

Hydration and Athletic Performance

Noah Yuen¹, Elliot Clark¹, Niklas Risano¹, Adam Jung²
Palo Alto High School¹, Ford Motor Company²



INTRODUCTION

Our research was focused on the correlation between hydration and athletic performance. We thought the best medium to measure this was through running as running is the most stable way to measure increases or decreases in performance due to its controllable variables. We looked for patterns in our results after running various distances at differing levels of hydration. We then calculated how hydrated we were and looked for patterns in the results. We came to the conclusion that although hydration does affect athletic performance positively, the benefits are close to negligible for events shorter than two miles.

BACKGROUND INFORMATION

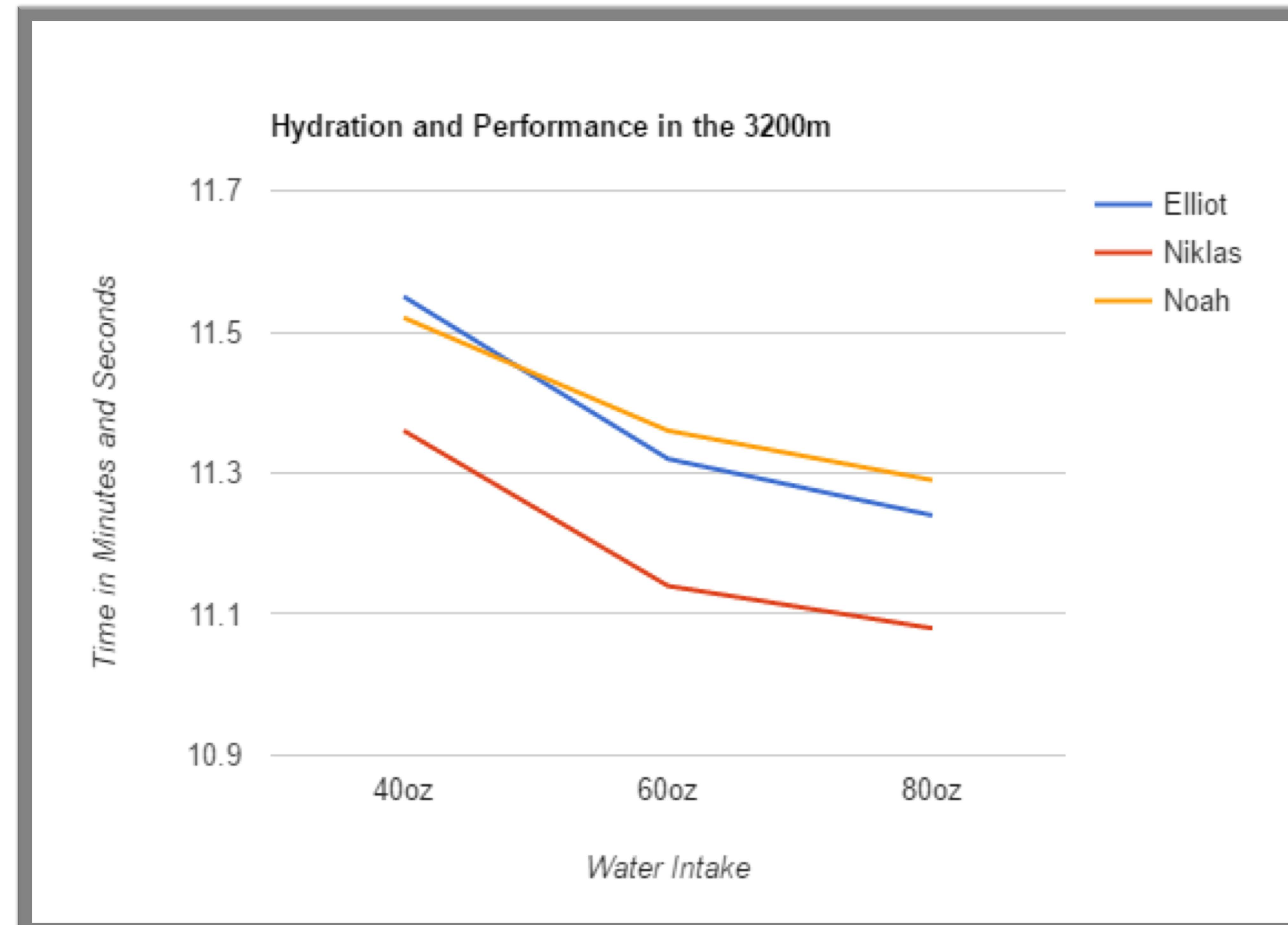
Using our own data and the data of David Epstein, who has developed a significant body of research on the relationships between hydration, technology and performance, we will not only be able to prove a large reason that athletic records fall, but we will also be able to show that the way you prepare along with the gear you use during running gives you the ability to fulfill your full potential as an athlete. This data may affect the way people view hydration, but ultimately the advantages gained by the use of expensive shoes, clothing, or progressive hydration techniques may be negligible to the average runner.

However, as the professionals use more and more advanced gear, and more research is conducted around the importance of hydration, its availability, the public's awareness and access to it may also increase. This would result in overall added significance to high tech advancements in hydration for runners. In sum, the way athletes look at their gear may forever change due to the realization that your technology and hydration enables you to reach your full potential.

METHODS

1. We measured the amount of water intake over a 24 hour period before performing our tests.
 1. On average, Elliot consumed about 60 ounces of water per day. Noah and Niklas both consumed about 55 ounces of water on an average day.
 2. These values were based off of 2 weeks of water intake measurement.
2. Once we had developed our baseline water intake, we proceeded to conduct running tests 20 ounces below 60 ounces of water intake, at 60 ounces of water intake, and 20 ounces above 60 ounces of water intake.
3. We chose to increase and decrease our intakes by 20 ounces from 60 ounces because it enabled us to stay healthy while still affecting our performance.
4. During each of our water intake levels we conducted two different distances around the track.
 1. The first was 1600m and the second distance was 3200m.
 2. We then recorded each of our times and plotted the results.

RESULTS



Our results displayed exactly what we predicted:

- Dehydration was directly correlated to a decrease in performance.

DATA COLLECTION

- There was little room for error because we measured the water carefully each time.
- The whole group was also composed of consistent runners, so the experiments were relatively easy for us to complete.
- The experiments were also conducted over several days so fatigue was not an issue.
- Factors that may have impacted our times include varying sleep hours, diet, and weather.

ACKNOWLEDGEMENTS

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DISCUSSION

Based on our results, we concluded that dehydration has a greater negative impact than the positive impact that over hydrating has. We determined that this is partly related to the distances that we ran. Seeing that over hydrating was slightly more beneficial in the two mile than the one mile, we believe that for longer distances, for example, a marathon, over hydrating would have a greater positive effect.

Similarly, we believe that dehydration, which significantly hampered our ability to run quickly in the 1600m and even more so in the 3200m, would have a greater negative effect in longer distances such as a 10K. We believe that the reason as to why over hydrating has less of an impact than dehydration is that over hydrating means extra water weight and there is a point where your body cannot move any faster and can only get slower.

These are significant because they show a flaw in the hydration habits of many athletes. A large amount of athletes over hydrate themselves way too much before they run, thinking that it will help them a lot. In reality, it makes only a small time difference but ends up making the entire run uncomfortable.

Dehydration, which is commonly known to decrease athletic performance, was confirmed to negatively affect running quite a bit.

FUTURE IMPLICATIONS

An extension of this project that our bodies were not prepared for would be to try the same experiment, but with longer distances such as a 10k, half marathon, and marathon.

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