Restricting vehicle use to motivate occupants to use a seat belt

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‘Interlock’ Means Buckle Up or Walk

New mandatory safety gear includes interlocking safety belt system for front seats. Door must be closed and harness engaged before motor will turn over. Override lasts for just one start. In Buick’s system, above, a beep has replaced the buzzer.

The Interlock System: A ‘Devilish Contraption’

Congress Clears Auto Safety Measure Eliminating Seat Belt Interlock System
Restraint use in the United States, 1983-2017

4,668 lives potentially can be saved each year

- front-row passenger vehicle occupants observed in the daytime
- fatally injured front-row occupants
Is an interlock more effective for increasing belt use than an enhanced reminder?
General Motors enhanced seat belt reminder
General Motors Seat Belt Assurance System
48 volunteers were invited to evaluate new vehicles

- Part-time belt user (n=32)
  - Enhanced reminder only (n=16)
  - Gearshift interlock (n=16)

- Full-time belt user (n=16)
  - Gearshift interlock

Week 1:
- Enhanced belt reminder
- Enhanced belt reminder

Week 2:
- Enhanced belt reminder
- Gearshift interlock
Belt use
Gearshift interlock increased part-time belt users’ rate of belt use per hour of travel by 16%.

Percent of time driver was buckled during travel, by study week

- Week 1 (control)
- Week 2 (treatment)
Six of 16 part-time belt users circumvented the gearshift interlock

- 4 waited 30 seconds for the gearshift interlock to deactivate
  - 1 also reported buckling, shifting into gear and unbuckling
- 1 was observed buckling, shifting into gear and unbuckling
- 1 was observed buckling the belt behind his back
Preventing circumvention would further increase the effectiveness of the gearshift interlock

Percentage change in belt use rate between weeks among part-time belt users

- Enhanced reminder only: 16%
- Gearshift interlock: circumventers included: 24%
- Gearshift interlock: circumventers excluded: 20%
Full-time belt users
Gearshift interlock was acceptable to full-time belt users

- On average, belted 97% of travel time every trip
- 14 of 16 full-time belt users completed the post-study survey
  - All said they experienced the gearshift interlock
    - 86% said they were unbuckled as the driver
    - 57% said their right front passenger was unbuckled
  - About 80% said the system was acceptable for increasing front-row occupant belt use
  - About 70% said they would support using a gearshift interlock to increase belt use
  - Only 1 said he would not buy a vehicle with a gearshift interlock
Conclusions

- Gearshift interlock significantly increased belt use among part-time belt users relative to GM’s enhanced reminder
- 718 lives could be saved annually if every vehicle had this gearshift interlock
  - Preventing circumvention could save an additional 134 lives each year
- Gearshift interlock system was acceptable to full-time belt users