Conditioning and Hydration

Physical conditioning incorporates a variety of activities to maximize performance and ability to endure and sustain workouts. The first parameter of conditioning would be medical readiness, including medical clearance. Conditioning activities are impossible without proper nutrition including fluids. As a game official, one must be driven and able to maintain discipline and consistency of workouts. When one is engaged in a team sport, workouts are often mandatory and you are challenged by not only coaches, but teammates. As a game official, one must motivate themselves and hold oneself accountable.

When I think of conditioning, I often reference specificity, frequency, and intensity as key words. Specificity involves activities specific to the activity one is to endure. The majority of training and conditioning should be sport specific, and include training activities that mimic the sport. While there is carryover from anaerobic (quick burst of high intensity) activity to aerobic activity, there is not as much carryover for conducting aerobic activity with the hope of enhancing anaerobic base. Specificity is a key word as the activity must be specific to the demands of one’s sport or activity. In football it may involve certain strength and sprint workouts, while in basketball it may contain plyometrics--but for every sport the conditioning will be altered in some way.

Frequency of activity involves how many days per week the activity is conducted. It is generally felt weight training of specific muscle groups may be conducted three days per week while conditioning can be performed up to four days per week. Intensity of workout generally correlates with the percentage of weight versus one’s maximum weight for workout. Intensity in conditioning generally correlates with heart rate and the percentage of maximum heart rate. It is generally felt 60% of maximum heart rate is needed to achieve a training effect and condition for sport. The final parameter is duration or the length of the workout.

By increasing and decreasing frequency, intensity, and duration, we avoid stalemate in workouts.

Hydration
Two-a-day practice sessions are often a part of early-season conditioning in American football and year-long training in many other sports. The extra practice time helps accelerate physical conditioning, allows time for strength training and skill development, and helps develop camaraderie among teammates. The very nature of two-a-day practices stresses survival of the fittest. Athletes are frequently placed under additional stress by the heat and humidity that often accompany summer practices. Our expert panel discusses the impact of the high-energy requirements, the limited recovery time, and the psychological stress of "making the cut" during two-a-day training. Strategies based on scientific theory and clinical experiences are presented to help athletes get the most out of two-a-days.

1. What amount of fluid loss can be expected in these athletes?

   **Walters:** In my experience in the college setting, it is common for a football player to lose over 12 pounds during practice—even when we go to tremendous efforts to force fluids on these guys. Studies report as much as 24 pounds of fluid loss (about 11 kg) in a 24-hour period. Regarding fluids and electrolytes, we know these are vital to bodily functions. Players simply can't practice effectively without proper levels. When the body's fluid level drops, the body cannot adequately cool itself or perform normal metabolic functions that support physical activity.
2. What strategies do you recommend to maintain energy intake and lean body mass during two-a-days?

Walters: During the two-a-day routine, athletes have to be diligent in maintaining hydration status. Furthermore, they must understand that losing body weight during practice comes from fluid, not fat! By maintaining proper hydration, we can prevent much of the problems associated with heat-related illnesses. We require athletes to weigh in before and after each practice in their shorts only. During the first practice of each week, the athlete's weight is recorded. From this, we determine the athlete can leave the training room and for allowing participation in subsequent practice sessions. After a practice, the players must attain a body weight within 4% of their "certified" weight before they can leave the training room. Before they can participate in the next session, their weight must be within 2% of the "certified" weight. We give our players Sundays off, and this day of rest allows them a chance to rehydrate and establish a new weight to be certified on Monday.

3. What tips can you offer to athletes preparing for two-a-day sessions?

Walters: I don't believe there is any replacement for athletes being in top shape. I see fewer injuries in those teams that are in good shape, and further, when injuries do occur, well-conditioned athletes seem to be able to return to play more quickly. Further, acclimatization, or being accustomed to the environment, has to be accomplished. Other ways we combat the risk of heat-related illness is with good nutritional habits. Maintaining fluid balance is also critical. We monitor pre- and post-practice weights and chart weight loss so that we can accurately advise athletes on their fluid intake. Finally, adequate rest must be accomplished. We try to work our athletes hard on the field, but make sure we give them time to rehydrate, cool down, and relax. We also make sure to have several hours of rest between practices to allow for adequate recuperation.

Getting electrolyte drinks on the field and into the players during timeouts can give your players a competitive edge.

Here are some additional tips on ways to make two-a-day football practices, in the heat of the summer, safe and productive.

**Stay Cool**

- Get in shape and acclimate.
- Know the warning signs of dehydration and heat illness.
- Don't rely on thirst to drink.
- Drink on schedule.
- Favor sports drinks.
- Monitor body weight.
- Watch urine color and volume.
- Shun alcohol and caffeine.
- Key on meals.
- Stay cool when you can.


Athletic Trainers have a crucial role in maintaining the hydration level of players in practice activities as well as on game day.
Stay Healthy

- Minimize the stresses of life.
- Eat a well-balanced diet.
- Avoid over-training.
- Sleep well.
- Avoid rapid weight loss.
- Avoid sick people and large crowds.
- Keep hands away from nose and mouth.
- Get a flu shot.
- Key on meals.
- Stay hydrated and ingest carbohydrates during exercise.


Stay Hydrated

- Drink throughout the day (water, sports drinks, fruit juice, non-caffeinated soft drinks).
- Drink at least 16 oz. two hours before a practice or game (to allow time to urinate).
- Drink another 8 oz. 15 minutes before exercise (to help ensure immediate hydration).
- Drink to fully replace sweat loss during exercise (at least 4 to 8 oz. every 15 minutes).
- Drink 24 oz. for every 1 lb. of body weight deficit after exercise.