

Saturday Night Fever

Reliability and validity of single-use temperature stickers for the detection of hyperthermia for implementation at music festivals

Daniel T. Winter

Specialty of Addiction Medicine, Faculty of Medicine & Health, The University of Sydney
Edith Collins Centre (Translational Research in Alcohol, Drugs and Toxicology), Sydney Local Health District
Drug and Alcohol Services, Northern Sydney Local Health District

Co-authors: Jessica R Chow, Tsz Yan Chow, Benjamin C Riordan, Paul S Haber, Andrew Dawson, Jacques Raubenheimer



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We acknowledge and pay respect to the traditional owners of the land on which we meet and pay respect to Elders past, present, and emerging.

As we share our own knowledge, teaching, and learning here today, may we also pay respect to the knowledge embedded forever within the Custodianship of Country.



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Disclosure of Interest

This study was funded by a Seed Funding Grant (ID: NCR3SF11) from the National Centre for Clinical Research on Emerging Drugs (NCCRED)

Manufacturers of the single-use temperature stickers (feverpatches) were not involved and did not contribute to this study, financially or otherwise



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Background

- Drug-related harm and fatalities among music festival attendees necessitates novel harm reductions strategies to address this issue
- Hyperthermia: often a result of stimulant overdose
- Other risk factors: alcohol consumption, dehydration, high-temperature environments, etc



A novel approach?

- **Is there a cheap, and reliable (and cool) way to detect hyperthermia as a proxy for stimulant overdose/other ill health?**
- Wearable temperature stickers (Feverpatch stickers) may offer a potential solution to detect hyperthermia
- Pilot study: examine the reliability and validity of wearable temperature stickers, compared to tympanic temperature, with participants undertaking physical activity in a controlled environment

More about the Feverpatch stickers



Study Design

- **Location & participants:** high-intensity fitness class (Body Attack) attendees, based at a University gym
- **Feverpatch stickers:** commercially available temperature stickers for detecting fever
- **Sticker placement:** across four body locations (forehead, upper chest, forearm, wrist)
- **Comparator:** Celsius temperature (tympanic) of participants
- **Timepoints:** four timepoints (pre-class, twice during class, and post-class)



Participants were reimbursed with \$20 grocery voucher to thank them for participating



Analysis

ANOVA & GLM completed in R

Tested differences between sticker and tympanic (as reference) temperatures across sticker brand, location and timepoint



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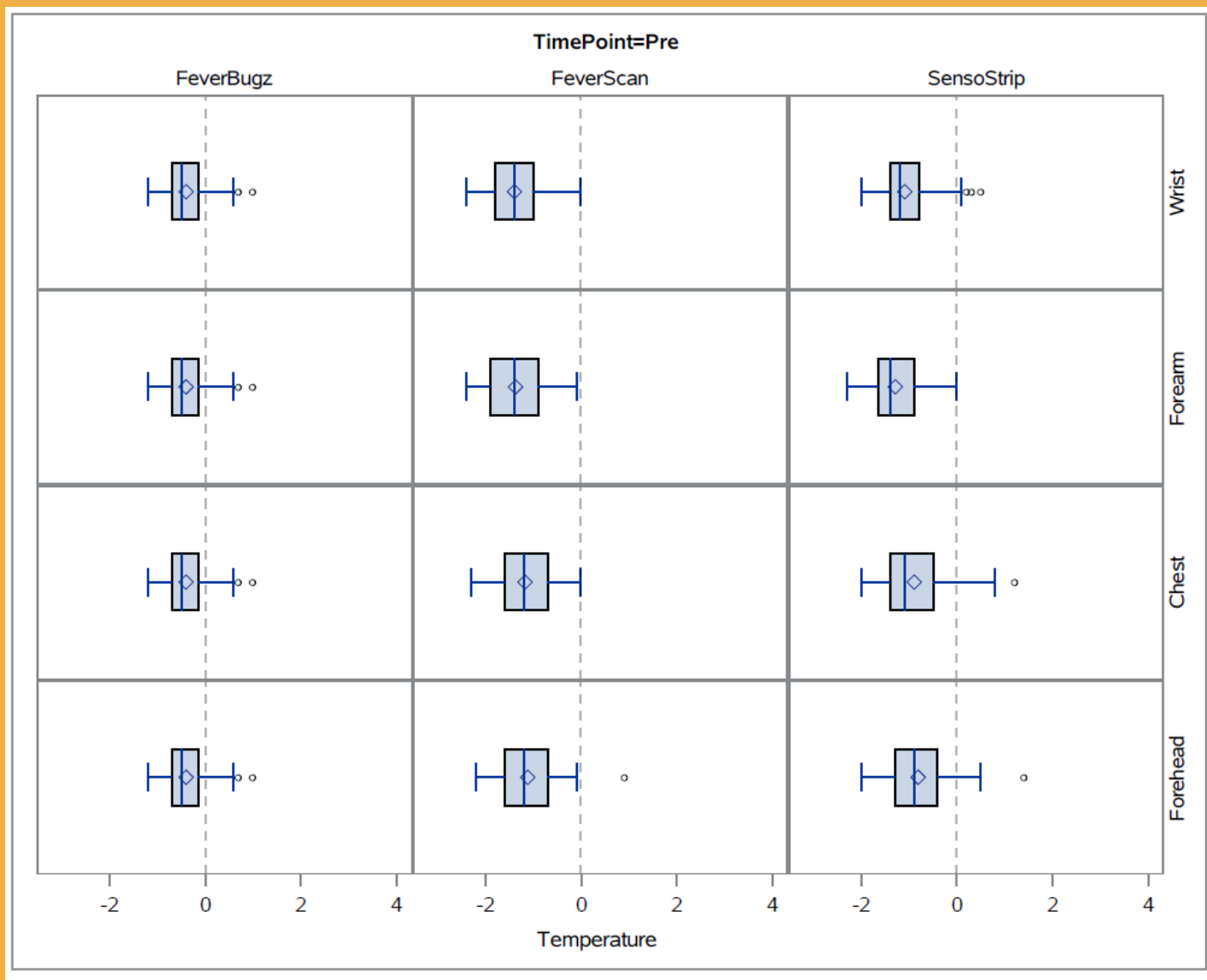
Results

- **Total participants:** N=204
- **Participants across each brand:** Brand 1: N=70, Brand 2: N=67, Brand 3: N=67
- **Gender:** Female 67.2%, Male 30.8%, Other 0.6%
- **Age:** Mean 31.3 years (SD 10.4 year)



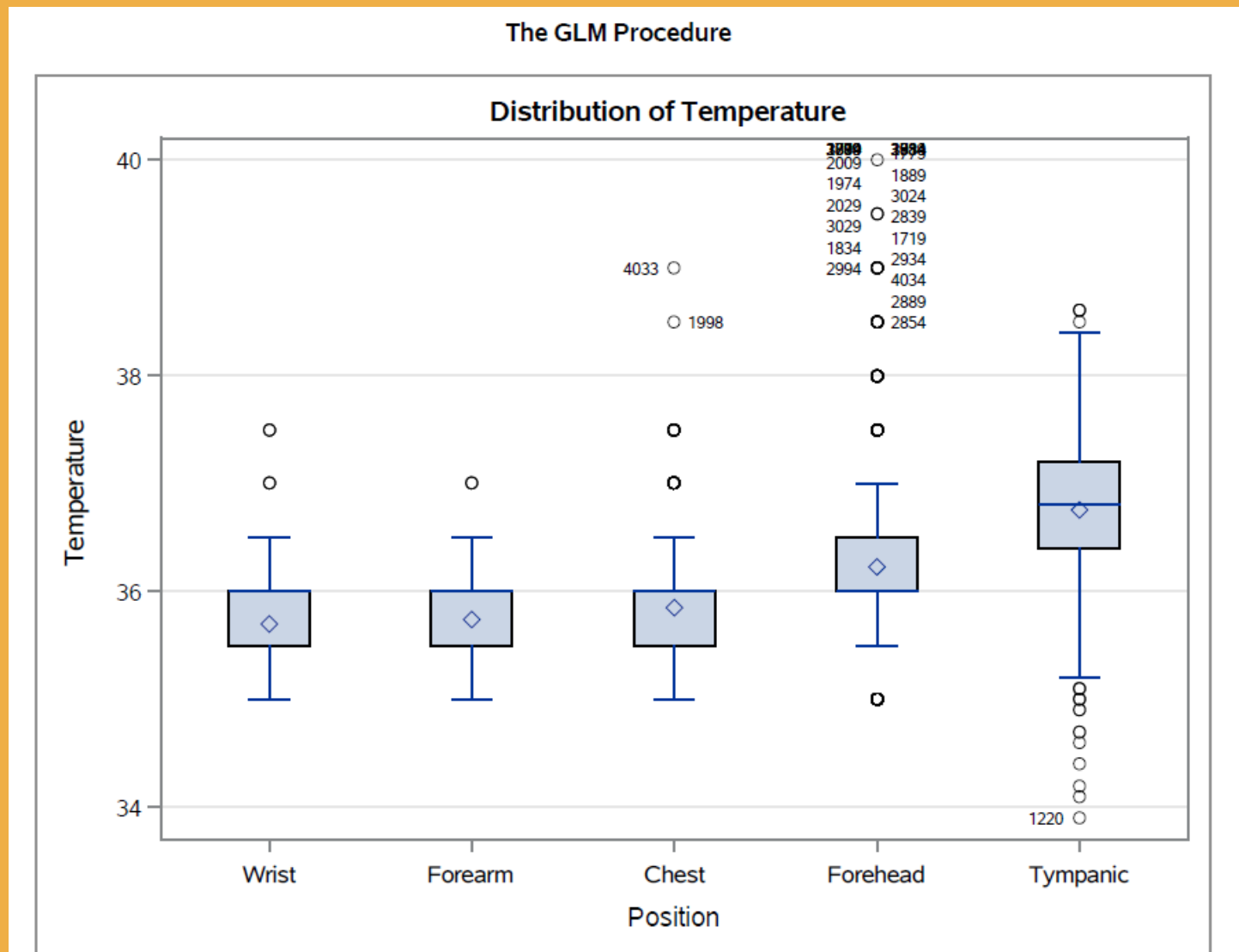
Results

The model showed significant differences in temperature readings between both sticker location and brand, in relation to tympanic temperature



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Do the feverpatch stickers fall off?



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Do the feverpatch stickers fall off?



Do the feverpatch stickers fall off?

Only 65.1% of the 3,264 sticker temperature readings were valid by the post-class timepoint

PRE-CLASS TEMP READING	DURING CLASS TEMP READING 1	DURING CLASS TEMP READING 2	POST CLASS TEMP READING
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So, do the feverpatch stickers work?

Sort of....more work needs to be done

- **Body location:** The model shows feverpatch temperature readings across all locations underestimated tympanic temperature
 - Forehead location performed the 'best'
- **Brands:** Among the three brands used, again, all underestimated tympanic temperature
 - One brand outperformed the others, but still significantly underestimated temperature



Final Thoughts

Could feverpatch stickers be implemented in music festival setting?

- Manufacturer corrections would be required to ensure feverpatch stickers are valid and reliable prior to implementation
- Design considerations of stickers (e.g., on theme designs for festivals)
- Feverpatch stickers should complement (not replace) existing harm reduction and health initiatives
- Encourage all music attendees to use, rather than just people using drugs



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CONTACT ME

 @DanWinter_AU

 daniel.winter@sydney.edu.au

 EdithCollinsCentre.org.au

Stay tuned because it's about to get hot in here!



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