

Prepared by Bro. Graham Watts, **revision 3**: March 30, 2016

“...Tingling in head symptom can precede, accompany, or follow an episode of nervousness, anxiety, fear, and elevated stress, or occur out of the blue and for no apparent reason. [If we can rule out conditions such as Migraines, Diabetes, Seizures, Stroke, underactive thyroid, insufficient blood supply to an area, toxic action on nerves from alcohol, tobacco, or lead, additional] ...causes of tingling symptoms [include]... side effects from certain medications, a lack of B12 or other vitamins, and abnormal levels of calcium, potassium, or sodium in the body.

Table 1: “Electrolyte tests are commonly ordered at regular intervals to monitor treatment of conditions, including high blood pressure, heart failure, lung disease, liver disease, and kidney disease” (<https://labtestsonline.org/understanding/analytes/electrolytes/tab/test/>)

Electrolytes & Metabolites	Observed Values	Reference Range	Mid Range	Contraindications, (Harm), if Observed Values too High	Contraindications, (Harm), if Observed Values too Low
Sodium	137	136-145 mEq/L	140.5		Drugs, such as diuretics, carbamazepine, and tricyclic antidepressants, may cause decreased levels of sodium.
Potassium	3.9	3.5-5.1 mEq/L	4.3		Some diuretics... used for people with... high blood pressure or kidney disease, tend to lower potassium levels to dangerously low levels. To avoid this problem, a health practitioner may prescribe a potassium-sparing diuretic.
Chloride	103	98-107 mEq/L	102		
Calcium	9.6	8.6-10.2 mg/dL	9.4		
Albumin	4.3	3.5-5.5 g/dL	4.5		
Bicarbonate (CO ₂)		23-29 mEq/L	26		Hyperventilation and hyperthyroidism, among other factors, may cause low CO ₂
BUN (Blood Urea Nitrogen)	8	6-20 mg/dL	13		Low BUN... may be seen... sometimes when a person is overhydrated, (too much fluid volume)... Very low-protein diets can cause an abnormally low BUN. Drugs that can decrease BUN include chloramphenicol and streptomycin.
Glucose-FPG, (Fasting Plasma Glucose)	119	100-125 mg/dL	112.5	Extreme stress and drugs such as corticosteroids, tricyclic antidepressants, diuretics, epinephrine can increase glucose levels	
Protein	7.4	6.4-8.3 g/dL	7.35		

References: <https://labtestsonline.org/understanding/analytes/electrolytes/tab/test/>; <https://labtestsonline.org/understanding/analytes/bun/tab/test/>; <https://labtestsonline.org/understanding/analytes/glucose/tab/test/>; <http://emedicine.medscape.com/article/2054430-overview>; <http://www.webmd.com/a-to-z-guides/total-serum-protein?page=2>; <http://www.webmd.com/a-to-z-guides/bicarbonate?page=2>; <http://www.webmd.com/food-recipes/guide/vitamin-b12-deficiency-symptoms-causes?page=2>

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Psychological distress is also a factor in paresthesia. There are three main reasons why anxiety can cause tingling in head symptoms:

1. **Anxiety Induced Stress Response:** Distress and anxiety, (from worry, apprehension, fretful, fearful) activates the pituitary-adrenal axis, which "...results in hypothalamic secretion of corticotrophin-releasing factor, (CRF). CRF then stimulates the pituitary [to release] adrenocorticotrophin, (ACTH), 8-lipotropin, and 3-endorphin" (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3079864/>), all ...stress hormones into the bloodstream.... "Plasma levels of these hormones can increase two-to-fivefold during stress in humans. ...Long-term exposure to stress may lead to many deleterious consequences leading to various endocrine disorders"—prediabetes, osteoporosis, and a host of other conditions (<http://www.endocrineweb.com/conditions>; <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3079864/>). A part of the stress response changes include shunting blood away from parts of the body less vital to survival and to parts of the body more vital to survival, such as the brain. ...This sudden rush of blood to the brain can cause a variety of sensations, including tingling in head feelings.
2. **Stress-Response Hyper-Stimulation:** ...When the stress response occur too frequently and/or dramatically, the body... [remains] in a semi, hyper-stimulated state, since stress hormones are stimulants. ...When... [nerve cells], the nervous system become stress-response hyper stimulated..., experiencing tingling in head, pins and needles, pressures, numbness, and tremors in the head or any part of the body... [can occur].
3. **Hyper or Hypoventilation:** ...When we breathe too shallowly and don't take in enough oxygen, (hypoventilation), this causes the CO₂ levels in the blood to drop, which can cause a tingling sensation in the body, including the head. ['In the body, most of the CO₂ is in the form of... bicarbonate, HCO₃' (<https://www.nlm.nih.gov/medlineplus/ency/article/003469.htm>)]. Low oxygen in the blood can cause a pins and needles and tingling feeling in any part of the body, including the head. ...If on the other hand, you are breathing too aggressively and take in too much oxygen, this can also change the CO₂ levels in the blood causing hyperventilation, which can also cause tingling in head symptoms. Even though tingling in head symptoms can seem odd and even unsettling, when they are caused by any of the [three] factors, they are harmless and need NOT be a cause of concern. They will subside when you reverse the causes" (<http://www.anxietycentre.com/anxiety/symptoms/tingling-in-head.shtml>).

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If psychological distress is a factor in paresthesia, what support is available from the Scriptures to help us cope in such situations? A short list of help promises follow.

Scriptures	Promises (for Memorization and Repetition During time of Emotional or Psychological Distress)
1. John 6:63, NKJV	"...The words that I speak to you are spirit, and they are life."
2. Exodus 14:13, NKJV	"...Do not be afraid. Stand still, and see the salvation of the Lord...."
3. Revelation 3:7, NKJV	"...These things say He who is holy, He who is true, He who has the key of David, He who opens and no one shuts, and shuts and no one opens."
4. Isaiah 49:16, NKJV	"...I have inscribed you on the palms of My hands; your walls are continually before Me."
5. Isaiah 54:17, NKJV	"No weapon formed against you shall prosper...."
6. Joshua 1:9, TLB	"...Be bold and strong! Banish fear and doubt! For remember, the Lord your God is with you wherever you go."
7. Exodus 33:14	"...My presence shall go with [you] and I will give [you] rest."
8. Psalm 37:7, TLB	"Rest in the Lord; wait patiently for Him to act...."
9. Psalm 91:1-3, TLB	"We live within the shadow of the Almighty, sheltered by the God who is above all gods. ...He alone is my refuge, my place of safety. He is my God, and I am trusting Him. For He rescues [me] from every trap and protects [me] from the fatal plague."
10. Psalm 32:8, TLB	"I will instruct you and guide you along the best pathway for your life; I will advise you and watch your progress."
11. 2 Corinthians 1:3-4, TLB	"What a wonderful God we have..., the one who... comforts and strengthens us in our hardships and trials... so that when others are troubled, needing our sympathy and encouragement, we can pass on to them this same help and comfort [He] has given us."
12. Ephesians 1:19-20, TLB	"I pray that you begin to understand how incredibly great His power is to help <i>those who believe</i> Him. It is that same mighty power that raised Christ from the dead and seated Him in the place of honor at God's right hand in heaven."
13. Matthew 10:30	"...The very hairs of your head are ALL numbered."
14. 1 Peter 5:7, NKJV	"Casting ALL your care upon Him, for He cares for you."
15. Mark 5:34, NKJV	"...Your faith has made you well; go in peace, healed of your disease."
16. 2 Timothy 2:19, GNT	"...The solid foundation that God has laid CANNOT be shaken; and on it are written these words: 'The Lord knows those who are His....'"