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The Statistical Analysis Comparing the Heat Index Temperatures to the Rare Football Related Heat Illnesses in Prescott, Arkansas

Sarah Tuller

Ouachita Baptist University

Terry DeWitt

Ouachita Baptist University

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The Statistical Analysis Comparing the Heat Index temperatures to Football Related Illnesses in Prescott, Arkansas

Author: Sarah Tuller

Abstract

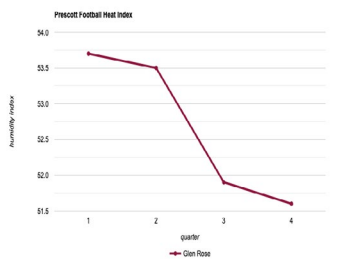
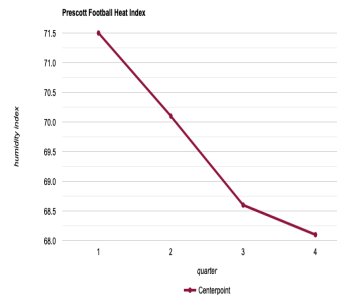
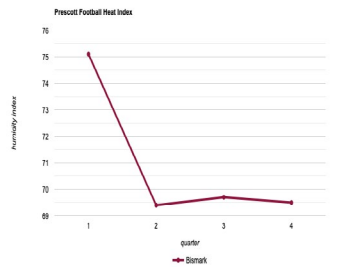
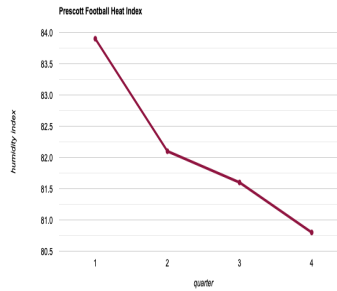
During this independent study we as a group analyzed the humidity index and injury report correlations during the 2020 football season at Prescott High School in Prescott, Arkansas. We gathered reliable data for the first 2 games at the very beginning of the season and the last 2 games at the end. We analyzed all the numbers from the heat index and humidity with the number of injuries occurring in a game. At the end of the season we gathered all of our data and came together as a group to construct this independent study in hopes to help us prevent future injuries in upcoming seasons. This study is led by Dr. Terry DeWitt at Ouachita Baptist University

Methods

- Pre-screened all athletes on the Prescott varsity football team before participating in the study.
- Collected all heat analysis from the Wet Bulb index machine at the beginning of each quarter.
- Collected the injury data using SOAP notes, and after every game we would then analyze the correlation between the heat index and the number of injuries present.

Literature Review

Heat exercise causes thermoregulatory and other physiological tension that can contribute to impairments in the ability of endurance exercise. The aim of this consensus statement is to include up-to-date guidelines to improve success performed in hot environmental conditions during sporting activities. Heat acclimatization is the most critical action one may take to decrease physiological pressure and maximize efficiency. Repeated exercise-heat exposure over 1-2 weeks may provide heat acclimatization. Furthermore, in a hydrated condition, athletes should initiate competition and preparation and reduce dehydration during exercise. Athletes may introduce cooling techniques after the development of commercial cooling systems to promote heat loss or improve heat storage capacity before exercising or participating in the heat.



Hypothesis & Conclusion

After reviewing the statistical analysis of these charts depicting the humidity index of the Prescott junior high and senior high football games. There is linear digression of temperature in correlation to each quarter and time passed between. Every game started with a higher heat temp and humidity index. It is evident that after every quarter not only would the temperature go down but so would the humidity level. Some games such as Bismark and Centerpoint had a much bigger temperature deficit than the game versus Glen Rose and Gurdon. I found this rather odd because my general hypothesis before the season started was that there would be more of a change from the beginning to the end of the game in the first couple games of the season because of all the heat and humidity late summer brings in Arkansas. In conclusion I would reject the hypothesis because it is clearly shown in the data that the first and last game of the season had the smallest change whereas the middle two games had a much larger deficit. I can't exactly pinpoint the very reason for this conclusion of data made by the wet bulb detector, but i think it has to do with the changing of seasons causing the temperature to drop more from daytime to night.

References

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