

Heat Stress in FIVB Refereeing Staff

– Project Report

Background

In its 2013 meeting, the FIVB Medical Commission decided to provide recommendations to the Referee Commission on hydration status of referees at beach volleyball events when the climate is hot and humid.

From the FIVB Heat Stress Monitoring Protocol, based on 6 years of data, including 101 events, we know that severely hot and humid conditions are regularly encountered during FIVB beach volleyball events. Nevertheless, we have also documented that it appears to be safe for professional beach volleyball players, including under-age categories, who are well acclimatized to exercise under hot and humid conditions, to compete under conditions well above a wet bulb globe temperature of 32. No data exist on the health effects on referees. It is also important to note that there may be significant effects not only on their health, but also on their performance.

In consultation with the FIVB Medical Department it was decided that the best starting point for this project would be an interview with a group of FIVB Referees, ranging from more experienced to less experienced referees. And then decide, based on this, what is the best method to reach the various target groups with the information needed. This interview process was accomplished during the Stavanger Grand Slam event, with a consultation to identify the current knowledge status and needs of the group. The interviews were followed up with e-mails to the interviewed athletes and Referee Delegate. The current report is based on this process – organized in three sections:

1. What is the current level of knowledge regarding heat and hydration?
2. What are the needs of the referees to be able to cope with challenging environmental conditions?
3. What are the practical tips and tricks acquired by experienced FIVB referees over their years of refereeing on the FIVB World Tour?

Level of knowledge regarding heat and hydration

The meeting revealed that referees are fully cognizant of the challenges represented by hot and humid conditions. They were well versed in heat physiology and drinking/rehydration strategies, and had excellent awareness of the risks and pitfalls associated with performing in the heat. They had acquired this information from multiple sources, and cited peer learning and peer advice as the most important sources. There was

general agreement that brochures or web information would be of very limited value at their level.

Interestingly, the referees pointed to cold (and wet) weather conditions as a challenge in much the same way as heat. In fact, some thought cold to represent as much of or even more of a problem as heat.

Needs of referees

While the referees uniformly reported that they had all the information they needed about heat and hydration (and also appeared to be very well educated), it soon became clear that they were faced with a number of challenges which influenced their ability to perform in the heat. Some of these were not felt to be addressed adequately at present. These issues include the following:

1. Referee uniforms should be light colored clothing (ideally, white), loose fitting and made of modern, meshed, technical fabric to allow easy evaporation. The same goes for the hat, which should be white and of breathable light material.

For cold and wet conditions, windbreakers and pants should be available to be able to stay dry. Rain-repellent caps (different from hot-weather caps) are also needed for such conditions.
2. Referees should be provided with a cool, comfortable rest area away from the sun and wind, as well as shielded from extremes of noise. A separate “chill-out area” to relax and rest in the referee area was suggested. Rest area located close to the courts.
3. Access to water and fruit during play, sufficient time for rehydration between matches and time for lunch and dinner to be taken. Cold drinks, ice to be supplied ad libitum in hot/humid climates (hot drinks available when cold/wet).
4. A schedule that allows some form of rest cycle to be able to get away from the heat. A higher number of referees (four per court) should be appointed to events where hot and humid conditions are expected.
5. A comfortable hotel with facilities and single rooms. The need to be able to rest adequately and have time to reflect was emphasized by several referees, who felt that this is often not possible with a roommate.
6. The possibility of showers being available between matches would be desirable.
7. Access to hotel fitness club for work-outs during tournaments is desirable to maintain fitness levels.

Practical tips and tricks

The following tips and tricks were identified in consultation with the referees:

1. Prepare yourself for events by staying fit and healthy; take regular exercise.
2. Before each event, check the expected weather conditions and plan ahead for these.
3. Take plenty of fluids during the day to keep well hydrated.
4. Keep a drink with you on the stand (or at the scorer's table for 2nd referees).
5. Most hotels provide bathroom weight scales; check your weight every evening and morning to ensure that you do not become dehydrated. Along the same lines, urine color is a reasonable indicator of hydration status; urine color should be light.
6. Soak your hat in cold water to help cool down through evaporation.
7. Use sunscreen at all times (with UVA and UVB protection of at least SPF 30 that is water-resistant); apply for every match and also have some available on the stand just in case (or at the scorer's table for 2nd referees).
8. Stay out of the sun as much as possible, so that you can rest and recover.
9. Learn to be able to relax between matches, work out your own routine for this – sleep when you have time. After a day's play rest and relax as much as you can.
10. Eat regularly, priority on light foods, carbohydrates and salads at lunch time, not too much at a time.
11. Stay away from alcohol again to avoid dehydration.
12. In cold weather, wear wool socks to keep feet warm (unlike cotton, wool provides insulation even when wet). Also, wear wool underwear under uniform pants.
13. In rainy weather, wear a water-resistant plastic coat under the FIVB uniform (if this is not waterproof).
14. Get a skin check; have your skin checked for skin cancer by a dermatologist or primary care physician once each year.

Conclusions

The following conclusions were reached:

1. FIVB referees present with excellent knowledge about heat the challenges represented by hot and humid conditions.
2. Referees point to a number of factors which could be addressed to help maximize their performance in challenging environmental conditions.
3. A number of practical tips and tricks were identified which should be shared with all FIVB beach volleyball referees and updated with additional comments from the larger group. This could be achieved via the FIVB website.