



Water and Performance

By far the most prominent nutrient in our body is water. Our bodies are basically made up of 70 to 75% water. Most of this water falls into the category of biologically structured water. Muscles comprise around 75% water, blood 85%, and our brains 75% to 90%. A reduction in fluid consumption or absorption of water will greatly affect the performance and function of our bodies. For example, during exercise your core body temperature increases and to help cool the body from this internal heat buildup, your body shifts more blood to the skin to release the heat via sweat (water). If the body becomes dehydrated, the temperature of the body will increase with traumatic results (heat stroke). Keep in mind that your blood also has to carry nutrients and oxygen to the muscles to sustain human performance and to remove the metabolic waste (lactic acid, etc.) produced during exercise. The higher the temperature gets in the body, the more blood will be taken away from muscle function to aide in the cooling of the body. This main function is carried out by water, thus the more hydrated you are, the more efficient your body becomes in performance and endurance.

What does water do for the body?

- Proteins and enzymes of the body function more efficiently in lower viscosity solutions (hydrated body / structured water) than in a higher viscosity solution (dehydration). Essentially proteins and enzymes can move more freely through a thin, low viscosity intracellular fluid. Muscle mass is based on protein metabolism that is highly influenced by cellular hydration.
- Water is the main transport of delivering nutrients into the cells.
- Water is crucial for all anabolic reactions in all types of athletes.
- Water is needed for proper joint lubrication and disc hydration of the spine.
- Water ionizes salts, which provide the electrolyte environment for electrochemical conduction of nerve impulses. This means a more hydrated cell will have a more effective nerve firing which **results in faster reaction time** and the oxygen affinity of hemoglobin is improved thousands of times by hydration leading to better oxygenation of the blood which means more aerobic function of the body.
- When training, if you are not adequately hydrated and wait till you get thirsty before you drink water, your body has already **decreased its performance by as much as 10%**. (Ex. Run a mile in 7 minutes, decrease by 10%, now you run the mile in 7minutes and 42 seconds)

- Training in hot environments one can lose around 2 liters of water every hour or about 22 ounces every 20 minutes.
- Trained athletes have enough glycogen in their muscles for a couple of hours of hard training. The water reserves in the body diminish at a very fast rate. **Thus a more hydrated body leads to greater endurance.**
- On average a person loses 80 ounces of water a day via sweat, breathing, and bodily functions. If you exercise that amount increases proportionately to the intensity of the workout.
- If your urine is yellow, this can be a good indicator your body is dehydrated, where pale or clear urine can indicate proper hydration.

As your body loses water via sweat and breathing during exercising, it is important to keep in mind what happens to your performance and why it is crucial to drink the proper water and amounts. For each per cent of body weight lost due to dehydration, your performance slips by about two per cent. This can easily be the difference between a champion and an also ran during competition.

Weight loss	
Effects of dehydration	
Less than 1%	No effect Top performance level
1 to 2%	Feeling of thirst Possibility of diminished performance
2 to 3%	Possibility of diminished performance by a factor of 3 to 10% Impairment of cognitive function (concentration, lucidity, dexterity, etc.)
3 to 4%	Dryness of the mouth and dark-colored urine Possibility of diminished performance by a factor of 5 to 20%
4 to 6%	Frankly impaired concentration. Risk of headache Possibility of diminished performance by a factor of 20 to 30%
Over 6%	Pins and needles in the extremities. Risk of collapse Possibility of diminished performance by a factor of over 30%
Reference: The Water Institute	

The American College of Sports Medicine and the American Dietetics Association make the following recommendations to help athletes stay hydrated and maintain peak performance:

- 1) Drink between 8 & 10, 8-ounce glasses of water every day,
- 2) Drink at least 2, 8-ounces glasses of fluids two hours before practice or competition,
- 3) Drink 2, 8-ounce glasses of fluids 15 minutes before practice or competition,
- 4) Drink at least ½ glass of fluids every 15-20 minutes during practice,
- 5) After (practice or) competition, drink 2, 8-ounce glasses of water for each pound lost.

The above recommendations are based on “standard water” consumption.

How structured water differs from standard water:

Standard water is an ever-changing mass of water clusters. Single water molecules (H₂O) cling to each other through hydrogen bonds to form water clusters, what we call structured water. In essence, all water is structured water. These water clusters vary in size from a two molecule cluster size 2-(H₂O), up to 200-300 molecules bound together, 200-(H₂O). This determines the physical properties of the bulk water and is easily measured by any water testing lab.

The membrane walls of our bodies can only absorb certain sizes of water clusters. In fact the cell membranes can only pass a single water molecule, a single H₂O. This single water molecule can take on many energetic states that will determine the water bond angle and hence the ease with which the water molecule can pass through the membrane wall. Once the single water molecule is within the cell, the water molecules congregate back into water structures. This is known as bio-molecular water. We simply provide single water molecules that have the right energy to pass smoothly through cell membrane walls and then form biomolecular water, which is structured water.

The ease with which a single water molecule will pass through the membrane wall depends on the energetic state of the hydrogen molecules and the oxygen molecule that is provided by the bulk water you drink. In purified water, the vibrational state of the single water molecule controls how close the hydrogen atoms can approach each other and is known as the hydrogen bond angle. The energetic state of the single water molecule also determines the size of the water structure that can be formed by combining the single water molecules. The various structures can be photographed.

Within each water structure, the energy state of the structure is determined by the combined energy states of the individual water molecules. The forces or energy state of the single water molecule can all be manipulated by the vortexes, magnetic fields and

the ozonation process applied through the structured water technology. The energy state of the water can then be tested by testing the physical properties of the water, the viscosity, the surface tension, the boiling point, the pH, the ORP and the nuclear magnetic resonance. Independent water tests confirm that structured water is superior in all categories.

Cell membrane walls are classified as semi-permeable. If the cluster of water molecules is too large or not the right energetic state, it will not deliver the single water molecules that can be easily absorbed into the cell. The water structures must be the right energy state as they approach the aquaporin channel or they will not enter the opening to the cell membrane wall. Hence distilled water will absorb at a different rate and efficiency than structured water. This has a dramatic effect on human performance that can be clinically measured and has been for diabetics.

This is where “Structured Water” comes into play. By using a series of proprietary technologies, we can purify and vibrate the clusters and break up the larger water clusters into smaller structures., forming micro-clustered water. The structured water is then locked into place through physical forces of the high speed vorticular motion, applied magnetic moments and hydrogen bonding to dissolved oxygen from the ozone so that the water clusters stabilize. When a person drinks “Structured Water”, they are now absorbing more of the water because of the smaller cluster size. In comparison, drinking “Structured Water” has the potential to hydrate the body three to four times more efficiently than standard water. A person now could drink one to two bottles of this “Structured Water” and receive the same hydration benefits as three to five bottles of standard water.

Keep in mind that if you drink structured water like Hydrate2O™, you can drink less and your cells will become hydrated at a much faster rate due to the structuring process the water goes thru. Hydrate2O™ is stable at high and low temperatures, unlike other waters that claim to be similar. **The faster cells become hydrated, the better your performance will be: Faster reaction time, greater endurance, less fatigue, and more mental clarity.**