ELECTROLYTES

Defined, Symptoms & How To Create Hydration Drinks

By Dr. Donna F. Smith

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ELECTROLYTES

What Are Electrolytes?

An "Electrolyte" is the umbrella term for particles that carry a positive or negative electric charge. In clinical nutrition (nutritional biochemistry), the term refers to essential "minerals" that are found in your blood, sweat and urine. When these minerals dissolve in your body's fluids (i.e., water and fluids that are based in water within your body), they form electrolytes — electrically-charged positive or negative particles called "ions," which are used in metabolic processes.

So, Electrolytes are chemicals (natural bio-chemicals) that conduct electricity when dissolved in water. They regulate nerve and muscle function, hydrate the body, balance blood acidity and pressure, maintain fluid balance and electrical charges throughout the body, and help rebuild damaged tissue. We need them for proper nerve activity and to transport fluid in and out of cells.

Which Minerals Form Electrolytes?

The three primary electrolytes are sodium, potassium, and chloride. These are the three that you will find routinely on blood chemistry laboratory reports for evaluation of your optimal electrolyte balance. Other minerals that also form electrolytes are: calcium, magnesium, and phosphorus.

The other three of the six electrolytes appear on some laboratory reports, which when they do, can further support an evaluation of whether you have optimal levels in all six electrolytes, however, the latter three have other purposes for appearing on blood lab reports, also.

Keep in mind that in any of my writings, when I use the term "optimal, "I am referring to your levels or test value (result) in homeostasis (perfect biochemical balance).

ELECTROLYTE IMBALANCE-CAUSES

Levels of electrolytes in your body can become too low or too high when the amount of water in your body changes, causing dehydration or over-hydration**.** Dehydration and over-hydration require adhering to the four points listed below for "Water Criteria."

Mineral insufficiency, deficiency and/or excess (too little or too much) of one or more of the electrolyte minerals can cause electrolyte imbalance.

Electrolyte imbalances are caused by:

1. Vomiting
2. Diarrhea
3. Eating disorders
4. Alcoholism
5. Sweating for any reason, including fluid loss from heavy exercise or physical activity.
6. Some pharmaceutical medications, such as diuretics, antibiotics, and chemotherapy drugs.
7. Cirrhosis
8. Diabetes
9. Heart Failure
10. Kidney dysfunction or disease, such as lupus nephritis
11. Mineral deficiencies or excesses in the electrolyte minerals, specifically, sodium, potassium, chloride, as well as calcium, magnesium, and phosphorus.
12. Insufficient, toxic, incomplete water and water not getting into your cells. Refer to "Water Criteria" below.
13. To name a few.

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SYMPTOMS

Symptoms of dehydration, over-hydration and electrolyte imbalance are:

Symptoms and Signs of Dehydration?

1. Feeling thirsty. Keep in mind that when you actually feel thirsty you have been dehydrated for some time; the body only gives you the symptom when the level of dehydration becomes serious.
2. Dark yellow and strong-smelling urine.
3. Urine output is less than four times daily. Average output is between 6-7 times in a 24-hour period, with a healthy output being up to 10 times, for some people.
4. Feeling dizzy or light-headedness
5. Feeling tired.
6. A dry mouth, lips and eyes.

Symptoms and Signs of Over-Hydration

Symptoms of Over-Hydration

1. Nausea
2. Vomiting
3. Headache
4. Muscle cramping
5. Changes in mental states, such as confusion or disorientation.

Signs of Over-Hydration

1. Urine output is clear – no color is the body's way of saying you have had plenty to drink; if there is no other cause from clear urine. Evaluate your water (and beverage) intake in the past 24 hours and reduce the amount if it has been too much.
2. Taking excessive amounts of rehydrating beverages due to diarrhea.

3. Losing interest in meals that tend to lack in salt.
4. Increasing water intake while perspiring much more frequently.
5. Unusually frequent urination.
6. Kidney problems causing water retention.

Over-consuming of water can lead to fatal water intoxication, known as water toxemia, water poisoning and/or hyperhydration. Too much water dilutes the electrolyte concentrations in the blood, causing an electrolyte imbalance throughout the body's many systems. When concentrations of electrolytes in the blood are too low, it makes the body's cellular processes less efficient to nearly impossible.

The most common electrolyte imbalance, which can be caused by drinking too much water, is called "hyponatremia," aka low sodium in the blood. Mild hyponatremia is characterized by gastrointestinal tract symptoms, nausea, vomiting, and loss of appetite," whereas, more serious cases result in excess water and swelling in the brain, leading to seizures, comas, or impaired mental status.

Symptoms of an Electrolyte Balance

Listed alphabetically…

1. Abdominal Cramping,
2. Burns, such as severe, third-degree burns,
3. Confusions,
4. Constipation,
5. Digestive health problems, including nausea
6. Dizziness,
7. Fatigue,
8. Headaches,
9. Irritability,
10. Irregular or fast heartbeat/abnormal heart rhythm,
11. Lethargy,
12. Mental Confusion,
13. Muscle cramping and/or weakness,
14. Numbness and/or tingling in hands and feet,
15. Seizures,
16. Vomiting,
17. Seizures,
18. Serious and long-term imbalances can lead to cardiac arrest or renal dysfunction,
19. To name the most common.

Symptoms depend on which electrolyte is imbalanced and whether you have too much or too little. Therefore, imbalances in levels of an individual electrolyte or combination of individual electrolytes will cause its own set of symptoms and health challenges. For example, many people often experience an imbalance from eating too much sodium and too little magnesium, which then can cause:

1. Swollen fingers or toes,
2. Chronic stress, and irritability. Serious and long term

Calcium, for example, is a vital mineral that your body uses to stabilize blood pressure, control skeletal muscle contraction, and build strong bones and teeth. So Calcium imbalance can adversely affect Electrolyte balance and other areas of the body.

> For information on the seven primary factors that cause calcium imbalances, refer to my article, "Bone Health – Calcium May Note Be Enough (Part 1 & 2), The Villager, 6/2/22 P2 & P3. This article is not just about calcium and bone health and it is posted on our Client website on the "Articles by Dr. Smith / Villager Publications" webpage.

WATER CRITERIA

The first step in preventing dehydration and over-hydration is to maintain the criteria for water in the body. If this criterion is not met, then this will be the bottom-line cause for electrolyte imbalances, and the above list of symptoms will just be made worse because the foundational criteria for electrolyte balance have not been established.

1. **Daily Water Intake Requirement:** Drinking one-half your body weight in ounces, daily. Ex: If you weighed 120 pounds, 60 ounces of water is required daily.

   However, before, during, and after physical exercise and for those who have jobs where they work in the heat (outside or inside), you will require more than your daily requirement based on this formula. How much would be difficult to measure mathematically, however, there are two tests that will help you determine and monitor whether you are increasing your water intake sufficiently:

   a. Testing your blood level electrolytes,
   b. Testing your minerals through a hair tissue mineral analysis (TMA).

   Also, keep in mind that if you have any symptoms of dehydration, over-hydration or electrolyte imbalance, you have not been getting sufficient water, and/or all four of the criteria for water are not being met.

   Please note: When increasing your daily water intake do this slowly. Record the time and amount of water you drink for one day. If the total amount consumed is less than your daily requirement, calculate the amount of water you lack. Then review the times of the day when you are not consuming water and include an amount during those times that equal the amount you have been lacking. However, increase your water intake over several days or a week, depending upon how much was lacking. You don't want to stress your body by taking in more water than it has been used to, too soon.

   When increasing purified water intake, your urinary output will increase considerable in the first few weeks, as your body is able to release old, toxic water/fluids. You see, when the body does not receive the amount that it requires (the Formula above) it will recirculate old, toxic water and fluids when it is desperate. Once it has eliminated all or most of this toxic water or fluid, normal daily urinary output will resume.

2. **Pure (non-toxic) Water Daily:** For drinking and cooking, you need pure water. There are only two water purification systems that actually purify water; filters do not purify the water, they

simply remove some of the larger molecules or a few of the most toxic chemicals, such as chlorine. Granted filtered water is less toxic than tap water, but even a small amount of toxic water is still poisonous, impure water. The two water purification systems that are worth your money and promotes health are:

a. Reverse Osmosis (R.O.)
b. Distillation

R. O. water is preferred because it requires no regular maintenance, simply replaces its R. O. membranes and pre- and post-filters as needed. If you do not have an R. O. water purification system, before purchasing one, schedule a free consultation with me so I can provide additional information you need to know to make a truly informed decision about R.O. systems.

Distillation systems are high maintenance, and must be cleaned regularly, otherwise, bacteria and other microorganisms will grow in them and thus, not only contaminating the water, but also causing it to be harmful to consume.

Both systems remove minerals and bio-energetic properties, thus mineral supplementation is required and #4 will replace its bio-energetic properties.

Monitoring your mineral status requires a **Tissue Mineral Hair Analysis (TMA or TMHA)** to identify which minerals you need to supplement, either because they are not available in the foods you have chosen to consume or your body is unable to metabolize minerals and other nutrients you are getting from your diet in order to get the nutrients into the cells. So, a TMA is essential to identify the minerals your body actually needs.

3. **Sodium Sufficiency:**

a. <u>Clarifying Erroneous Public Health Information About Sodium (commonly called Salt):</u>

Though sodium is a primary electrolyte mineral, it is also the specific mineral that is required for the water you consume to get into the cells. Water follows sodium; where sodium goes, water will follow. The most amazing evidence of this scientific principle is the ocean and the high level of sea salt (sodium) it contains. The sodium level is too high for human consumption and even too high for the Earth itself; since the receding tide is actually the Earth's rejection of seawater.

The common term for sodium is "salt." However, not all salt is a nutrient of pure sodium. Contrary to what physicians and dieticians have said about not consuming salt (i.e., sodium), the fact is …. without daily consumption of pure sodium found in sea salt, the human body cannot be healthy, much less be hydrated.

What they should have been warning the public about is consuming sodium chloride, known as table salt or rock salt, which is actually Halite.

Halite is the mineral name for the substance that everyone calls salt, which has the chemical name of sodium chloride and a rock composed primarily of Halite is known of "rock salt." In other words, it is a rock, not a nutrient, and therefore, this is the true cause for all the health conditions and challenges that they have been blaming on pure nutrient Sodium.

These health challenges do not occur when:

i. Consuming "foods" that have sodium in them, nor
ii. When the nutrients in the food include both sodium and chloride, nor
iii. When consuming a supplement or seasoning that contains whole food sodium, like sea salt.

b. Daily Requirements for Sodium (sea salt)

Having reviewed both medical and dietetic textbooks, I find that their references are based on consuming sodium-chloride, rock salt, and not pure nutrient sodium. Internet searches will provide the same information.

However, in clinical nutrition, adult sodium intake is one to one and a half teaspoons (1-1½) of our sea salt daily. For children, contact me for more information.

4. **Double Helix Water**

Information on Double Helix Water is provided on our Client Website on the "Equipment – Air – Water" webpage. Instructions for using this will be provided when you purchase your first bottle.

To provide complete, pure and sufficient water requires all four of the above water criteria!

HYDRATION TWO-STEP SOLUTION

The 2-Step Solution to becoming and staying Hydrated is:

1. Maintain all four Water Criteria.

2. Consume Vegetables, Fruits and Herbs high in electrolyte minerals, eat raw and prepared with temperatures no higher than 212^{o} degrees Fahrenheit (i.e., boiling point) solid form, Start with lots of water content foods, but not citrus, like watermelon, cantaloupe, .

3. Create delicious Hydration Drinks, herbal teas and Smoothies. Guidelines in this document.

4. **Double Helix Water**, daily. For more information go to our webpage **"Equipment-Air-Water."**

5. **QuintEssential Seawater packets**, daily. –

    a. Hydrotonic for the dehydrated. This means any level of dehydration from mild to severe. Dehydration has been verified by a clinical nutrition analysis of one or more biochemical test, e.g., blood, hair, saliva, stool and/or urine, with findings that indicated dehydration, mineral deficiencies, electrolyte imbalances, fluid retention or any conditions that involves water (like swellings and temperatures).

    b. Isotonic for the Hydrated. In other words, for hydration maintenance once your results from a clinical nutrition analysis of updated testing of your biochemistry s results indicate that you are no longer dehydrated, switch to Isotonic. Then use Hydrotonic as needed before, during and after physical exertion and water loss (sweating, fever, etc.) and they amount depends upon how mild, moderate or severe the exertion and water loss was.

Instructions for taking the above, will be provided with first invoice.

If not already taking #4 and #5 above,
contact me for more information and to order.

Reading this document, you can see why they are two on my list of own most important supplements for myself and my clients!
(940) 761-4045

BENEFITS OF HIMALAYAN & HAWAIIAN PINK SALT

There are a number of brands of sea salt on the market today, however, after personally using and recommended the best that was available through health food stores or local markets, in 2006 I was introduced to Premier Research Lab's Pink Salt. Premier Research Lab is one of our therapeutic supplement companies. Since then, this is the only brand Matt and I use, and that I recommend to our clients and here is why.

Our Pink Salt is pure nutrient sodium that is also mineral-rich and from both the Himalayan and Hawaiian Islands.

Himalayan and Hawaiian Island Pink Salt – Benefits

Himalayan Pink Salt is known as the purest salt on the planet and the Hawaiian island Pink salt is one of the most preferred natural salts in the world. Due to both their pure sodium and purity and richness of other minerals in their seas, their benefits include:

1. Promotes Respiratory function
2. Helps pH balance
3. Helps induce sleep
4. Anti-bacterial and anti-fungal
5. Helps Digestive system
6. Regulates the water level in your body to promote overall functions
7. Supports adrenal and thyroid functions
8. Lowers the symptoms of aging
9. Helps promote male and female hormone balance, even libido
10. Aids vascular health and circulatory support
11. Reduces leg cramps
12. Improves cellular energy
13. Promotes the levels of blood sugar
14. Promotes bone strength
15. Improves the gallbladder and kidney health
16. Oral Hygiene and Health
17. Promotes Healthy Skin

ELECTROLYTES FOODS

First, I will list the vegetables, fruits, nuts, seeds and herbs that contain the six electrolyte minerals. Ideally, you want to consume all six electrolyte minerals each day, however, start with making sure you are getting the primary electrolyte minerals first, which are Chloride, Potassium and Sodium. I have also indicated which foods and herbs are have the highest content of each of the electrolyte minerals, when possible, which is why the foods and herbs are not always listed alphabetically. Also, when more than one electrolyte is listed, they are listed in in order of the highest to the least electrolyte content in that food or herb.

I have also included some of the other nutrients you will benefit from when consuming the food or herb, if this information was included along with the electrolyte minerals when doing the research for this document.

My intention in writing this is to provide the foods and herbs that have the highest content of electrolyte minerals and to give you a variety of foods and herbs to choose from, rather than attempt to include every food or herb that contains electrolyte minerals.

For example, alphabetically, Calcium is the first electrolyte mineral listed below. So, the foods and herbs listed under the titled "Calcium" represent those that the highest content of Calcium in them. If you see other electrolytes listed next to the food or herb in the Calcium list, these means that the food or herb also contains these other electrolytes, but in a lesser amount. Electrolyte minerals are listed following the name of the food or herb, in the order of highest to least amount, when that information was available.

Calcium Foods

1. Seeds are tiny nutritional powerhouses and many are high in calcium, such as poppy, sesame, celery and chia seeds.
2. Almonds
3. Apricots, dried.
4. Kiwi
5. Dates
6. Figs, dried
7. Oranges
8. Prickly Pears
9. Tangerines
10. Mulberries
11. Blackberries
12. Guavas
13. Papaya
14. Passion-Fruit (Granadilla)

Chloride

1. **Seaweed:** All types of seaweed are high in Chloride. Seaweed also includes:
    a. Other Electrolytes: Calcium
    b. Other Minerals: Iodine, Folate, and Iron
    c. Vitamins: A, B1, B2, C, E, and K.

    Wakame is my first choice of seaweed because it is full of minerals, and it includes:
    a. Other Electrolytes: Calcium, Magnesium, Potassium, Phosphorus, as well as being high in Chloride. So, Wakame includes all of the electrolytes except sodium.
    b. However, when you use Wakame in your Hydration drink, simply add our Pink Salt, which will provide Sodium and then your drink will be complete with all six electrolyte minerals.
    c. Also, includes: Beta Carotene and Folate.

    Bragg's Sea Kelp Delight Seasonings also helps in recovery before or after work, so adding this to your first and last Hydration Drink is beneficial.

2. **Lettuce and All Green Leafy Veggies:**

    a. Lettuce and all green leafy vegetables include Chloride, Sodium and Potassium – the three primary electrolytes.

    b. Choose Romaine first, it has all six electrolytes, the three primary electrolytes, Chloride, Sodium and Potassium, in addition to Calcium, Phosphorus, Magnesium, and Sodium, though the Sodium content is naturally low. So, adding a small amount of our Pink Salt is recommended. Romaine lettuce also has Vitamins A, C, and K, as well as Folate.

3. **Tomato (if raw)**

    a. High in Chloride and there is a reduced risk of heart disease due to high amounts of lycopene in tomatoes.
    b. Tomatoes, also, include the electrolyte, Potassium
    c. Vitamins: K1, and C.
    d. Minerals: Choline,
    e. Fiber
    f. All of the above are good for the heart.

4. **Celery**

    a. Celery is high in Chloride and Calcium. It also contains the other four of the six electrolytes, sodium, potassium, magnesium, and phosphorus. So include it often in your hydrate drinks, alone or in combination with other vegetables.

    b. The crunch of celery comes from its high water content and long strands of cellulose, an insoluble fiber. As such, celery stalks are a great source of insoluble fiber, but a negligible source of soluble fiber.

    c. Celery (like all green leafy vegetables) is high in Calcium and dietary fiber, along with Spinach, Kale, and Broccoli, which are also rich in potassium and magnesium.

5. **Olives**

    a. High in Chloride.
    b. Also contain Calcium, Sodium, Iron, Copper, and Vitamin E.

Magnesium Foods

1. Spinach
2. Bok Choy
3. Swiss Chard
4. Kale
5. Beet Greens
6. Avocados
7. Leafy Vegetables
8. Potatoes
9. Coconut
10. Dried figs
11. Guavas
12. Bananas
13. Kiwi Fruit
14. Papayas
15. Blackberries
16. Raspberries
17. Cantaloupe
18. Grapefruit
19. Pumpkin Seeds
20. Almonds
21. Cashews

Potassium Foods

1. Beets – (also contains Folate (Vitamin B9), Manganese, Iron, Vitamins A and C.
2. Spinach
3. Swiss Chard
4. Bok Choy
5. Avocado
6. Sweet Potato
7. Leafy greens
8. Apples
9. Bananas (also B6 and C)
10. Cantaloupe
11. Oranges
12. Honeydew
13. Apricots (also A, B5, C, E)
14. Grapefruit
15. Prunes
16. Raisins
17. Dates

Phosphorus Foods

1. Asparagus,
2. Beets – (also contains Folate (Vitamin B9), Manganese, Iron, Vitamins A and C.
3. Broccoli,
4. Celery,
5. Mushrooms,
6. Onions,
7. Pepper,
8. Radishes
9. Tomatoes (Consume only raw)
10. Avocado
11. Raisins
12. Prunes
13. Passion-fruit
14. Dates
15. Currants
16. Cashews
17. Almonds
18. Pine nuts
19. Pistachios

Sodium Foods

1. Our Pink Salt
2. Sea Salt in general.
3. Apples (esp Granny Smith)
4. Apricot (also, Potassium, and Vitamins A, B5, C, and E
5. Asparagus
6. Beets
7. Celery
8. Dandelion greens
9. Kale
10. Olives
11. Peppers
12. Spinach
13. Swiss Chard
14. Turnips
15. Coconuts
16. Prunes
17. Strawberries
18. Raisins
19. Sesame Seeds
20. Sunflower Seeds

FOODS WITH MULTIPLE ELECTROLYTE MINERALS

1. Butternut Squash contains (highest to least) – i.e., has more potassium than sodium.
   a. Potassium, Calcium, Magnesium, Phosphorus and Sodium.

2. Spinach (high water count)
   a. Potassium, Calcium, Magnesium, Sodium, and Phosphorus, along with iron, manganese, zinc, and small quantities of A, C, E, K, Folate, Thiamine (B1), Pyridoxine (B6) and Riboflavin (B2).

3. Apple Cider Vinegar
   a. sodium, potassium, calcium, magnesium and phosphorus and also, many B vitamins and vitamin C.

4. Coconut Water
   a. Potassium, Sodium, Magnesium, Calcium, and Phosphorus.

5. Celery
   a. Potassium, Sodium, Calcium, Phosphorus and Magnesium.

6. Lettuce
   a. Potassium, Calcium, Phosphorus, Magnesium and Sodium.

9. Broccoli
   a. Calcium, Potassium, Phosphorus, Iron, Zinc, and Vitamins B1, B2 and B3.

10. Cauliflower
   a. Potassium, Magnesium, Calcium, iron, and Vitamins C and K.

11. Kale
   a. Calcium, Potassium, Manganese, copper and Vitamins A, B6, C, and K.

12. Watermelon (92% water)
   a. Potassium, Phosphorus, Magnesium, Vitamin A and C.

13. Cantaloupe
    a. Calcium and Folic Acid, Zinc, Copper, Iron, Niacin, Choline, Vitamin K and more immune-boosting Vitamin C than watermelon.

14. Avocado
    a. Magnesium, Potassium, and also has Folate, Riboflavin (B2), Niacin (B3), Pantothenic Acid (B5), Pyridoxine (B6), and Vitamin C.

ELECTROLYTE HERBS

I have enjoyed making tea from some, but not all, of the herbs listed below. The herbs are listed for the electrolyte minerals they contain, so you may or may not like the taste of some you select.

Chloride

1. Dandelion Greens
2. Kelp

Sodium

1. Mustard,
2. Horseradish
3. Cloves
4. Cumin seed
5. Fennel seed
6. Paprika
7. Parsley
8. Fenugreek seed
9. Dandelion
10. Dill weed
11. Irish Moss
12. Kelp
13. Turmeric
14. Coriander seed
15. Peppermint
16. Spearmint
17. Ginger

Potassium

1. Dill
2. Alfalfa
3. Chamomile
4. Chicory
5. Dandelion
6. Elderberry
7. Fennel
8. Garlic
9. Ginger
10. Hops
11. Parsley
12. Parsnip
13. Watercress

Calcium

1. Rosemary
2. Alfalfa,
3. Anise
4. Burdock
5. Chickweed,
6. Dandelion
7. Dulse
8. Fennel
9. Fenugreek
10. Flaxseed
11. Irish Moss
12. Lemongrass
13. Kelp
14. Marshmallow
15. Mullein,
16. Parsley
17. Rosehip
18. Sarsaparilla
19. Slippery Elm (this is a mucilage herb so it will thicken any drink or smoothie)

Magnesium

1. Oregano
2. Basil
3. Red Clover – also contains calcium, phosphorus, potassium, along with chromium, strong anti-cancer herb when consumed with Chaparral
4. Anise
5. Capers
6. Caraway
7. Celery Seed
8. Chervil
9. Coriander
10. Dill
11. Thyme
12. Savory
13. Alfalfa
14. Marjoram
15. Tarragon
16. Parsley
17. Mint
18. Ginger

Phosphorus

1. Chervil
2. Alfalfa
3. Caraway
4. Irish Moss
5. Kelp
6. Licorice Root
7. Parsley
8. Red Clover
9. Rosemary
10. Slippery Elm
11. Watercress
12. Yellow Dock

Note: Alfalfa, Dandelion and Kelp – together -- they include all vitamins and minerals.

FOODS DEHYDRATED / DRIED

Dehydrating (aka dried) foods are an excellent method to preserve food for years, and here are some of their other benefits and tips. You may dehydrate fruit, vegetables and animal proteins, such as making your own beef jerky:

1. The lower the temperature, the more nutrients remain in the dehydrated food. Food retains its nutritious value and is as near as fresh as possible while lasting an indefinite amount of time. Furthermore, dehydrated foods are very light, take up little storage space, and are shelf-stable.

2. Cooking dried foods will only cause them to lose additional nutrients.

3. Dehydrated foods need just one ingredient: the item (water) you are removing by dehydrating them. So, you get all of the nutrients and fiber of the entire food when dehydrating them, and unlike cooking and steaming, you do not lose any of the nutritious value of the foods you are dehydrating.

4. Therefore, when you want to eat dehydrated food, ideally, you want to add water to it to restore its total nutrient content. This is why adding dehydrated fruits and vegetables to your Hydrated Drink is perfect.

5. If you are not going to consume your Hydrated Drink for a while, simply toss the dried food into the water (then blend or not, depending upon the recipe). Then off you go allowing the water to rehydrate the food for at least 20-30 minutes before consuming.

6. However, if you want to consume it right away or at least drink some of it right away, then put the dried food in a jar, add room temperature water and then tighten the lid so it can rehydrate without releasing any nutrients. Then do something else, and return in 20 to 30 minutes to add it to your drink recipe. You can tell if it is hydrated because it will be plump and soft and will easily release water or juice upon squeezing. Some sources recommend soaking in boiled water for 10 minutes and then eating, but I don't.

    a. One reason is that boiled water will deplete nutrients from the dehydrated food.

b. The other reason is Acrylamides. Acrylamides are naturally-occurring chemicals that occur in any food that has been boiled or allowed to sit in water at boiling temperature, as well as cooking any food at any temperature above boiling, which includes microwaves. Boiling means the temperature is at 212^{o} F. Microwaves cook food at 300^{o} to 450^{o} F. Acrylamides are known to cause cancer, damage the nervous system, affect fertility and cause many other health conditions and diseases.

7. Fiber and antioxidants are abundant in dehydrated foods. One of the lesser recognized advantages of dehydrated meals is that dehydrated fruits and vegetables have greater fiber and antioxidant concentrations by weight than their fresh counterparts.

8. It is possible to over-dehydrate vegetables, so again do this at low temperatures. Because not only to avoid Acrylamides, which is reason enough, but if you dry food at too high a temperature or for too long, you risk over-dehydrating it.

9. I highly recommend getting your own Dehydrator because most pre-packaged dried foods have toxic preservatives and other additives. That in itself tells you the manufacturing companies do not know what they are doing because naturally-dehydrated food, either by the sun (though this takes longer) or using a Dehydrator appliance, lasts up to 20 years or longer with nothing added or taken away from the food, except removing its water. So, they need no preservations, unless the company thinks they cannot sell their products within 20 years (LOL).

10. After the fruit or veggies become dried, calcium, potassium, magnesium, iron, zinc, boron, and other mineral components are not lost but are concentrated, and the nutrient density is greatly improved. For example, raisins, dried apples, and dried bananas are good sources of minerals such as potassium and magnesium.

11. So, dried or dehydrated fruits and vegetables maintain the same nutritional value as a piece of fresh fruit, but without the water content. However, due to their small size**,** they contain almost 4 times more the number of vitamins and minerals than a piece of fresh, raw fruits and vegetables.

CREATING YOUR OWN HYDRATION DRINKS

Guidelines to follow when creating your own Hydration Drinks:

Vegetable or Fruit Hydration Drinks

1. To make your own Hydration Drink recipes, add one or more vegetables or fruits of your choice in a blender, along with the following items from us:

    a. Double Helix Water
    b. Pink Salt

2. Be sure to avoid combining vegetables and fruits in the same recipe. However, you may add apple, pineapple, and/or papaya in Vegetable drinks because of their high enzyme count facilitate the digestion of both food groups.

    a. This is an important Food Combining rule because fruit can be digested and out of the stomach in 30 minutes, whereas vegetables take hours. So, when you eat fruit and vegetables at the same time, the fruit stays in the stomach too long, ferments and rots.
    b. So, fruit should always be consumed 30 minutes before consuming any other food group or consumed as a meal or snack by itself.

3. Additionally, when making Hydration Drinks with Fruits:

    a. Recipes may include one or more types of berries, such as Blackberry, Raspberry, Strawberry, Blueberry, etc. However, avoid combining other types of fruit with berries.

    b. Melons Drinks – include only one type of melon in each Hydration Drink. In other words, have a Cantaloupe Hydration Drink or Watermelon Hydration Drink. These melons are particular great for Hydration Drinks because they are high water content fruits. For example, watermelon is 92% water.

4. Add just enough purified water to make it taste good.

5. Add a few ice cubes to chill water, if desired. You can also bypass this, by freezing the fruit the night before, which is even better. And then using the ice breaker speed on the blender the next day.

6. Add a dash or more of Salt to taste – so you can replenish the sodium you are sweating. Let your taste buds tell you how much you need. You may find that you can enjoy more than you normally would when you have really sweated out a lot of sodium when you find your taste buds are wanting more.

Herbal Teas

To make your own Herbal Tea Hydration Drink recipes:

1. Remove the pan from the stove when heating R. O. purified water when you start to see bubbles.
2. So it is the water not the herbs that are heated on the stove.
3. Then add one or more herbs to the hot water.
4. Let steep for 20-30 minutes
5. Then add the following as instructed above:
    a. Double Helix Water
    b. Pink Salt

Lastly, Except For Melons, When Making A Hydration Drink, Select:

1. One vegetable, one fruit OR one herb that will provide all six electrolyte minerals OR

2. A combination of several foods that will provide all six OR

3. Choose or more that provides at least the primary three (Chloride, Potassium and Sodium)

4. Ideally, within a week's time, do all three of the above, at least 1-2 times or more.

FRUIT & VEGGIE DRINK

The only exception to the Food Combining rule of not combining fruits and vegetables in the same Hydration Drink recipe, meal or snack, is our Fruit & Veggie Drink. Why? Because it contains probiotics. These friendly bacteria have pre-digested the fruits and vegetables in the container and therefore, the Food Combining rule does not apply. A photo of the ingredients is below, you can see that it contains a number of electrolyte fruits, vegetables and herbs, and **it tastes good!**

I drink this between periods of daily to several times a week, depending on my schedule, and needs for the nutrient contents of these foods, and the supplements facts below.

INGREDIENTS:

RAW FREEZE DRIED:
Banana, Pineapple, Strawberry, Noni, C. Berry, Broccoli Sprouts, Acerola Cherry, Camu Camu, Tomato, Broccoli, Carrot, Acai, Mangosteen, Spinach, Kale, Brussels Sprouts, Elderberry, Sweet Cherry, Blackberry, Chokeberry and Raspberry.

ORGANIC JUICES:
Organic Raspberry, Organic Cranberry, Organic Strawberry, Organic Blackberry, Organic Carrot, Organic Blueberry, Organic Pomegranate, Organic Acai, Organic Cherry and Organic Watermelon.

HERBS and EXTRACTS:
Camellia Sinensis, Onion, Red Apple, Quercetin, Organic Turmeric, Garlic, Basil, Oregano, Cinnamon, Black Currant, Blueberry.

FLAVORINGS:
Natural Banana, Pineapple, Stevia Plant, Xylitol (natural polyol) and Fruit Citric Acid.

Sub Ingredients: less than 1% for flow and stabilization of organic and natural maltodextrin and natural silica.

PHYTONUTRIENT ANTIOXIDANT RICH POWDER!

Supplement Facts

Serving Size: 1 Scoop (15 g) — Servings Per Container: 30

Amount Per Serving		% Daily Value*
Calories	60	
Calories from Fat	6	
Total Fat	<1 g	1%
Saturated Fat	0 g	0%
Cholesterol	0 mg	0%
Sodium	2 mg	<1%
Total Carbohydrate	12 g	5%
Dietary Fiber	3 g	9%
Sugars	5 g	5%
Protein	<1 g	
Vitamin A		14%
Vitamin C		50%
Calcium		<1%
Iron		3%

*Percent Daily Values are based on a 2,000 calorie diet