Searching for Street Parking: Effects on Driver Physiology, Behaviour and Visual Attention Allocation

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There is a heightened crash risk in urban areas that allow street parking (Box & Levinson, 2004)

Proposed reasons:
- Reduced road width
- Heavy traffic flow
- Increased obstacles
- Pedestrians entering/exiting parked vehicles
- Decreased sight distance
Could drivers searching for parking contribute to this heightened crash risk?

How does searching for parking affect drivers?
On-road instrumented vehicle study

26 participants drove 540m on Bloor St., once when searching for parking and once as a baseline (counterbalanced order)

We measured:
- Driver heart rate and skin conductance
- Vehicle speed and lane position
- Off-road glances and percent time looking off-road
On-road instrumented vehicle study
On-road instrumented vehicle study
**Results:** Baseline vs. searching for parking

**Physiology**

- Heart rate increased marginally
- Skin conductance produced no significant difference
**Results:** Baseline vs. searching for parking

**Vehicle Measures**

- Speed decreased
- Speed variability decreased
- Vehicles were positioned closer to the curb
Results: Baseline vs. searching for parking
Results: Baseline vs. searching for parking

Visual Attention Allocation

- Number of off-road glances under 1.6s decreased
- Number of off-road glances above 1.6s increased
- Percent time looking off-road increased
Conclusions

- Our experiment provides evidence that searching for parking affects driving behaviour and visual attention.

- Improved support for drivers searching for parking (e.g. road design, mobile apps) may contribute to road safety.

- More research is needed to determine if compensatory behaviour (decreased speed) is sufficient to mitigate effects of possible unsafe behaviours (increased off-road glances).