

# Fight Heat Stress With A Watered-Down Solution

Summer bowling, hot, broken AC units, humid day, and a tired effect - does this sound familiar?

The super bowling camp of 1997 has just passed and I still view my group and coaches picture daily. The many friends I acquired are treasured as we share the same deep passions for our sport. I look forward to seeing many of you throughout this year right up to the next Super School. For those who attended, I ask you to briefly remember my little spiel about sport + athlete = credibility.

This month's material supports that ideology with a twist on how and why a hot environment affects our performance. Finally, if you read through the end of this article, not nearly as lengthy as a Palmer Fallgren article, you will find one or two simple solutions to the host of mysterious environmental stressors.

Bowling has been touted for years as one of the few sports that participants can enjoy year round under nearly identical conditions. Climatic and atmospheric conditions that is. In fact, I often wonder if we use this valued marketing & promotion aspect enough. Anyway, though we bowl in an environmentally controlled atmosphere, there will always be a few hidden climactic factors that affect our performance. Little has been written in the bowling community on this topic, so I mainly draw from related sport referencing and personal understanding (Briggs, 1995 & 1996).

As the sweltering heat and humidity of summer is upon us, our vulnerability to heat stress amplifies with exposure. The question of whether environmental factors affect sport performance has been studied for years. Heat, humidity and physical exertion have all been shown to cause an early onset of fatigue inducing mental and physical declines in performance. If you participate in an outdoor sport or recreational activity, then constant reminders of heat stressors should be abundant. Sport enthusiasts whose sport or activity is also extensively physically demanding should also be alerted to such heat related issues. This is nothing new, but what is a shocker to some is the idea that bowlers should also be alert to similar problems. Although we bowl in a controlled environment, it does not negate the fact that we also experience similar effects of heat stress. Even beyond bowling, those of us who exercise place ourselves at risk of heat related complications each training session. Therefore, to understand this dilemma, let us take a closer look at heat stress and our body's response.

## Temperature Regulation

The body is designed to regulate its internal temperature on a constant basis. The Hypothalamus, at the base of the brain, is a built-in thermostat directing temperature control. At rest, average bodily temperatures hover around 99.2 degrees F. During activity it can rise above 108 degrees F. Each day we expend energy burning calories producing heat as a byproduct. Bowling and exercise produce greater amounts of heat quicker. As heat accumulates, a regulatory response occurs to maintain stable body temperature.

- **Response A)** This response usually results in heat being transported through the blood stream to the skin and released to the environment as sweat. Many experts agree sweat evaporation releases more than 80% of the excess heat accumulated. The sweating response is one of our body's most proficient means to dissipate excess heat stabilizing temperature.
- **Response B)** Water is another important means to dissipate body heat. Water in the body acts as a sponge absorbing heat during activity. Heat absorption assists the temperature regulation process. If we maintain body water, temperature regulation remains stable. If body water declines, heat accumulates at greater rates during activity neutralizing the sponging effect.

Unfortunately, our built-in heat regulating system has its faults. Science has proven our ability to reduce heat is less than efficient. Heat generally accumulates at rates surpassing dissipation (**A**) and absorption (**B**) placing a bowler in danger. In fact, the lasting effects of prolonged elevated body temperature includes:

- **Damage to the nervous system**
- **Damage to the kidneys**
- **Injury to the hypothalamus**
- **Possible brain damage**
- **The early onset of fatigue - a bowler's enemy.**

## Water - A Bowler's Key to Success

When discussing hydration and water level in the body, I want you to be able to differentiate dehydration from rehydration.

- **Dehydration** is the loss of body water primarily due to the sweating response.

As discussed earlier, heat is released to the environment through sweat. During the sweating response, water is drawn from several areas of the body assisting with heat dissipation often leaving these compartments low on water. Due to this compromise in water, the early onset of fatigue is often a result. Studies have shown that dehydrated athletes are quite intolerant of exercise and heat stress. As dehydration unknowingly sets in motion, our bowling performance will slowly decline from the fatigue factor. Rarely noticeable or physically felt, fatigue is a subtle silent monster that can overtake the fittest of athletes without fair warning. Dehydration, which leads directly to fatigue, reduces performance time and capabilities before exhaustion. A bowler's heart rate and body temperature will slowly and unnoticeable rise, valuable nutrients will be lost in sweat and even other bodily functions that thrive water become compromised. **The real value to all this fancy talk and language is that heat, humidity, exercise and bowling all require a bowler to maintain bodily water in order to prevent the early onset of fatigue.**

### A Single Preventive Measure

- **Rehydration**, known as the replenishing of fluids before, during, and after activity reduces dehydration, delays fatigue, and assists in the absorption of heat.

Drinking fluids, whether cold water or sport drink is imperative when competing in a bowling tournament or beginning our exercise routine. Fluids enable us to maintain stable body temperatures while delaying the onset of fatigue. Maintaining a constant flow of fluids into the body is a bowler's best preventive measure.

Keeping our body filled with fluids while we bowl fights off muscular fatigue and assists in fat burning. That is right. Water enables us to burn fat more efficiently allowing the liver and kidneys to work at full capacity. Therefore, to lessen the rise in internal body temperature through heat absorption, reduce the stress placed on the circulatory system and enable efficient fat burning, cold fluids are a bowler's answer and enhancer. I don't expect you to necessarily understand the entire concept, though it is here to validate the issue, instead just grasp the process of drinking fluids while you bowl, exercise and especially all summer long.

The American Counsel on Exercise (ACE) recommends consumption of 6-8 ounces of fluid every 15-20 minutes during activity. I suggest carrying a water bottle to the bowling center and while you exercise sipping water or a sport drink during your activity.

Do not let the silent adversary of fatigue strike at the most inopportune time. Instead, prepare through prevention with proper hydration to enhance rather than inhibit your bowling and exercise. Carry a water bottle at all times drinking either cold water or other healthy fluids enabling your body to work at full capacity while maintaining its desired temperature. Drink to your delight.