dead pathogens release toxins from their decomposed bodies that upset your intestine, therefore the mucosal walls flush out the toxins with fluid, causing you to have diarrhea.

11. Why has my *RaphaN7*™ Part One become tacky?

If you allow *RaphaN7*™ Part One to be exposed to high humidity, the ambient moisture will activate the bacteria, and it will become tacky (sticky). In places like Southeast Asia, where humidity is 100% all year long, five minutes of exposure is all it takes to turn *RaphaN7*™ tacky.

12. Can I microwave the bacteria?

No. Microwaves generate heat by rapidly vibrating water molecules, if you microwave *RaphaN7*™ for even few seconds, you will destroy 100% of the bacteria.

13. Room temperature water makes me cough, can I warm the *RaphaN7*™?

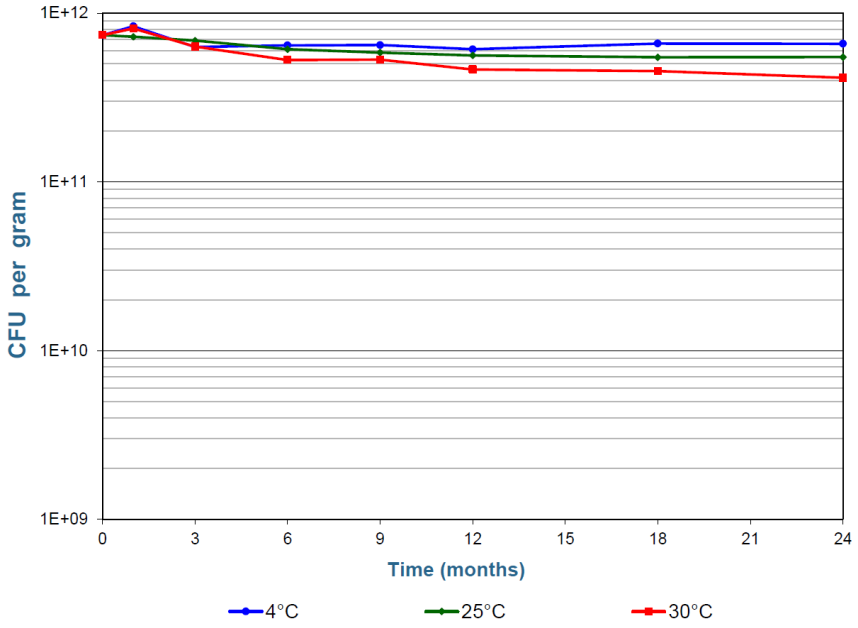
No. The *RaphaN7*™ Part One bacteria can survive at room temperature of 21°C (70°F) for up to three years but should be stored at 0°C at all times. When you warm the bacteria using lukewarm water at around 38°C (100.4°F), you are shocking the bacteria by rapidly increasing its temperature from 0°C to 38°C. At least 50% of the bacteria will be dead on contact with lukewarm water. That reduces the potency of *RaphaN7*™ by half.

14. How do I know if the *RaphaN7*™ Part One is still in usable condition?

There are two factors to help you determine the *RaphaN7*™'s condition:

1) **Temperature (keep below 21°C or 70°F during travel)**

The bacteria in *RaphaN7*™ Part One can survive at room temperature (21°C or 70°F) for 3 years and the loss is about 33% at the end of year three. Whenever you travel and are unable to keep *RaphaN7*™ Part One at 0°C, you should keep the product in a cooler with as much frozen blue ice or regular ice as you can carry. You can also get yourself an infrared temperature reading gun to read the surface temperature of the *RaphaN7*™ Part One. As long as it reads below 21°C or 70°F, the bacteria is still good with little or no loss, but if it reads higher than 100°F, it is at least 50% dead, and if it reads 86°F you could lose *RaphaN7*™ Part One viability at a rate of 10% per hour.



2) **Moisture level (keep completely dry at all times)**

Moisture activates the bacteria in *RaphaN7*™ Part One and once activated the bacteria need food to survive. Without food, its life span is only 25 minutes. If you live in an area such as Singapore with 100% humidity and you allow the bacteria to be exposed to extreme humidity for longer than 5 minutes, the bacteria will become tacky (sticky to the touch). You can observe how much of the *RaphaN7*™ Part One sticks to a dry spoon: the more you see on the dry spoon, the worse is the stickiness. In this situation, you should discard the entire bottle.

15. Are there any medical conditions that affect *RaphaN+*™ treatment?

Yes. Any illness that damages the blood-brain-barrier (BBB) will allow more serum glutamate to penetrate the CNS and make treatment with *RaphaN+*™ less effective. The following is a list of common illnesses with this effect:

Table 1-2
Disorders That Disrupt The Blood-Brain Barrier

Infectious	*Inflammatory /Idiopathic*
Canine distemper virus	Granulomatous meningoencephalomyelitis
Canine herpes virus	Steroid responsive meningitis
Infectious canine hepatitis	Polyarteritis - beagle pain syndrome
Feline infectious peritonitis	Pug dog encephalitis / meningitis
Feline immunodeficiency virus	Eosinophilic meningoencephalitis
Rickettsial infections	Pyogranulomatous meningoencephalomyelitis
Bacterial meningitis	Allergic encephalomyelitis
Toxoplasmosis	*Mechanical Injury*
Neosporosis	Trauma
Encephalitozoonosis	Hemorrhage
Systemic mycotic infections	Infarction / Thromboemboli
Protothecosis	X-radiation
Trypanosomiasis	*Toxic*
Neoplasia	Lead intoxication
Primary brain tumors	Thiamine deficiency
Metastatic tumors	Carbon monoxide poisoning
Systemic disorders	
Diabetes mellitus	
Hypertension	

16. How does hypertension affect *RaphaN+*™ treatment and what should I do if I have hypertension?

The 1993 study by Tang et al.,[1] showed hypertension can enhance BBB transport of glutamate and chronic hypertension can increase brain levels of glutamate by 600-1,200%. Higher systolic pressure correlates with more severe and faster accumulation of brain levels of glutamate, and more damage will be done at higher levels of glutamate excitotoxicity. Therefore, it is vital you take your hypertensive medicine regularly to maintain your systolic pressure at around 110 to 130 mm Hg.

1* INCREASED BLOOD-BRAIN BARRIER PERMEABILITY OF AMINO ACIDS IN CHRONIC HYPERTENSION PHARMACOLOGY LETTERS Life Sciences, Vol. 53, pp. PL 417-420 Jian-ping Tang, Zhi-Qun Xu t, Frank L. Douglas, Ashok Rakhit and Srikumaran Melethil

17. How does diabetes affect *RaphaN+*™ treatment and what should I do if I have it?

A 2003 study by Starr et al.,[1] showed that increased BBB permeability was detected in patients with type II diabetes. Higher glucose levels correlated with increased permeability. The more quickly glutamate can accumulate in the brain due to increased permeability, the higher is the level of glutamate excitotoxicity and the more damage will be done. Therefore, it is vital you take your diabetes medicine regularly to maintain your HbA1C below 5.9% (average glucose is below 123 mg/dL).

1* Increased blood–brain barrier permeability in type II diabetes demonstrated by gadolinium magnetic resonance imaging J M Starr, J Wardlaw, K Ferguson, A MacLullich, I J Deary, I Marshall J Neurol Neurosurg Psychiatry 2003;74:70–76

18. Will D-serine affect *RaphaN7*™ treatment?

Yes, it will neutralize *RaphaN7*™ treatment. In 2007, a group of Japanese researchers led by Junpei Sasabe studied the effect of D-serine on glutamate excitotoxicity in ALS patients and found that overproduction of D-serine in glia could enhance glutamate excitotoxicity. In other words, *RaphaN7*™ reduces glutamate excitotoxicity to protect motor neurons while D-serine does the opposite: enhances glutamate excitotoxicity and accelerates the death of motor neurons.

****D-Serine is a key determinant of glutamate toxicity in amyotrophic lateral sclerosis*** *The EMBO Journal (2007) 26, 4149–4159 Jumpei Sasabe, Tomohiro Chiba, Marina Yamada, Koichi Okamoto, Ikuo Nishimoto, Masaaki Matsuoka, & Sadakazu Aiso*

19. Is it true that bound glutamate is safer than free glutamate?

Not true, that are several websites that claim that bound glutamate is bound within protein therefore not bio-available and safe to take, which is misleading considering the following facts:

1) Proteins are made up of combinations of the 22 amino acids; glutamate is the most abundant among them.
2) Proteins are polypeptide chains comprised of multiple amino acids and during the digestion process they will be broken down into single chain peptides (single amino acids). In other words, food glutamate is mostly in bound protein form. We eat protein (complex form) all the time, but few of us eat food as pure amino acids (broken down form).
3) Free glutamate such as monosodium glutamate (MSG) can enter the blood circulation more quickly than bound glutamate, but all bound glutamate will eventually also break down into free glutamate (single chain peptides).
4) Since many foods contain a lot more bound glutamate than free glutamate, what is important is the amount of glutamate being consumed rather than the form.

21. Is there a meal plan you suggest?

No. It is almost impossible to develop a meal plan for all patients as diet preference and level of glutamate toxicity greatly affects each individual's dietary glutamate tolerance level, so in general, this is what I suggest to all patients:

1) If your fasting glutamate is less than 30 µmol/L you may not need to limit dietary glutamate.
2) The higher your fasting glutamate, the more you need to restrict glutamate intake.
3) The higher is the different between postprandial and fasting serum glutamate, the strictest you should limit intake of dietary glutamate.
4) In general limit your total amount of dietary glutamate to less than 5g per meal.
5) Check each food item against the USDA database on food glutamate content and do your own calculations.
6) Develop about 7 to 14 of your preferred meal plans specifically for your unique situation, then stick to your customized meal plans throughout the treatment.
7) Do the fasting glutamate test monthly; if you do well with diet control, you will see that fasting glutamate is reduced and vice versa.
8) Adjust your meal planning accordingly.

And remember, diet restrictions are hard, but neurological disorders are a lot worse, which is why we emphasize that NBI can only help you halfway. The other half of the treatment depends on you.

22. Why can't I take anti-microbial products?

There is no way anti-microbial herbs such as olive leaf extract, tea tree oil, oregano oil, uva ursi, grape fruit seed extract, colloidal silver or mild silver protein can distinguish between good bacteria and pathogens. These products will kill both types of bacteria the same way broad spectrum antibiotics do. This essentially sterilizes the intestines and leaves behind a small amount of the toughest bacteria-- pathogens such as *Staphylococcus aureus* & *Klebsiella pneumoniae* may take over the entire intestine soon after you stop the anti-microbial treatment. This makes treatment with *RaphaN+*™ next to impossible.

23. Is olive oil an antimicrobial too?

Yes, to the new gut bacteria, therefore, it is not safe for you to consume olive oil when you are on *RaphaN+*™ treatment. Olive oil contains oleic acid that can inhibit or kill harmful bacteria[1]. One of these bacteria is *Helicobacter pylori*, a bacterium that lives in your stomach and can cause stomach ulcers and stomach cancer. Test-tube studies have shown that extra virgin olive oil fights eight strains of this bacterium, three of which are resistant to antibiotics[2]. A study in humans suggested that 30 grams of extra virgin olive oil, taken daily, can eliminate *Helicobacter pylori* infection in 10–40% of

people in as little as two weeks[3]. However, olive oil does not distinguish between good and bad bacteria and can interfere with *RaphaN+*™ treatment.

***1 Phenolic compounds in olive oil: antioxidant, health and organoleptic activities according to their chemical structure.** Inflammopharmacology. 2009 Apr;17(2):76-84. Servili M1, Esposto S, Fabiani R, Urbani S, Taticchi A, Mariucci F, Selvaggini R, Montedoro GF.*

2 **In vitro activity of olive oil polyphenols against Helicobacter pylori. J Agric Food Chem. 2007 Feb 7;55(3):680-6. Romero C1, Medina E, Vargas J, Brenes M, De Castro A.*

3 **Assessment of Helicobacter pylori Eradication by Virgin Olive Oil Manuel Castro, Concepción Romero, Antonio de Castro, Julio Vargas, Eduardo Medina, Raquel Millán, Manuel Brenes, First published: 17 April 2012, https://doi.org/10.1111/j.1523-5378.2012.00949.x*

24. Why can't I drink alkaline water?

The bacteria in *RaphaN+*™ thrive in intestinal pH from 6.0 to 6.5 and can only survive at pH 8.0 for 2 hours. The pH of most alkaline water is at least 9.5, which is about 5,000 times more alkaline than pH at 6.0-- this will destroy all the acid loving bacteria.

25. Why can't I take antacid medication?

The purpose of antacid medication is to neutralize the acidity of stomach HCl (pH 2.0). The pH of antacid medication such as calcium carbonate is 9.91. It will shift the intestinal pH from 6.0 towards 8.4, making it impossible for the bacteria in *RaphaN+*™ to survive.

26. Is there a window of time in which sodium bicarbonate water can be consumed if it is not mixed with *RaphaN+*™ or can I not drink it at all?

Sodium bicarbonate, also known as baking soda, is a common ingredient of alkaline bottled water. When dissolved in water, it tends to form solutions with pH values between 11 and 12. Sodium bicarbonate is also commonly used in city water to prevent dissipation of chlorine, which effectively prevents the overgrowth of bacteria during hot days. This is the primary reason patient with elevated serum glutamate must not drink city water using any brand of portable water filter. Portable filters have no effect in lowering water pH and have limited capacity in removing chlorine from city water.

The gut bacteria thrive in a pH of 6.0 to 6.5. At 7.0 they stop growing, at 8.0 the gut bacteria only live for about 2 to 3 hours, and at 8.6 or higher, the bacteria are killed instantly. This is the reason why no one should drink alkaline water, despite its heavy promotion on many websites for its cure-all benefits. The truth is, only acidosis patients with a blood pH lower than 7.0 will benefit from alkaline water, and even such patients must not use alkaline water for longer than 3 days, as it will shift the pH of the intestine from 6.0 toward 8.4. When this happens, the beneficial gut bacteria will be destroyed, leaving pathogens to overgrow in the gut. This condition is reflected as an extremely high post prandial increase of serum glutamate. So far, our company has observed serum glutamate as high as 340μM, and this type of condition will take more than 3 year to reverse.

27. Why is my monthly fasting glutamate getting worse while taking *RaphaN7*™?

Healthy fasting glutamate should be lower than 30 µmol. If your fasting glutamate is many folds higher than 30 µmol, it means even after a 8 to 12 hour fast, your body is still unable to remove excess levels of glutamate through both liver metabolism and kidney excretion.

28. What can I do if my fasting glutamate is getting worse while taking *RaphaN7*™?

In that case you should:

1. limit the intake of dietary glutamate by eating smaller meals more often.
2. switch to a vegetarian diet since plant protein in general has much lower glutamate levels than animal protein.
3. drink 4 to 5 bottles of bottled water daily (pH < 6.5), at the rate of 500ml per every 2 hours-- as slow as one mouthful at a time. This helps the water enter your main blood circulation though the microvilli of the small intestine and allows the kidneys to effectively remove the excess glutamate through urination. If you do not drink enough water, your kidney will not be able to excrete excess serum glutamate though urination.
4. Chronic exposure to high levels of serum glutamate (higher than 30 µmol) is the cause of many neurological disorders including ALS, MS, Parkinson's and Alzheimer's diseases.

29. How often should I do the Glutamate Challenge™ test?

Correcting elevated serum glutamate due to lose of glutamate metabolize bacteria is easy say difficult to do, we recommend the following schedule for retest:

Postprandial serum glutamate	Next Glutamate Challenge™ test
60-90 µmol	**3 month**
90-120 µmol	**6 month**
120 - 150 µmol	**9 month**
above 150 µmol	**12 month**

30. Why is my postprandial glutamate getting worse while taking *RaphaN7*™?

This situation is more likely to happen among those with a history of taking antacid medication or those with postprandial glutamate is 150 µmol higher than their fasting glutamate:

1) Higher postprandial glutamate indicates worse loss of the specific gut bacteria needed to metabolize dietary glutamate.
2) Since this specific bacterium is known to produce lactic acid to maintain the pH of the intestines at 6.0, this means you have also lost a source of lactic acid production.
3) Loss of these lactic acid factories will mean the pH of your intestines will shift from 6.0 towards 8.4. Antacid medication can easily shift the intestinal pH towards 8.4, even if you have already stopped taking it.
4) Higher intestinal pH makes it more likely for pathogen overgrowth to occur, which prevents the lactic acid loving bacteria in *RaphaN7*™ Part One from colonizing the small intestine.
5) This turns into a vicious cycle and will require much more than taking *RaphaN7*™ to reverse this environment that is hostile to bacteria in *RaphaN7*™ Part One due to being alkaline and saturated with pathogens.
6) So far, the highest increase of postprandial glutamate we have seen is 340 µmol, which is 11.33 folds higher than the normal increase of 30 µmol.

31. What can I do when my Glutamate Challenge tests show my postprandial glutamate is getting worse while taking *RaphaN7*™?

Do not panic or lose hope, these are techniques you can use to break this vicious cycle:

1) Switch to vegan diet immediately, this way you minimize the consumption of animal protein with too much glutamate in it.
2) The pathogens in your gut need lot of iron in order to attach to the gut lining. Therefore, the first thing you must do is adopt a low iron diet. The amount of blood in beef is the highest amongst all kinds of red meat, and blood contains high amounts of iron, therefore red meats such as beef should be strictly prohibited.
3) Other high iron foods such as shellfish, spinach, liver and other organ meat, legumes, pumpkin seeds, quinoa, turkey, broccoli, tofu, and dark chocolate should be avoided.

4) Take 500mg of supplement grade lactoferrin after each meal. Lactoferrin is a bacterium antibody that takes the iron away from pathogens and weakens their ability to attach to the gut lining. The pathogenic bacteria will then leave the gut lining without you taking anti-microbial herbs to kill them. This also makes it easier for the bacteria in *RaphaN+*™ to colonize the gut lining.

5) Take 5,000 mcg to 10,000 mcg of biotin 1 hour before each meal. Without *Lactobacillus* to produce biotin, the liver will not be able to produce bile, and without bile, no food can be properly digested.

6) Take 4 to 6 oz of plain yogurt before each meal to introduce lactic acid and other beneficial nutrients from yogurt into the small intestine to help the *Lactobacillus* species colonize. Sweeten the plain yogurt with honey or fruit such as grapes, apples, or bananas if you cannot tolerate the sourness of plain yogurt.

7) Take 2 to 4 capsules of complete digestion enzymes at each meal to aid digestion.

8) Drink water with fresh lemon juice in it. The pH of pure lemon juice is 3.0 and therefore will help you lower the pH of your intestines.

32. Should I exercise?

It all depends. Moderate exercise should be encouraged as it helps stimulate motor function; exercises that increase hand and leg strength are particularly beneficial. But intensive and injury-prone exercises could hurt you if you hurt yourself or fall and then require antibiotic treatment. Antibiotics offset the *RaphaN+*™ treatment. If you swim, you must wear a float around your neck and be supervised by someone strong enough to prevent you from drowning.

33. Why would I need antacid medication?

The main reason you need to take antacid medication are as follows:

1) **Heart Burn (GERD-Gastroesophageal Reflux Disease)** – When the lower esophageal sphincter (LES) fails to prevent HCl from overflowing to the esophagus, the HCl can burn the esophagus and cause intense pain to the esophagus. Common causes of dysfunctional LES are:

   i. **Violent vomiting** that cause a hiatal hernia around the LES;

   ii. **Excessive consumption of alcohol and/or spicy foods** that cause inflammation to the LES and prevent it from closing the top of the stomach during the pre-digestion process.

   iii. **Overeating** that increases the pressure to the LES.

2) ***Helicobacter* infection** near the top of the stomach which causes inflammation around the LES and prevents it from closing properly.

3) **Stomach ulcer** due to past *Helicobacter* infection. In this case, antacid medication neutralizes the HCl and prevents it from burning the ulcer.

34. How do I treat my heart burn (GERD) without antacid medication?

1) Stop or reduce consumption of alcohol and/or spicy foods;

2) Eat a 50% meal more often instead of full meals to reduce the pressure to the stomach & LES;

3) After a meal, go for a walk for about 30 minutes. This allows the stomach to experience minimized pressure. This makes it less likely for HCl to overflow to the LES when compared with a sitting or lying down position.

4) Drink at least 16oz of aloe vera juice per day over a two-hour period. This will reduce the inflammation of LES effectively.

35. How do I treat my *Helicobacter* infection without antacid medication?

If the Carbon-13 or Carbon-14 breath test confirms you have a *Helicobacter pylori* infection, your family doctor will prescribe 2 to 3 antibiotics to treat your *Helicobacter pylori* infection.

36. How do I treat my stomach ulcer without antacid medication?

Take 4 capsules of Pepzin GI after each and every meal for 90 to 120 days. It will heal your stomach ulcer and free you from the need of taking antacid medication for life.

37. What can I do if I have poor digestion from prolonged use of antacid medications?

Antacid medications are so alkaline that long term use of such products will shift the pH of the small intestine from 6.0 towards 8.4. *Lactobacillus* species only thrive in pH of 6.0 to 6.5. At 7.0 the bacteria stop multiplying, at pH 8.0 it only survives for 2 to 3 hours, and at pH 8.4 it is killed instantly.

In a normal situation, *Lactobacillus* species produce lactic acid to maintain the intestinal pH at the ideal 6.0. The higher the pH shifts towards 8.4, the faster the *Lactobacillus* are crowded out from the small intestine and the lower the production of lactic acid. This vicious cycle eventually shifts the intestinal pH towards 8.4; the patient will have poor digestion and poor appetite and food may take longer than 10 hours to digest. To overcome this problem, this is what you should do:

1) Take 5,000 mcg to 10,000 mcg of biotin 1 hour before each meal. Without *Lactobacillus* to produce biotin, the liver will not be able to produce bile, and without bile, no food can be properly digested.

2) Take 4 to 6 oz of plain yogurt before each meal to introduce lactic acid and other beneficial nutrients from yogurt into the small intestine to help the *Lactobacillus* species colonize. Sweeten the plain yogurt with honey or fruit such as grapes, apples, or bananas if you cannot tolerate the sourness of plain yogurt.

3) Take 2 to 4 capsules of complete digestion enzymes at each meal to aid digestion.

38. What should I do if I must take antibiotics for a systemic infection?

Before your doctor can treat you with antibiotics, they need to do a bacteria culture test to determine the sensitivity of the infecting pathogen to a range of antibiotics. Since most common pathogens are gram negative (e.g. *Escherichia coli, Klebsiella pneumoniae, Salmonella typhi, Enteritis salmonella, Vibrio cholerae, Pseudomonas aeruginosa, Neisseria gonorrhoeae, Chlamydia trachomatis,* and *Yersinia pestis,* you must insist on only gram negative antibiotic treatment because **the broad spectrum antibiotics preferred by infection specialists will destroy all the gram positive bacteria in *RaphaN+*™.**

In the less likely event that the infecting pathogen tests gram positive (e.g. *Staphylococcus aureus, Streptococcus pyogenes, Streptococcus pneumoniae* and *Listeria monocytogenes*), we suggest you **double dose your *RaphaN+*™ to two times per day after you complete the gram positive or broad spectrum antibiotic treatment.**

39. What is diet induced glutamate toxicity (DGT)?

Whenever your fasting glutamate is greater than 45µmol/L, you have DGT.

The ideal fasting glutamate of a healthy person should be less than 15µmol/L, as the normal level should not be higher than 30µmol/L. If your fasting glutamate is significantly higher than 30µmol/L, it indicates that after 12 hours of fasting, your body is still unable to metabolize or excrete excess glutamate to normalize the serum level of glutamate to 30µmol/L (about 4.4ppm).

The higher your fasting glutamate, the more you need to restrict your intake of dietary glutamate.

40. What causes DGT?

1) **Excessive consumption of animal protein** - Digestion of protein takes place in the small intestine and that process takes 2 to 3 hours. If you overload the digestive system with too much animal protein, which often has high glutamate content, there will not be enough time to convert glutamate into glutamine, which will increase the serum level of glutamate so high that even after 12 hours of fasting, your kidneys will still be unable to bring the serum level down to 30µmol/L through urinary excretion.

2) **Extreme dehydration** – Without water, your kidneys will not be able to excrete excess glutamate.

41. What can I do to correct DGT?

If you have DGT you should:

1) Limit the intake of dietary glutamate by eating smaller meals more often.
2) Switch to a vegetarian diet since plant proteins in general have much lower glutamate levels than animal proteins.
3) Drink 4 to 5 bottles of bottled water daily (pH < 6.5) at the rate of 500ml per every 2 hours, as slowly as one mouthful at a time. This helps the water enter your main blood circulation though the microvilli of the small intestine and that allows the kidneys to effectively remove the excess glutamate through urination. If you don't drink enough water, your kidneys will not be able to excrete excess serum glutamate though urination.

Chronic exposure to high levels of serum glutamate (higher than 30 µmol/l) is the cause of many neurological disorders including ALS, MS, Parkinson's, and Alzheimer's diseases.

42. What is enzyme induced glutamate toxicity (EGT)?

If your postprandial glutamate is 60 µmol/l higher than your fasting glutamate, you have EGT.

43. What causes EGT?

Lack of a glutamate gut bacteria - If you lack a special bacterium in the small intestine that produces the enzyme needed to convert glutamate into harmless glutamine, you have an EGT problem. The worse the bacteria deficiency, the worse your EGT problem will be.

44. How do I correct EGT?

Restoring glutamate gut bacteria is not an easy task, existing bacterial in the gut already adjust to the hostile environment in the gut, and are stronger than newcomer, it could take 1 to 3 years of taking *RaphaN7*™ to restore glutamate gut bacteria.

45. Why are physically active people susceptible to ALS?

Body builders, wrestlers, baseball players, sprinters, and other extreme sportsmen often consume very high protein meals to prevent overtraining. Doing so causes the serum level of glutamate to increase many times higher than the normal value and exercises such as pumping iron easily increase systolic blood pressure to 180mm Hg. A 1993 study by Tang et al.,[1] showed increased systolic pressure can enhance BBB transport of glutamate which in turn increases brain levels of glutamate by 600-1,200%. Higher

systolic pressure correlates with more severe and faster accumulation of brain levels of glutamate and more damage will be done at higher levels of glutamate excitotoxicity. In short, **a high protein diet together with intensive exercise is why extreme sportsmen have high incidences of ALS.**

1 **INCREASED BLOOD-BRAIN BARRIER PERMEABILITY OF AMINO ACIDS IN CHRONIC HYPERTENSION** PHARMACOLOGY LETTERS Life Sciences, Vol. 53, pp. PL 417-420 Jian-ping Tang, Zhi-Qun Xut, Frank L. Douglas, Ashok Rakhit and Srikumaran Melethil*

46. What is degenerative disc disease?

To understand degenerative disc disease, you need to understand the anatomy of the spine. The human spinal column is made up of individual vertebrae that extend from the base of the spine all the way through lower back, middle back, upper back, and neck to the base of the skull.

The "discs" referred to in degenerative disc disease are soft, round, spongy "cushions" known as intervertebral discs. There is one disc between each vertebra in the spinal column that acts as a shock absorber so the bones in the spine don't rub against one another.

A damaged disc can't provide normal support to the vertebrae. A spine that suffers degenerative disc problems loses normal bending, torsion, and range of motion in a portion of the spine and usually causes serious pain. Degenerative disc disease can affect the interstices between any vertebrae, but lumbar (lower back) and neck problems are most common.

In general, degenerative disc disease refers to the degeneration of vertebrate discs in the spine. In advanced stages, it can cause a total collapse and herniation of the disc. **The primary reason the disc loses its mechanical strength is due to severe dehydration**.

The spinal nerve consists of 31 pairs of nerves that arise from the spinal cord. The spinal nerves correspond to where it emerges and passes through the spinal vertebrae. There are 8 cervical (neck), 12 thoracic (chest), 5 lumbar (lower back), 5 sacral (sacrum bone) and one coccygeal (tailbone) nerve(s).

If any of these 31 pairs of spinal nerves are pinched, it can cause numbness, sharp pain, tingling sensations, muscle weakness, frequent feelings that a hand or foot is falling asleep, burning sensations, radiculopathy, peripheral neuropathy, ataxia, and even paralysis.

47. What is the cause of degenerative disc disease?

The main cause of degenerative disc disease is:

Dehydration - The discs in the spine are made up of 80% water. Chronic dehydration causes the discs to lose water and shrink like a dried-out sponge. The water loss also

means less cushioning or padding between your vertebrae. This can lead to other problems in your spine that could cause pain.

Injury - The stress of everyday movements and minor injuries over the years can cause tiny tears in the outer wall, which contain nerves. Any tears near the nerves can become painful. And if the wall breaks down, the disc's soft core may push through the cracks. The disc may bulge, or slip out of place, which is called a slipped or herniated disc. It can affect nearby nerves.

48. What are the consequences of untreated degenerative disc disease?

Left untreated, degenerative disc diseases can develop into the following problems:

1) **Herniated disc** (also called bulging disc, disc protrusion, slipped disc) - A spinal disc is a little like a jelly donut, with a softer center encased within a tougher exterior. A herniated disc occurs when some of the softer "jelly" pushes out through a tear in the tougher exterior. **A herniated disc can irritate nearby nerves** and result in pain, numbness or **weakness in an arm or leg**.
2) **Spinal stenosis - Spinal stenosis is an abnormal narrowing of the spinal canal or neural foramen** that results in pressure on the spinal cord or nerve roots. Symptoms of cervical stenosis include numbness or tingling in a hand, arm, foot or leg, weakness in a hand, arm, foot or leg, problems with walking and balance, neck pain, and in severe cases, bowel or bladder dysfunction (urinary urgency and incontinence). Symptoms of lumbar stenosis include numbness or tingling in a foot or leg, weakness in a foot or leg, pain or cramping in one or both legs when you stand for long periods of time or when you walk, which usually eases when you bend forward or sit.
3) **Radiculopathy –** Spinal radiculopathy is the damage or disturbance of nerve function that results if one of the nerve roots near the spinal vertebrae is compressed. Damage to nerve roots can cause pain and the loss of sensation along the nerve's pathway into the arms, shoulders, hands, fingers, toes, and legs, depending on where the damaged roots are located.
4) **Cervical myelopathy** - Cervical myelopathy is a form of myelopathy that involves compression of the spinal cord in the cervical spine (neck). Symptoms may include neck pain, stiffness, reduced range of motion, weakness in the arms and hands, numbness or tingling in the arms and hands, clumsiness and poor coordination of the hands, difficulty handling small objects like pens or coins, and balance issues.
5) **Intermittent neurogenic claudication** - Neurogenic claudication is considered the classic symptom of lumbar spinal stenosis, a condition in which passageways in the spinal column become narrowed by bone spurs or other abnormal structures. Lumbar spinal stenosis symptoms may arise when the nerves that go through the passageways

come into contact with bone, ligament or disc that has been altered by spinal degeneration. This may lead to irritation of nerves, again, causing symptoms often brought on by walking and/or that arching position mentioned above, which is also called spinal extension. They tend to be relieved by stooping, sitting, and/or bending forward at the waist. Other symptoms of intermittent neurogenic claudication include pins and needles going down your leg, and/or leg weakness. Bowel or bladder problems may occur if the neurogenic claudication is severe.

6) **Pinched Nerve** - A pinched nerve occurs when too much pressure is applied to a nerve by surrounding tissues, such as bones, cartilage, muscles, or tendons. This pressure disrupts the nerve's function, causing pain, tingling, numbness, or weakness. A pinched nerve can occur at a number of sites in your body. A herniated disk in your lower spine, for example, may put pressure on a nerve root, causing pain that radiates down the back of your leg. Likewise, a pinched nerve in your wrist can lead to pain and numbness in your hand and fingers (carpal tunnel syndrome). With rest and other conservative treatments, most people recover from a pinched nerve within a few days or weeks. Sometimes, surgery is needed to relieve pain from a pinched nerve.

49. Why should I care about degenerative disc disease?

If you have neurological symptom together with degenerative disc disease, you are likely only getting help from neurologists, who will not be able to offer you much help with degenerative disc disease. **Many symptoms of degenerative disc disease overlap with neurological disorders**, and left untreated, degenerative disc disease is the primary reason why patients in this group fail to respond to *RaphaN7*™ treatment.

50. How do I know if I have degenerative disc disease?

Your doctor can order an MRI on your entire spine, which will reveal if you have degenerative disc disease.

51. What should I do if I have degenerative disc disease?

RaphaN7™ has no effect on degenerative disc disease. If you have neurological symptom and degenerative disc disease, apart from taking *RaphaN7*™, you also need to do the following:

1) Multiply your body weight in pounds by 15ml/lb to determine the right amount of water you need to properly hydrate yourself. If you weigh 180 pounds, then you need to drink 2,700ml of water daily. You should drink the water at the rate of 500ml per 90 minutes, one mouthful at a time. The slower you drink the water, the better it enters your main blood circulation to help expand your vertebrate discs.

2) Limit coffee, tea, beer, red wine to only one cup a day. Remember each cup of coffee you drink contains up to 85mg of caffeine, which requires 2 cups of water to be removed. In addition, many of these drinks are diuretics and will increase the amount of water lost during urination. If you drink coffee, your net gain is negative one cup of water per every cup of coffee you drink. For tea the net gain is zero and for beer the net gain is negative 2 cups. Red wine is okay but more than one cup a day is not recommended.

3) Take 2-4 tablets of **Doctor's Best Glucosamine Chondroitin MSM with OptiMSM** after each meal three times daily to help repair and rebuild vertebrate discs.

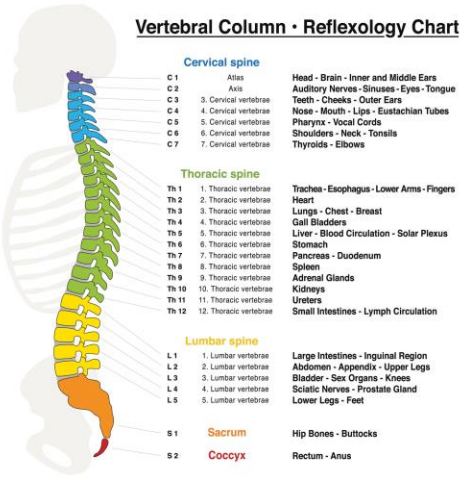
Do an MRI on your entire spine once every 6 months, stop this process only if the MRI no longer shows any signs of degenerative disc disease.

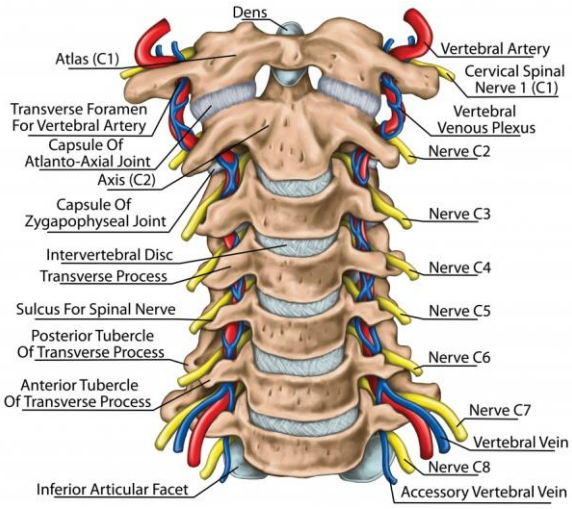
52. Will degenerative disc disease affect *RaphaN+*™ treatment?

Left without treatment, degenerative disc disease will affect *RaphaN+*™ treatment. We have seen extreme case of total disc degeneration occasionally mis-diagnosed as ALS.

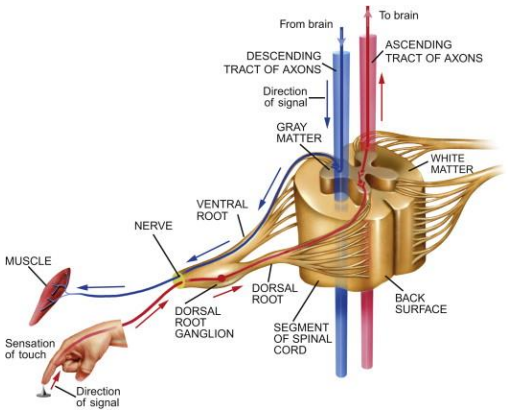
53. Can you show me what lateral (spinal) nerves look like?

These picture illustrations are self-explanatory for the lateral nerves.





April 6, 2022


From brain
To brain
DESCENDING TRACT OF AXONS
ASCENDING TRACT OF AXONS
Direction of signal
GRAY MATTER
WHITE MATTER
VENTRAL ROOT
NERVE
MUSCLE
DORSAL ROOT
DORSAL ROOT GANGLION
SEGMENT OF SPINAL CORD
BACK SURFACE
Sensation of touch
Direction of signal