

# 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:

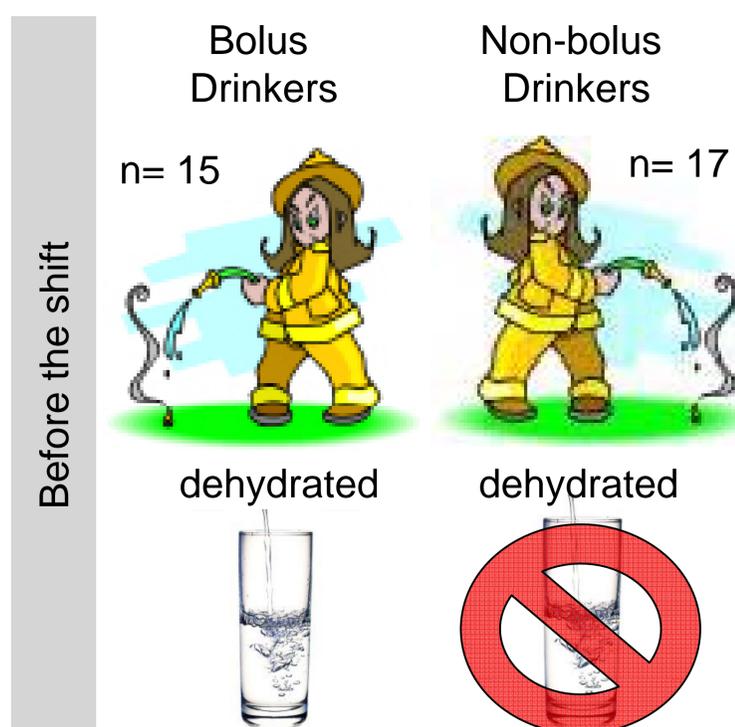
*Does ingesting 500 ml of water before the shift have any affect on firefighters work behavior or physiology when fighting emergency wildfires?*

## 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<br>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,<br>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 <sup>-1</sup> (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.