Morphogen HYDRAGEN: Peak Hydration Built for Athletes

written by Mike Roberto | January 17, 2023

It's no secret that we're pretty big fans of *Ben Hartman* and his cutting-edge supplement outfit **Morphogen Nutrition**.

We've had Ben on the podcast *twice* – first to discuss Morphogen's obsessive focus on excellence in *formulation*, which is obviously the *sine qua non* of supplement design. But *then* he came back on to talk about Morphogen's refocus on *packaging and label design*.

HydraGen delivers ultimate hydration with the help of HydroPrime from NNB and AstraGin.

If you listen to both podcast episodes we've linked, we think you'll agree – Morphogen has all its bases covered!

Introducing Hydragen: Morphogen Hydration Supplement

Today we're going to talk about **Hydragen**, Morphogen's hydration formula, which is built for *hard-training* athletes who *sweat* a lot.

Unsurprisingly, Morphogen knocked it out of the park with this one. It avoids one common pitfall of hydration formulas in general, which we discuss below. In this article, we're going to go *big* on sodium, because that's where Morphogen put their emphasis as well. Reason being, sodium is the main electrolyte lost in sweat – and the extremely hard-training Morphogen athletes are the exact demographic who need to replace that sodium!

But it's not all just sodium, so we get into the details below. But first, let's check the PricePlow news and deals, and get you signed up for Morphogen's news

alerts, since they’ve got a big year planned:

Morphogen Nutrition Hydragen - Electrolytes + Hydration – Deals and Price Drop Alerts

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Get Hydragen - Electrolytes + Hydration Price AlertsGet Morphogen Nutrition alertsGet Electrolytes price drops

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Morphogen HYDRAGEN Ingredients

In a single 1-scoop (9.9 gram) serving of HYDRAGEN from Morphogen, you get the following:

- **Pink Himalayan Sea Salt – 1,080 mg**

Supplement Facts

Serving Size: 1 Scoop (9.9g)
Servings Per Container: 30

Amount Per Serving		% of Daily Value
Calcium (from Aquamin® Sea Minerals, Coconut Water Powder)	131mg	10%
Magnesium (from Aquamin® Sea Minerals, Coconut Water Powder)	28mg	7%
Chloride (from Pink Himalayan Sea Salt)	592mg	26%
Sodium (from Pink Himalayan Sea Salt, Sodium Phosphate Anhydrous and Monohydrate, Coconut Water Powder)	500mg	27%
Potassium (from Potassium Bicarbonate, Potassium Phosphate, Coconut Water Powder)	270mg	6%
Phosphorous (from Potassium Phosphate, Sodium Phosphate Anhydrous and Sodium Phosphate Monohydrate)	252mg	20%
Bicarbonate (from Potassium Bicarbonate)	306mg	†
Pink Himalayan Sea Salt (fine grain)	1,080mg	†
Coconut Water powder (*Cocos nucifera*) (fruit)	1,000mg	†
Fructooligosaccharides (FOS)	1,000mg	†
HydroPrime® Glycerol powder (std. min. 65% glycerol)	1,000mg	†
Taurine (HPLC)	1,000mg	†
Aquamin® Soluble Sea Minerals (Seaweed derived calcium and magnesium, citric acid, malic acid)	480mg	†
AstraGin® Purified and fractionated extracts from *Panax notoginseng* and *Astragalus membranaceus* (root)	50mg	†

Other Ingredients: Dibasic Sodium Phosphate Anhydrous, Potassium Bicarbonate, Monobasic Potassium Phosphate, Monobasic Sodium Phosphate Monohydrate, Malic Acid, Natural & Artificial Flavor, Sucralose, Acesulfame Potassium, FD&C Red #40.

*Daily Value (DV) based on 2,000 calorie diet
† Daily Value not established

Given all the negative press about sodium in recent decades, some may be surprised to see a whole *gram* of salt headlining a hydration formula. But not Morphogen fans, who are used to their favorite brand doing it *right*.

But as we'll demonstrate, a hefty serving of **pink Himalayan salt** can actually be a *huge* boon for your hydration status and overall health. In fact, the *most* serious supplement companies, marketing to the *most* serious users and athletes, are increasingly using lots of salt in this application as well as in their pre-workouts.

Not *all* the sodium inside is coming from pink Himalayan salt – there's some in coconut water – but most of it is.

Sodium in HYDRAGEN: 500 milligram *yield*

However you break down the *source* of it, the label for HYDRAGEN tells us you're getting *500 milligrams* of *pure sodium* per serving. That's remarkable – it's about *five times* what we *usually* see in hydration supplements.

Again, this is great – doses in the 100-milligram to 200-milligram arena simply *aren't* going to move the electrolyte-replenishment needle for consumers *most* in need of special hydration support.

However, the first thing we should say is that although we'll be taking a

generally pro-sodium stance in this article, it *is* possible to get too much (and your body will generally tell you that just by the mere taste of salt). So, you should *always* consider sodium supplementation in the context of your entire diet, and add up *all* your sources of sodium to determine whether your total intake is within the acceptable range.

The second point to make about this hefty dose of sodium is that sodium isn't *the only* electrolyte mineral in HYDRAGEN – calcium, magnesium, and potassium are also well represented, and will help round out the effects of the sodium. But Morphogen went big on sodium here, and so are we:

A sodium primer

Himalayan pink salt is an excellent source of electrolytes. Don't fear the sodium!! We *need* it for optimal training!

With those caveats out of the way, let's talk about the main reasons we're excited about 500 milligrams of sodium yield in HYDRAGEN.

First is that **sodium is the primary electrolyte lost in sweat**. We lose *approximately 0.9 grams of sodium per liter of sweat*, with the next biggest loss being *potassium* at only *0.2 grams* per liter.[1]

In other words, we lose *four times as much sodium* in sweat as potassium,[1] and we lose *even less* of the other minerals. If you're sweating, you're sweating mostly sodium – this is why sweat is salty!

This matters because if you're concerned about hydration enough to reach for a hydration supplement, you're *probably* sweating a lot. Any kind of hard physical activity like exercise, manual labor, or even just being outside on a hot day will cause you to lose *lots* of sodium that needs to be replenished for optimal health.

If you *fail* to replace this lost sodium, you might even end up sodium deficient. That's potentially a big problem, since sodium is *needed* for muscular contractions.[2] Muscles that don't get enough sodium from your blood

can function below their full potential.[3]

In *severe* cases, sodium deficiency caused by dehydration, known officially as *hyponatremia*, can be a *life-threatening* condition.[4]

Ben Hartman returns to talk about Morphogen Nutrition's rebrand, some new formulas, and more on his backstory. Watch it in Episode #063 of the PricePlow Podcast!

The question of how much sodium a physically active person requires is a whole discussion unto itself. If you're interested in learning more about this, you should check out our favorite reference article on the subject, *The Importance of Salt in the Athlete's Diet*.[3]

A major pointe the researchers make is that fluid replacement with *incomplete* solutions can lead to complications like the aforementioned hyponatremia, decreased performance, heat cramps, and other heat-related illnesses and conditions. If you train hard, if you sweat… you need a lot of this electrolyte.

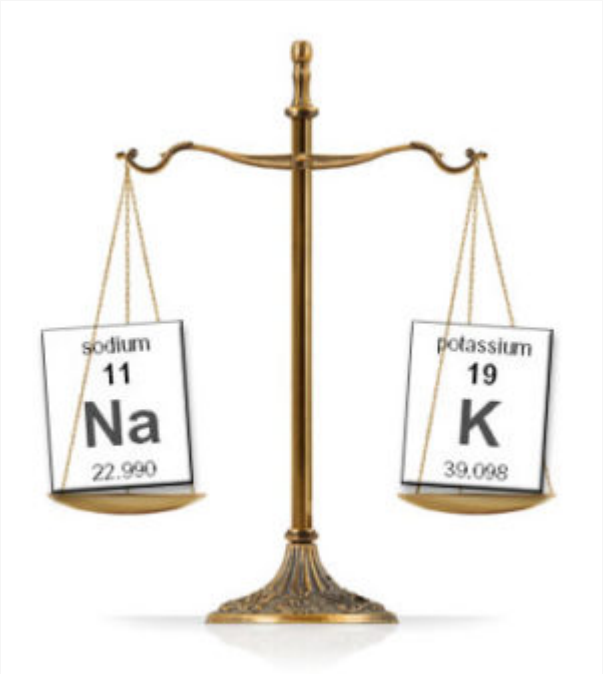
How much sodium is really too much?

So now that we've touched on the consequences of *not getting enough* sodium, let's talk about what happens when you get too much – and more importantly, *how much is too much*. As with many other subjects in nutritional science, long-standing conventional beliefs on this subject have been challenged by recent research.

Although Americans have officially been advised to consume less than 2,300 milligrams of sodium per day, there's an argument to be made that we might actually *need* more sodium than that for optimal health.

The funny thing is that the negative consequences of getting *too little* sodium are actually quite similar to those of getting *too much*. As Thomas Remer points out in his article, "*High salt intake: detrimental not only for blood pressure, but also for bone health*":

> *"[C]urrent evidence from prospective cohort studies suggests a J-shaped association between sodium intake and cardiovascular events, based on studies from >300 000 people, and suggests that* ***the lowest risk of cardiovascular events and death occurs in populations consuming an average sodium intake range (3-5 g/d)****. The increased risk of cardiovascular events associated with higher sodium intake (>5 g/d) is most prominent in those with hypertension."[5]*



It's all about the potassium sodium BALANCE. Too many supplements are too heavy on sodium without adding potassium.

According to this data, the adverse health effects of sodium consumption statistically don't even *begin* until you're consuming more than 5,000 milligrams daily! Even the *low* end of the safe range, 3,000 milligrams of sodium per day, is still *more* than the old 2,300 recommended maximum.

Put simply, the government's guidelines don't match up with the science.

And what's more, limiting your sodium intake too much might *increase* your risk

of cardiovascular problems!

A big 2011 study published in the *Journal of American Medicine* that included over 28,000 participants concluded that urinary sodium intake of less than 3,000 milligrams per day actually *increased* subjects' risk of being hospitalized for *congestive heart failure*.[6]

According to *this* study, consuming **up to 7,000 milligrams of sodium per day** did not, *on average*, increase subjects' risk of cardiovascular disease![7]

A *meta-analysis* from 2011 reviewed data from *seven* different studies and found that *salt restriction* actually *increased* overall mortality in patients with existing heart disease.[8]

Sweating a lot? Then you're losing a lot of *sodium*.

So are we saying that *you*, the reader, should necessarily start eating a ton of salt? Not necessarily just yet, but there's a good chance that most athletes – especially those who sweat – aren't coming close to these numbers. Everything in health and nutrition is *individualized*, so you should always track your nutritional intake, gauge how you feel, and talk to your doctor before making a major dietary change.

Point is, for most athletes, going bigger on this mineral with a dose like 500 milligrams in HYDRAGEN, is likely far more beneficial than you realize.

Lots of physicians have acknowledged that the *individual response* to sodium can vary considerably. All the way back in the dark ages of 1987, many doctors had noticed that for any given patient, eating more sodium was about as likely to *decrease* their blood pressure as it was to *increase* it.[9] And what's more, most people saw no change in blood pressure at all.

Still, though, other research has shown that patients who get randomized to a low-sodium diet have a 25% lower risk of heart attack or stroke compared to a placebo sham intervention.[10]

It really just depends on *you*, but if you know you're sweating a lot, HYDRAGEN may be the hydration supplement you've been looking for. Now let's balance that sodium out with some potassium:

- **Coconut Water Powder (Cocos nucifera) (fruit) – 1,000 mg**

Coconut Water powder is gaining notoriety in pre and intra workouts for its hydration and electrolyte-replenishing effects.

With pink Himalayan salt providing our *sodium*, we have **coconut water powder** supplying a little extra *potassium*, plus a decent serving of the *other* electrolytes.

Again, although we *mostly* lose sodium in sweat, we *do* lose a bit of these other minerals, so it's important to replace them as well.[11,12]

Coconut water has been validated by peer-reviewed research as an effective hydration beverage.[13] In fact, according to one study, it is *just as good* at rehydrating athletes as purpose-designed commercial hydration drinks.[14]

Other sources of potassium included as well

Note that coconut water isn't the only source of potassium – there's also *potassium bicarbonate* and *potassium phosphate* included as well.

Special electrolyte considerations for low-carb dieting

Believe it or not, *cutting carbs* can actually *increase* your body's requirement for electrolytes.[15] So if you're eating a low-carb or ketogenic diet, you stand to benefit even more than usual from electrolyte supplementation.

- **Fructooligosaccharides (FOS) – 1,000 mg**

Next, it's time for a crafty way to increase mineral absorption:

Morphogen has an impressive lineup of supplements built with the most cutting-edge ingredients on the market.

Fructooligosaccharides (FOS) are *carbohydrate* molecules consisting of *short chains of fructose*.

FOS are often included in hydration formulas, thanks to their ability to *increase mineral uptake:* when FOS are paired with minerals like magnesium, phosphorus, calcium, iron, and zinc, the body absorbs *more* of the minerals than it would otherwise.[16-19]

The way FOS do this is by *decreasing* colon pH, which naturally boosts the solubility of the minerals.[20,21]

Despite their ability to increase mineral bioavailability, FOS are probably more famous as *prebiotics*. They feed certain species of *beneficial* bacteria in your gut, which generate the short-chain fatty acids your gut runs on.[22]

FOS can also help improve the taste of supplements – are somewhere between 30% and 60% as sweet as table sugar.[23,24]

- **HydroPrime Glycerol powder (std. min. 65% glycerol) – 1,000 mg**

HydroPrime is a trademarked form of **glycerol** from NNB Nutrition.

There’s only one worthy powder on the market worth putting in your tub, and it’s *HydroPrime*

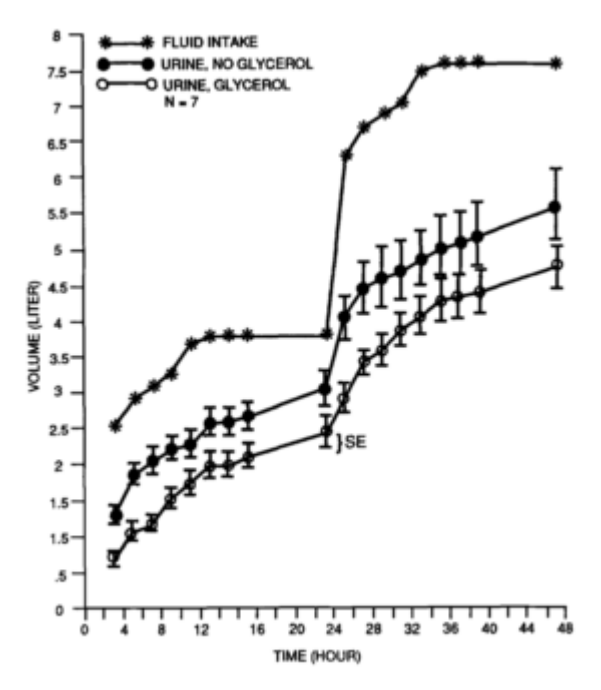
Glycerol is an *osmolyte*, meaning that it can boost cellular hydration by *increasing* osmotic pressure around your cells, which naturally forces a higher than normal amount of water *into* your cells.

Increased cellular water content protects cells from heat stress and improves stores of nutrients available to your cells. This can actually cause an *ergogenic* – performance-enhancing – effect, thanks to the resulting improvement in cellular function.[25]

Glycerol is also known to give users a *wicked pump*, which athletes and bodybuilders are going to love.[26]

Keep your hydration

Additionally, an extra unique benefit to glycerol is that it *reduces urine output*, as shown in numerous studies we’ve discussed in the past.[27] Nobody wants to lose even *more* fluids, having to go to the restroom too often when training. Glycerol may help retain some of that for a bit longer, keeping your rest stops at a mininum.



The glycerol group has far less urine output, despite same water *input!*[28]

The issue with *generic* glycerol is that it has an unfortunate tendency to *clump* during long-term storage. When glycerol, mixed with other ingredients, clumps up, it can render the *entire* supplement unusable – an outcome referred to as "bricking."

Because of this, glycerol was falling out of favor with supplement formulators. But that's when HydroPrime came along!

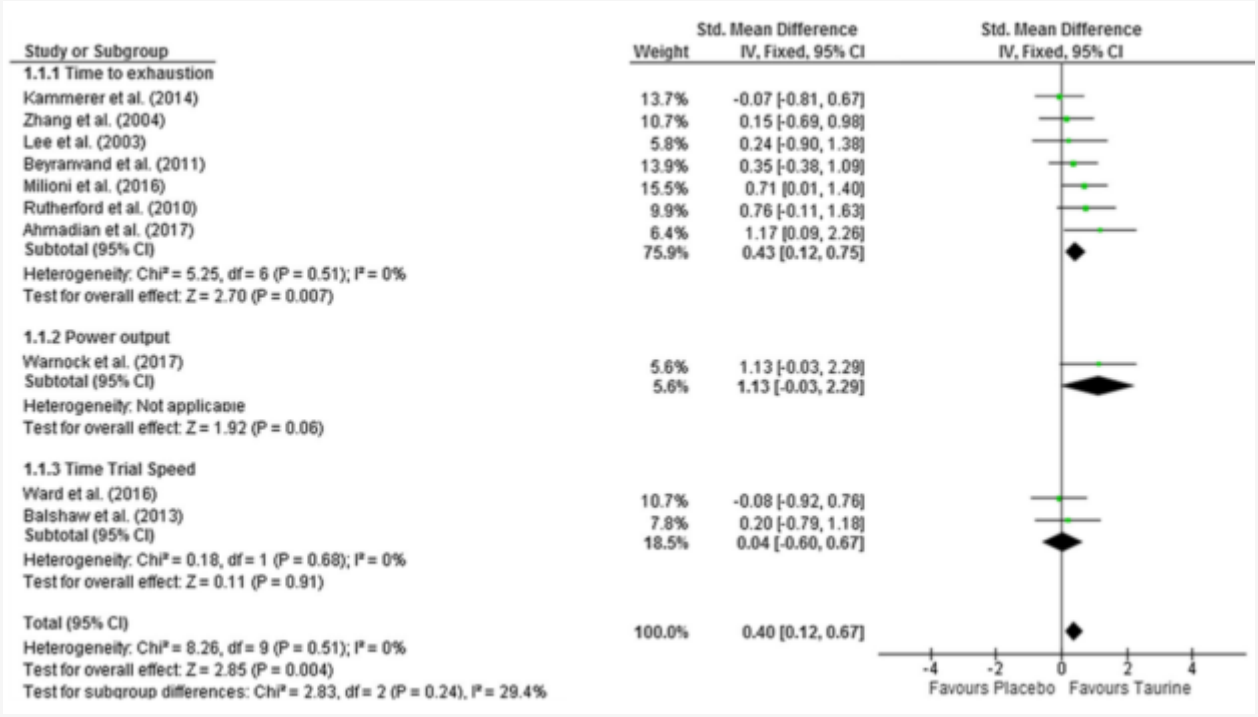
Because of NNB's new method for stabilizing and powderizing glycerol, they were able to create a form of glycerol that doesn't clump nearly as much as the generic stuff, and, hence, is *much more shelf stable*.

Given that HydroPrime's effectiveness is intricately related to its effect on *hydration*, it probably won't surprise you that it's *most* effective when taken with plenty of water.

- **Taurine (HPLC) – 1,000 mg**

  Taurine is also an osmolyte, with the same *cellular hydration* benefits as HydroPrime.[29]

  A 2018 meta-analysis on taurine found that even a *single* 1,000-milligram dose – note, the same dose used in Morphogen Hydragen – is enough to *immediately* boost athletic endurance during a workout.[30]



Taurine, long used for a 'filler' amino acid, turns out to be *legit for endurance*… and after a *single* use![30]

Taurine is also a potent *antioxidant*, and can help support *calcium signaling* between muscle cells, which *can* help support muscular contractions. It can also improve cognition.

Supplementing taurine is a wise move for anyone who's exerting themselves to the utmost, since taurine is a *conditionally essential* amino acid.[29-31] This means that whenever you go through something metabolically stressful – whether it be injury, illness or just a demanding physical training regimen – your body's requirements for taurine can *increase*.

In these cases, supplementation with conditionally essential amino acids like taurine is not a bad idea.

Taurine also has some pretty cool nootropic effects. Thanks to its GABAergic function in your central nervous system, it can help take the edge off stimulants like caffeine, much like L-theanine.

Morphogen Nutrition's Intra Workout Stack brings a total of 3 grams of taurine and tons of other amino acids and electrolytes

Taurine is GABAergic, helping decrease neural inflammation while facilitating inter-synaptic communication and improving mitochondrial function in your neurons.[31]

In other words, taurine is good for both mental *and* physical performance, making its inclusion in hydration formulas a no-brainer.

Go bigger with Synthegen

If you want to look into even greater doses of taurine (which brings even more clinically-studied benefits), consider stacking HydraGen with SYNTHEGEN, Morphogen's advanced amino acid matrix. It provides another *2* grams of taurine, and has similar flavor systems for intra workout stacking!

- **Aquamin Soluble Sea Minerals (Seaweed derived calcium and magnesium, citric acid, malic acid) – 480 mg**

  Aquamin is a blend of minerals sourced from seaweed.

Aquamin is an all-natural, multi-mineral compound that provides high-quality calcium

and magnesium to keep you going.

This is where most of the *calcium* in Morphogen Hydragen is coming from – remember, calcium is also an electrolyte – but Aquamin also contains a decent amount of magnesium.[32]

Aquamin also contains *trace minerals* like manganese and boron, the latter of which which can help support joint health[33] and *testosterone production*.[34]

Aquamin-specific studies have borne out the idea that it can help improve the health of both bone and joints,[32,35] with the rest of the trace minerals filling in to help you avoid minor but nagging deficiencies that could compromise mental or physical performance.

More on calcium

The 2005 article titled *"Calcium requirements for the athlete"* points out that although calcium is most often discussed in the context of *bone* health, the mineral is actually crucial in many more ways than that.

We need adequate calcium for:[38]

- Stable heartbeat
- Nerve transmission
- Blood pressure homeostasis
- Water balance maintenance
- Cellular reproduction
- Immunological function
- Carbohydrate and fat metabolism
- Nutrient uptake by cells

The authors of the paper emphasize that calcium losses from sweat *should not be underestimated*, particularly in female athletes.[38]

- **AstraGin (Purified and fractionated extracts from Panax notoginseng and Astragalus membranaceus (root)) – 50 mg**

Increase the absorption and effectiveness of your supplements with AstraGin from NuLiv Science!

AstraGin boosts *adenosine triphosphate* (ATP) production in your *intestinal cells*. Since ATP is your cells' source of *energy*, boosting ATP in your intestines can improve intestinal function.

This means that you'll *absorb more nutrients* from the food and supplements you ingest.[32,35]

In other words, AstraGin *increases the bioavailability* of other ingredients.

Pretty much all serious supplement manufacturers are including a bioavailability-enhancing ingredient in their formulas these days, and AstraGin is the current industry standard.

Over 20 research studies have found that AstraGin and its constituent compounds can increase the absorption of a wide range of nutrients, including minerals and amino acids.[36,37]

Flavors Available

HydraGen launched in two refreshing flavors: Summa (Strawberry Lemonade) and Moonrock (Grape Rock Candy).

Conclusion

Hydration supplements are a funny product category. The thing we lose the most in sweat *by far* is sodium, yet many manufacturers are hesitant to use efficacious doses of it thanks to the long-standing government recommendation to minimize sodium intake.

Morphogen avoids this trap, which we think is great. Just as we'd expect from Ben Hartman, to be quite honest.

Setting aside the question of optimal sodium intake, we have to put hydration formulas in context. The bottom line is that if you need to rehydrate, you need to replace lost sodium. And if you go as big as the average Morphogen athlete, chances are, you're losing more sodium than you realize. HYDRAGEN replaces that, and possibly more.

better offer.

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