**FWCD HYDRATION GUIDELINES**

## I. INTRODUCTION

The following Guidelines on hydration and fluid replacement, including oral rehydration therapy (ORT), has been developed by Fort Worth Country Day (FWCD) Sports Medicine Staff to provide quality healthcare services and assure the well-being of each student-athlete at FWCD. This policy is reviewed annually and revised as needed.

## II. HYDRATION

The best rehydration strategy is to avoid becoming dehydrated in the first place. For this reason, the National Athletic Trainers Association (NATA) recommends that student-athletes consume 500 to 600 ml of water or sports drink three hours before exercise and 200 to 300 ml of water or sports drink ten to twenty minutes before exercise. It is also important that appropriate beverages be available during the event, if the conditions of the sport allow (1).

Research done in recent years indicates that loss of salt, specifically sodium, is more important in developing heat cramps than loss of water alone[2]. For this reason, pure water may not always be the best hydration fluid, and is often not the best rehydration fluid (see below). Hydration programs must be tailored to the individual needs of the athlete because all athletes are different. It is possible to hyper-hydrate athletes by too strict adherence to published recommendations[1]

Hyper-hydration, either by drinking excess fluid or by means of an IV prior to or during an event, is not necessary, does not enhance performance or may cause side effects such as headaches and GI distress if a glycerol drink is used [1]

### A. <u>Pre-Season:</u>

1) Thorough and complete pre-participation history and physical examination
2) Note history of dehydration/heat illness
3) Note history of sickle cell disease and screening test results
4) Inquire about type and duration of training activities within the past 1-2 months
5) Inquire about the extent of training done in heat
6) Acclimatize athletes to high heat and humidity gradually over 10-14 days
7) Set up summer strength and conditioning programs that aid the acclimatization process
8) Continued education of ATC's and coaching staff on dehydration recognition, management and prevention
9) Published fluid replacement protocols-staff to review
10) Preparation of Sports Medicine & Practice Facilities
11) Check Stock and Availability of:
    a. Ice
    b. Coolers, chests, water "cows"
    c. Rectal Thermistor, Electrolyte replacement drinks, water

d. Ice tubs & cold whirlpools

12) Lower air conditioning in buildings (70°) if possible

13) Emergency planning & proper communication

a. Communication between ATC, Team Physicians and local EMS

b. Availability of cell phones or radios

c. Practice emergency algorithms and drills

d. Cold tub use

e. Carts for patient transport

f. Post "HYDRATE" Signs in locker rooms and where there are large numbers of student athletes

**B. <u>Pre-Practice:</u>**

1) Constantly monitor the Wet Bulb Globe Temperature (WBGT).
2) Educate on diet & nutrition (when and what to eat)
3) Advise to stop medications that impair heat loss, increase thermogenesis, or decrease sweating (Ephedra compounds, antihistamines, diuretics) and substitute with safer medications
4) Hydration (12-20 oz of cold water or electrolyte drink every 10-20 minutes)
5) Post "How Much Water To Drink Chart" in locker rooms

**C. <u>During Practice:</u>**

1) Constantly monitor the Wet Bulb Globe Temperature (WBGT).
2) Communication conditions with coaching staff
3) Practice modification when needed
4) Rest breaks should be planned to match conditions and intensity of activity
5) Monitor proper hydration during activity
   a. Drink 5-10 oz of fluid every 20 min with total of 20-40 oz per hour during exercise
   b. Replace 32 oz of fluid for each pound weight loss after exercise

**D. <u>Post-Practice</u>**

1) Communicate with coaches (injury report; weather forecast, etc.)
2) Communicate with athletes
3) Eat a well-balanced diet that includes proper hydration
4) Encourage lots of fluids, low-fat meals
5) Encourage lightly salt foods, no fast food, drink fluids with meal
6) Extra sodium may be required when exercising in hot conditions, either in diet or rehydration beverages
7) Replace 150% of volume lost (24oz of cold water / Gatorade for every pound lost)
8) Post Urine Color Chart (posted over urinals & on back of stall doors)
9) Post "How Much Water to Drink Chart"
10) Availability of water & Electrolyte replacement beverage

## III. ORAL REHYDRATION THERAPY

Many studies have been done comparing the effectiveness of ORT with IV fluid hydration in athletes. One classic study published in 2000 demonstrated that ORT and IV fluid hydration had similar long term effects[3], and that ORT, in fact, produced better cooling. Because of studies such as this, we recommend **oral rehydration**.

Research also indicates that water is not an ideal rehydration fluid[4]. Not only does water not replenish salt lost in sweat, but consuming a hypotonic solution will actually lower the osmolarity of the blood, leading to increased salt excretion. **Recent recommendations suggest adding 2.5 ml (1/2 tsp) of table salt to each 960 ml (32 fl oz) of rehydration beverages if the student-athlete was not able to eat sufficient food before competition, if exercise lasts longer than four hours, and during the initial days of hot weather.** In addition, adding this amount of salt to all beverages will increase thirst (and increase fluid consumption) and has not been shown to do any harm. Another way to avoid heat cramps is to increase consumption of salt rich foods, including pickles, pretzels, tomato juice, canned soups, baked beans, and pizza, always making certain that sufficient fluids are consumed at the same time.

Heat cramps can often be caused by a decrease in salt levels. **At the first sign of heat cramps, it is recommended that the athlete drink 480 ml (16 fl oz) of a sports drink with 2.5 ml (.5 tsp) of salt added to avoid full-blown heat cramps and to continue this until the contest is over.**

**References:**

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1) Casa DJ, Armstrong LE, Hillman SK, Montain SJ, Reiff RV, Rich BS, Roberts WO, Stone JA National Athletic Trainers' Association Position Statement: Fluid Replacement for Athletes, J Athl Train. 2000 Apr; 35(2):212-224.

2) Stofan JR, Zachwieja JJ, Horswill CA, Murray R, Anderson SA, Eichner ER Sweat and Sodium Losses in NCAA Football Players: A Precursor to Heat Cramps?, *International Journal of Sport Nutrition and Exercise Metabolism*, 2005, 15, 641-652

3) Casa DJ, Maresh CM, Armstrong LE, Kavouras SA, Herrera JA, Hacker FT Jr, Keith NR, Elliott TA Intravenous versus oral rehydration during a brief period: responses to subsequent exercise in the heat. Med Sci Sports Exerc. 2000 Jan; 32(1):124-33.

4) Valentine V. The importance of salt in the athlete's diet, Curr Sports Med Rep. 2007 Jul; 6(4):237-40