

IF OUR FIREFIGHTERS ARE ARRIVING ON SHIFT DEHYDRATED, WHY DON'T WE MAKE THEM DRINK BEFOREHAND?

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The Background

Wildfire fighters arrive on shift dehydrated. Athletes are encouraged to consume 400-600 ml of fluid prior to competition to ensure they begin their event in a hydrated state. Pre-exercise fluid intake is thought to increase performance and reduce heart rate and lower core temperature.

The Question:

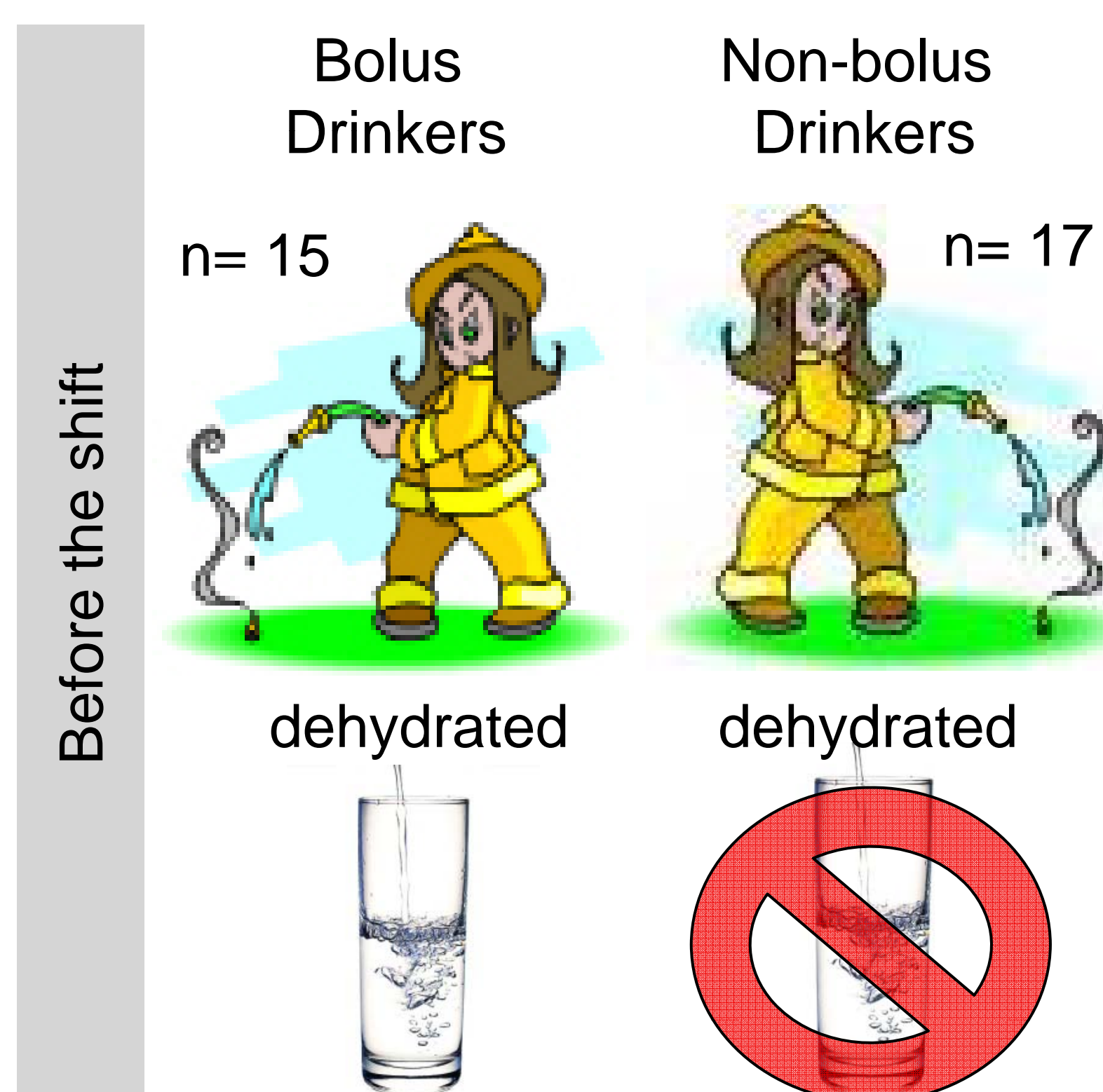
Does ingesting 500 ml of water before the shift have any affect on firefighters work behavior or physiology when fighting emergency wildfires?

The Approach:

We compared the physiological and work responses of firefighters in fluid bolus drinking and non-bolus drinking groups while they suppressed the bushfires emanating from Black Saturday. Firefighters were instructed to consume food and fluid as they wished during their shift.

The Results:

Results for bolus drinking and non-bolus drinking firefighters compared to the expectations based on previous studies.



MEASUREMENT	WHAT WE EXPECTED	WHAT WE FOUND	THE NUMBERS
Total fluid consumed	Same	Same	Bolus drinkers 3.7 ± 2.9 L Non-bolus drinkers 3.4 ± 1.6 L
Heart Rate response	Lower in bolus drinkers	Same	22 ± 60 min of each 2-hour period in 'hard' zone (70-90% of maximum heart rate)
Activity/Movement	Same	Same	Time in different activity zones matched, Distance covered on foot = 9.1 ± 4.2 km
Core Temperature	Bolus drinkers lower	Same	Averages (both groups): 36.9 ± 0.4 ° C
Hydration Status (post-shift)	Dehydrated (both groups)	Hydrated (both groups)	Both groups < 290 mOsm.L ⁻¹ (end of shift)

The Implications:

In mild weather conditions (21.0 ± 4.6 ° C);

- Consuming 500 ml of water before wildfire fighting provided no additional benefit to firefighters' work or physiology during the shift.
- Fighters naturally consume enough food and drink to complete their shift in a well-hydrated state.
- Fire agency food and fluid provisions appear adequate for emergency firefighting operations.
- Exercise physiology laboratory findings do not always transfer directly to wildfire fighting.