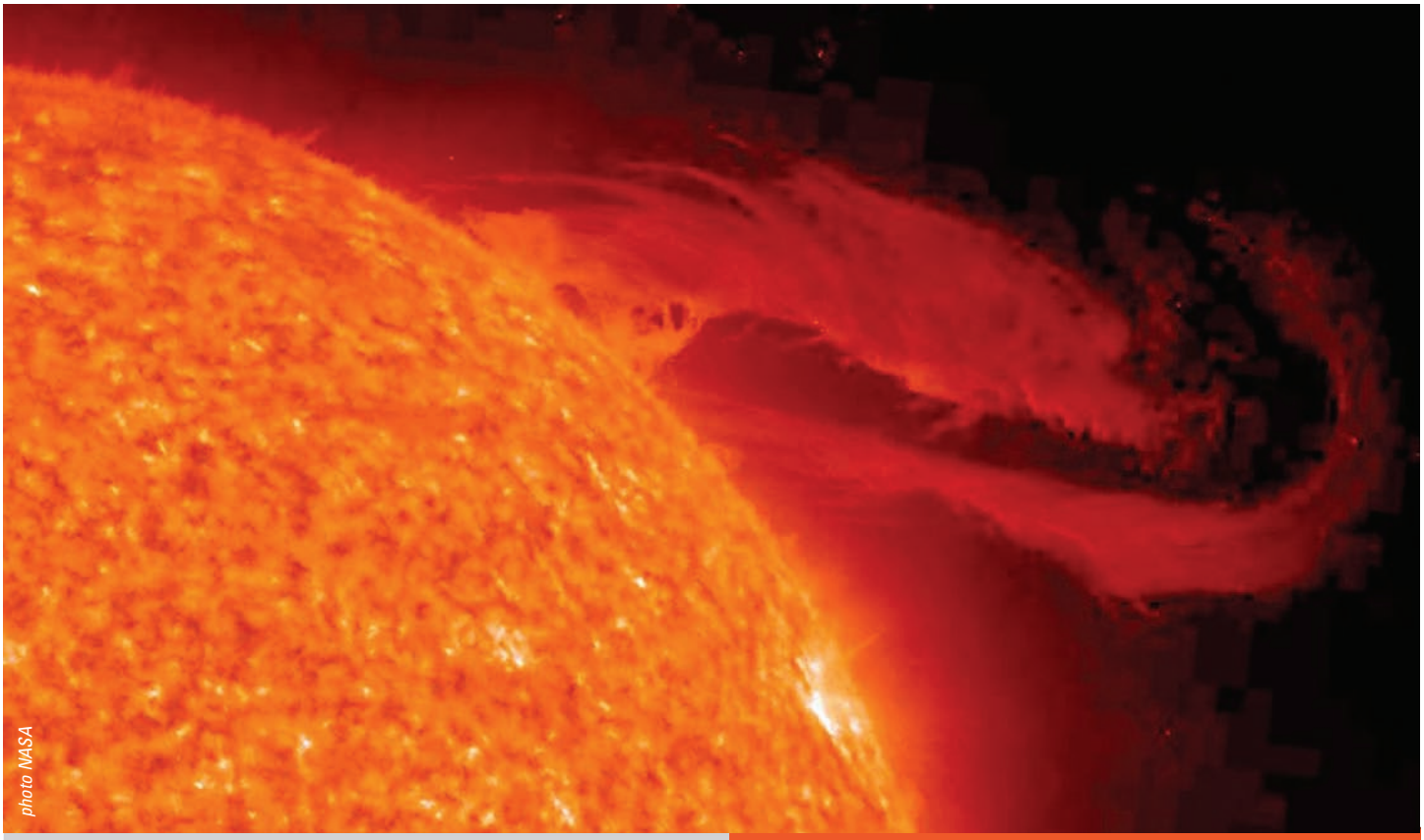

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10 Tips

to Help Your Players Succeed during the

Hot Summer Months

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Summer is here, so is very important to understand how to help your players succeed in the heat. All teaching professionals, can teach players how to perform better on court, stay safer, and recover faster - both in training and during competition - when the environmental conditions are challenging.

Heat and humidity are common to most summer tournaments. Adults and children do handle these conditions differently, and it is important that you, as the coach, along with the parents (for children), are aware of strategies to help prepare players for the rigors of summer tournament play. The ability of children to regulate their body temperature is similar to that of an adult, but via different mechanisms[1]. First and foremost, children and adults should become acclimated to hot and humid conditions, because a lack of acclimatization increases the chance of heat related illness and reduces on court performance. It takes 10 to 14 days for a player to become fully acclimated to hot and humid weather.

A combination of behavioral and physiological mechanisms is used to maintain a safe core body temperature[2]. However, during exercise and/or in hot and humid conditions, the human body may not adequately dissipate heat, resulting in a progressive increase in both core temperature and skin temperature. As children experience a smaller absolute blood volume than adults[3], there is a greater reliance on blood flow to the skin (away from the core) to aid in heat dissipation. This is one reason why, in extreme temperature, children may be more prone to heat related consequences than adults.

Compared to adults, children who have not gone through puberty have the following major differences, which influences their ability to control body temperature and handle hot and humid conditions[4]:

- Children have greater surface-area-to-mass ratio.
- Children have vastly different body compositions.
- Children have small total blood volume, which results in a smaller volume of blood pumped per minute.
- Children produce more heat per pound of body mass during tennis.
- Children have less efficient sweating mechanisms.
- Children move less efficiently than adults on the court. This results in more relative energy needed for each step compared to adults. Developing children's movement skills and technique on court will translate into helping them conserve energy to a greater degree than children who have less efficient movement mechanics.

Although playing tennis in hot and humid conditions is physically and mentally challenging, listed below are 10 practical tips that can help prepare your athletes (young and old alike) for the fun and challenging summer tournament schedule.

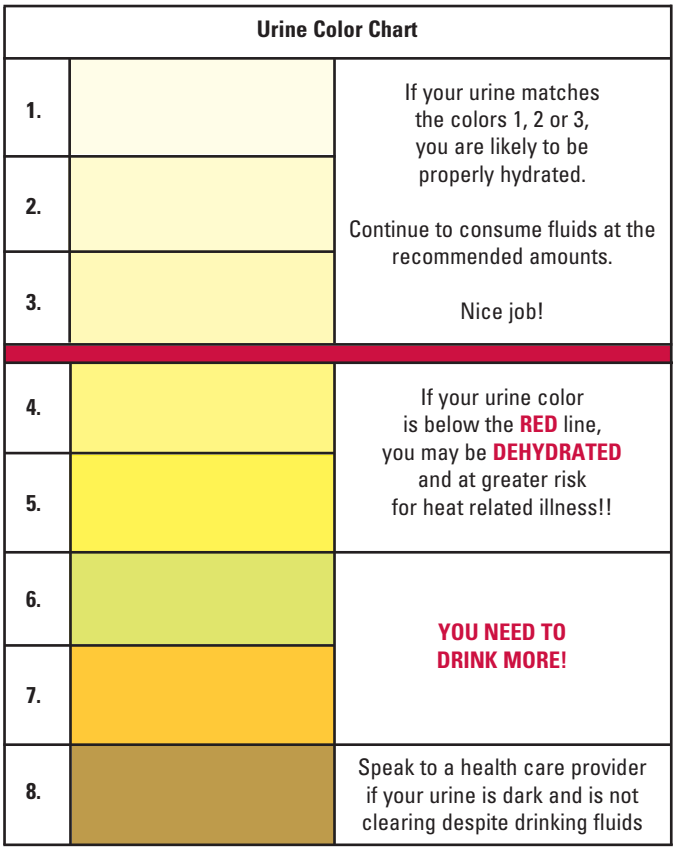
1.

Train hard now to get in phenomenal physical shape before competing during the hot summer months. Physically fit athletes handle hot and humid conditions better, because they are able to consume and utilize more oxygen per breath. Thus, their ability to handle mild increases in core temperature will not result in performance reduction, thereby giving a distinct advantage over an opponent who is not in the same physical shape.

2.

Hydrate, Hydrate, Hydrate. Drinking appropriate electrolyte enhanced fluids before, during and after play, will prepare the athlete and help limit the severe loss of fluid and electrolyte during play. As tennis players can lose between a ¼ and ½ gallon of body fluid per hour (primarily sweat), it is important to make sure that the athlete does not go onto the court already dehydrated. It has been shown that as many as 50% of tournament players begin matches already dehydrated. Coaches need to educate players on the importance of hydrating, not only during the match, but also the night before and the morning of the match. For every percent of bodyweight that is lost due to sweating and not replaced, the athlete's heart rate will rise between 5-10 beats per minute for the same intensity of exertion. This means that the athlete's body will need to work much harder to produce the same result. It is important to remember, the fluids that are consumed need to have appropriate levels of electrolytes, specifically sodium, so as not to dilute the electrolyte levels in the body (hyponatremia, see Tip 3).

Am I Hydrated?



3.

Consume high sodium food and drink. Sodium is the major electrolyte lost in the sweat, and it has direct relationship with an athlete's likelihood of cramping. An easy sign that represents that your players are 'salty sweaters' is whether a white residue is left on dark colored clothing or hats. This white residue is salt deposits released from the sweat. Another important reason to consume enough sodium in the diet and during fluid consumption is that athletes who consume large amounts of plain water without enough sodium may experience a condition known as hyponatremia. Hyponatremia is 'water intoxication' and is a result of an individual who has sweated large amounts of sodium and fluids and only replaces the lost sodium with plain water. This leads to sodium depletion, which can result in serious and potentially life threatening consequences. It is very important that athletes replace fluids that contain enough sodium to offset the amounts lost in the sweat. Although it is not practical for most players to have their sweat sodium levels analyzed by a professional physician or physiologist, they should consume electrolyte enhanced beverages and add liberal amounts of sodium (salt) to food. Athletes who have medical conditions that involve the kidneys, heart or blood pressure, should consult with a physician prior to increasing the sodium in their diet.

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4.
Eating a well balanced diet is important for all athletes, as this aids performance and helps athletes handle heat related issues. A balanced diet includes carbohydrates, fats and protein, as well as the required vitamins and minerals. It may be beneficial for athletes to work with a sports medicine physician, physiologist or nutritionist, who may also recommend blood work analysis to evaluate for nutrient and vitamin deficiency.

5.
Use ice and other cooling mechanisms to keep core body temperature cool before, during and after practice and competition. Individuals who begin competition in hot and humid environments with lower core body temperatures perform better relative to beginning competition with a higher core temperature. This process of pre-cooling has shown positive results, and is something that can be accomplished by tennis players before they go onto the court for matches during the hot and humid summer months. Vests are available that can store ice for a long period of time and cover the core of the body to help lower body temperature. If pre-cooling techniques are used before practice or competition, it is advised not to put ice directly on the joints or limbs (arms and legs), but instead focus on the core of the body to help reduce core body temperature.

6.
Maintain blood glucose (sugar) levels throughout a match/practice. If an athlete does not consume enough carbohydrates before and during the match, energy that can be used for the working muscles is reduced, and this will result in the body using other processes to generate fuel for the working muscles. These other processes are not as efficient and require more steps to produce usable energy for the body. These extra steps require the body to work harder, resulting in greater core temperatures.

7.
Wear sunscreen! Sunburn increases skin temperature and makes the body less efficient at body cooling. We have all experienced a sunburn and had the feeling of heat dissipating from the skin. This process limits the amount of heat that will be moved from the core to the periphery (skin), and limits the body's ability to cool as efficiently as possible.

8.
Acclimatize to the heat and humidity for 10-14 days prior to competition. Children take a longer period of time to acclimate to hot and humid conditions compared to adults. If it is practical, practice the week before a tournament in conditions that are similar to what the conditions will be like during the tournament.

9. Reduce contact with direct sunlight by wearing light colored clothing, a hat and sunglasses whenever possible. Many times during tournaments, the players are waiting for matches while sitting in direct sunlight, and this not only increases core temperature, but also increases the athlete's subjective feelings of fatigue.

10.
Focus on Tips 1 and 2 (**Train Hard** and **Stay Well and Hydrated**). These are two of the most important aspects of being able to compete effectively during the hot and humid summer months.

References

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