

ACCURACY OF A SMART BOTTLE IN MEASURING FLUID INTAKE BY AMERICAN FOOTBALL PLAYERS DURING PRE-SEASON TRAINING

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FOR MORE INFORMATION, SEE THE PAPER ON WHICH THIS INFOGRAPHIC IS BASED, FOUND IN THE FOLLOWING REFERENCE:
[Link to Full text](#)

STUDY PURPOSE

To determine the accuracy of an optical sensor based smart bottle in measuring fluid intake during real world training conditions.

PARTICIPANTS



30 Male American Football players

TYPES OF EXERCISE/CONDITIONS



Practice duration
110 ± 30 min

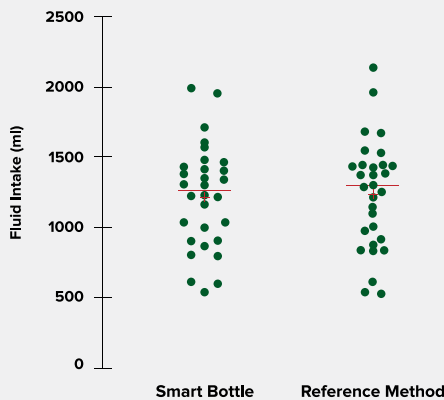


On-field conditions
29.3 ± 3.0 °C

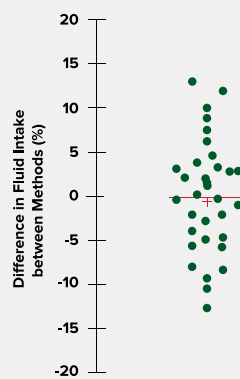


Relative humidity
75 ± 11%

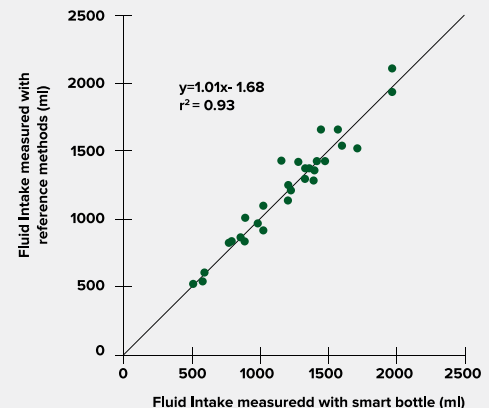
RESULTS



Scattergram showing data for fluid intake measured with the smart bottle and reference method (n=30). There was no significant mean difference in total fluid intake between methods (p=0.39 paired t test).



Scattergram showing difference in fluid intake between methods expressed as a percentage (n=30). Horizontal line represents the group median, and the plus sign represents the mean.



Scatterplot of smart bottle versus reference fluid intake (n=30; r=0.96, p<0.0001). The slope and intercept of the regression line were not different from one (95% confidence interval: 0.95, 1.15) and zero (95% confidence interval: -178, 85), respectively.

⊖ There was no significant mean difference in fluid intake between the smart bottle and reference method.

KEY TAKEAWAYS



The smart bottle provided accurate measurements of fluid intake during exercise in real-world field conditions on a group level and within limits of agreement of approximately ±15% of overall fluid intake on an individual level.



The smart bottle technology represents a valid and practical tool to measure fluid intake in real-time, which may help facilitate adherence to personalized hydration strategies during exercise.

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