Street Racing, Stunt Driving, and Traffic Safety

Evelyn Vingilis, PhD, C. Psych.
Director, Population and Community Health Unit,
Professor, Depts of Family Medicine, and Epidemiology and Biostatistics

Presentation to 10th Annual International Conference on Urban Traffic Safety
July 9-12, 2018
Various studies supported by:
Social Science and Humanities Research Council, Canadian Institutes for Health Research, AUTO21 and Ministry of Transportation of Ontario grants

<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomas Brown</td>
<td>PhD, Douglas Institute, McGill University</td>
</tr>
<tr>
<td>Peter Fischer</td>
<td>PhD, Universität Regensburg</td>
</tr>
<tr>
<td>Judy Fleiter</td>
<td>PhD, Global Road Safety Partnership, International Federation of Red Cross and Red Crescent Societies</td>
</tr>
<tr>
<td>Daniel H. Grushka</td>
<td>MD, Dept. of Family Medicine, Western University</td>
</tr>
<tr>
<td>Robert E. Mann</td>
<td>PhD, Centre for Addiction and Mental Health, Dalla Lana School of Public Health, University of Toronto</td>
</tr>
<tr>
<td>Marie Claude Ouimet</td>
<td>PhD, Faculté de médecine et des sciences de la santé, Université de Sherbrooke</td>
</tr>
<tr>
<td>Jane Seeley</td>
<td>BA. Dept. of Family Medicine, Western University</td>
</tr>
<tr>
<td>Gina Stoduto</td>
<td>MA, Centre for Addiction and Mental Health</td>
</tr>
<tr>
<td>Reg Smart</td>
<td>PhD, Centre for Addiction and Mental Health</td>
</tr>
<tr>
<td>Larissa Vingilis-Jaremko</td>
<td>PhD, Dept. of Psychology, York University</td>
</tr>
<tr>
<td>David Wiesenthal</td>
<td>PhD, Dept. of Psychology, York University</td>
</tr>
<tr>
<td>Christine Wickens</td>
<td>PhD, Centre for Addiction and Mental Health</td>
</tr>
<tr>
<td>Zümrut Yildirim-Yenier</td>
<td>PhD, Dept. of Family Medicine, Western University</td>
</tr>
</tbody>
</table>
A 19-year-old remains in life threatening condition in Foothills Hospital following a crash late last night. Calgary Police say witnesses indicate two cars were "racing" each other before one driver lost control. Calgary Police are asking for the public's help in finding the second vehicle in Friday's alleged street race. Duty Insp. Cain says, "The information we have is that the second vehicle was a red vehicle, small red vehicle. We don't have a license plate or very good description. Of course anybody with any information we'd appreciate if they would come forward and talk to us." Police say three other men in the Acura, aged 20, 22 and 25, were treated for minor injuries. Calgary police say charges are pending.
A fatal crash in north Edmonton this week has one resident calling for more to be done to deal with speeding and racing in his neighbourhood. “There’s too many speeding cars along that stretch of road,” said Bernard Chan, a resident of the area near 97 Street and 160 Avenue where a middle-aged woman died after a car struck her SUV. Alcohol and speeding are believed to have been factors in the crash, the city’s 23rd traffic fatality of the year.

Chan said he has seen his share of close calls, including when he went to help a woman and was nearly hit by a speeding car. He also said he has approached people he believes are meeting at nearby parking lots to race along the strip. He said he has voiced his concerns to police in the past, but has seen few results.
Police say they pulled over two drivers who were treating a road in the north end like a race track, going three times the speed limit. Kendra Slugoski reports.

EDMONTON – Two male drivers are facing charges after being caught travelling nearly three times the legal limit in north Edmonton. Police say an officer on a police motorcycle saw two high-end vehicles weaving in and out of traffic at high rates of speed on 137 Avenue and Castle Downs Road on Monday evening.

The Mercedes-Benz C63 AMG and BMW M5 were recorded on a radar going 160 kilometres per hour in a 60 zone. The officer pulled over the two vehicles. Ahmad Sayed Abou Alhassan, 26, and Jamal Ibrahim Smilley, 21, have both been charged with dangerous operation of a motor vehicle.
A 20-year old man is dead after a street-racing incident turned tragic in Brampton early Saturday morning.

According to Peel Region Const. George Tudos, two vehicles were racing in the vicinity of Clark Boulevard and Summerlea Road around 2:20 a.m. Saturday when they collided, sending one of the vehicles into a pole, killing the driver. The 20-year-old victim was pronounced dead at the scene.

Anthony Botelho, 21, of Brampton, has been charged with criminal negligence causing death by street racing. Police say they are appealing to anyone who may have witnessed the accident to come forward.
Germany's deadly street racers
Young drag racers in German cities are now one of the country's biggest threats to public safety. Their impromptu tests of will take them far above the speed limit - and cost dozens of lives each year. According to the Dortmund police, 92 cars were caught speeding this weekend during a special control of drag strips in this western German city. The police were out for seven hours on patrol and managed to nab a Smart going 155 km/h (96 miles per hour) in a 100 zone, a Lamborghini going 145 km/h in that same zone, and a host of other cars going even further over the 50 km/h limit.

Auto deficiency syndrome
"No, none of these racers are afraid of dying," André Bresges, professor of physics education in Cologne, said. "All they care about is being the fastest. They would rather die than end up in a wheelchair."
Karl-Friedrich Voss, a psychologist who specializes in driving behavior, said most of these racers are young men who "have something to prove but haven't managed to do so in any other social environment."
Five men have been charged after an eight-month investigation into a group of motorcyclists who police said were seen driving recklessly on the streets of the Greater Toronto Area and involved in a collision last summer that left one person dead. Ontario Provincial Police said a group of motorcyclists were travelling together eastbound on Highway 401 near Allen Road in Toronto around 3:30 a.m. July 23, when they were seen “slowing traffic and performing stunts.”
Different types of street racing

• Drag racing: a speed trial where the acceleration and top speed capability of vehicles and/or skill of their drivers are tested.

• Hat racing, (cannonball run, kamikaze) which is a point-to-point race where drivers put money into a hat that is taken to an undisclosed location. First driver to arrive there wins the prize.

• Touge, centipede, initially popularized in Japan, can occur on mountain passes or around normal traffic, one car at a time or chase-style with a convoy of vehicles.
Who are street racers and stunt drivers?

• Virtually no research on topic.

• Limited international research indicates small percentage of road fatalities were attributed to street racing and/or stunt driving.

• BUT, governments’ collision databases do not have coding specifically assigned for street racing, speed trials, stunt driving and related activities.
Who are street racers and stunt drivers?

- No Canada-wide data but some information available from 3 Ontario populations:
  - Ontario adults: (Centre for Addiction and Mental Health (CAMH)) Monitor Survey
  - Ontario high school students: CAMH Ontario Student Drug Use and Health Survey (OSDUHS)
  - Online survey of people accessing Ontario car and racing clubs
Ontario CAMH Monitor

• Ongoing cross sectional telephone survey

• Uses random-digit-dialing via Computer Assisted Telephone Interviewing (monthly till 2010, quarterly from 2011 onward)

• Weighted to be representative sample of adults (aged 18 and older)

• About 2,500 surveyed yearly

• Response rate 45-57%
Ontario CAMH Monitor (Ontario adults 18 years and older)

• “Have you driven a car, truck or SUV in a street race in the previous 12 months?”

• Yes = 1%

• Males = 1.7%; females 0.3%

• Ages: 18-34 = 2.4%; 35-54 = 0.6%; 55+ = 0.5%

Smart, Stoduto, Vingilis et al. 2011; Smart, Mann, Stoduto et al. 2012 (N = 4,273)
Ontario CAMH Monitor (Ontario adults 18 years and older)

Those who are self-reported:

- heavy drinkers,
- drinking drivers,
- cannabis use drivers,
- in poor mental health,

3-5 times more likely to report street racing.

Smart, Stoduto, Vingilis et al. 2011; Smart, Mann, Stoduto et al. 2012 (N = 4,273)
Self-reported street racers have over 5 times increased odds of a crash ($OR = 5.23, p < .001$), after controlling for demographic characteristics, driving exposure, and driving after use of alcohol and use of cannabis.

Wickens, Smart, Vingilis et al. 2017 (N = 11,263)
High school students from CAMH OSUHS

- Biennial school survey
- 2009 epidemiological survey of 3,053 students in grades 9-12.
- 66% response, representing 5.6% of high schoolers.
- Weighted to be representative of estimated 42,000 high schoolers in province.

Vingilis, Smart, Mann et al. 2011
High school students from CAMH OSDUHS

“Have you driven a car, truck or SUV in a street race in the previous 12 months?”

• **5.6%** of all students,
  • Grade 9 = 1.8%,
  • Grade 10 = 1.0%,
  • Grade 11 = 8.5%
  • Grade 12 = 9.8%

Vingilis, Smart, Mann et al. 2011
High school students from CAMH OSDUHS

• **2.4%** reported ≥5 times

Among those with G2 or full licences

• **20.4%** (Males = 33.7%; Females = 4.1%)

Those who self-reported:

• Property delinquency **10 times** higher odds of racing
• Drugs delinquency **5 times** higher odds of racing

Vingilis, Smart, Mann et al. 2011
Ontario data – car and racing club enthusiasts
Ontario data – car and racing club enthusiasts

• 29/111 Ontario car club and racing track websites with active emails posted link to online survey.

• 503 respondents to survey.

• Most were male and half were under 35 years of age.

• 1/3 grade/high school; 3/5 college/university; 1/10 trades.

Vingilis, Seeley, Wiesenthal et al. 2013
Ontario data – car and racing club enthusiasts

• % in ≥ 1 collision in past 5 yrs = 27.8%
• % in ≥ 3 collisions in past 5 yrs = 7.3%
• Average # of collisions = 1.4 (range = 1-7)
• % stopped for any traffic offence in past year = 23.1%
• Average # stops = 2.33 range (1-25)
## Ontario data – reporting of stunt driving
### Percentage of Respondents Who Never or Hardly Ever Engaged In These New Offences

<table>
<thead>
<tr>
<th>Stunt Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive with a person in the trunk</td>
<td>98.6%</td>
</tr>
<tr>
<td>Drive while not sitting in the driver's seat</td>
<td>98.1%</td>
</tr>
<tr>
<td>Try to lift the tires from the highway</td>
<td>96.8%</td>
</tr>
<tr>
<td>Drive close to another vehicle, pedestrian or object</td>
<td>96.6%</td>
</tr>
<tr>
<td>Driver so that another vehicle cannot pass you</td>
<td>94.5%</td>
</tr>
<tr>
<td>Drive at 50 km/hr or more</td>
<td>90.6%</td>
</tr>
<tr>
<td>Try to spin the vehicle or cause it to circle</td>
<td>85.0%</td>
</tr>
</tbody>
</table>
## Personal factors

### Comparison of Stunt Driving and Non Stunt Driving Respondents

<table>
<thead>
<tr>
<th>Variables</th>
<th>No Stunt driving</th>
<th>Stunt driving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-34</td>
<td>37%</td>
<td>55%</td>
</tr>
<tr>
<td>35 and older</td>
<td>63%</td>
<td>45%</td>
</tr>
<tr>
<td>Gender*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>89%</td>
<td>94%</td>
</tr>
<tr>
<td>Female</td>
<td>11%</td>
<td>6%</td>
</tr>
<tr>
<td>Aver. Hr/wk driving</td>
<td>M=3.4</td>
<td>M=3.6</td>
</tr>
</tbody>
</table>

* Statistically significant
## Personal factors

**Comparison of Stunt Driving and Non Stunt Driving Respondents**

<table>
<thead>
<tr>
<th>Variables</th>
<th>No Stunt driving</th>
<th>Stunt driving</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personality variables:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driver Thrill Seeking Scale*</td>
<td>M=29.2</td>
<td>M=37.8</td>
</tr>
<tr>
<td>Competitive Attitude Toward Driving*</td>
<td>M=6.5</td>
<td>M=8.5</td>
</tr>
</tbody>
</table>

* Statistically significant
## Comparison of Stunt Driving and Non Stunt Driving Respondents

<table>
<thead>
<tr>
<th>Beliefs: Perceived problem opinion (serious/extremely serious):</th>
<th>No stunt %</th>
<th>Stunt %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive speeding*</td>
<td>59%</td>
<td>34%</td>
</tr>
<tr>
<td>Young drivers*</td>
<td>23%</td>
<td>14%</td>
</tr>
<tr>
<td>Drinking driving</td>
<td>77%</td>
<td>74%</td>
</tr>
<tr>
<td>Street racing*</td>
<td>62%</td>
<td>31%</td>
</tr>
<tr>
<td>Elderly*</td>
<td>27%</td>
<td>41%</td>
</tr>
</tbody>
</table>

* Statistically significant
### Comparison of Stunt Driving and Non Stunt Driving Respondents

<table>
<thead>
<tr>
<th>Beliefs</th>
<th>No stunt %</th>
<th>Stunt %</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Perceived likelihood of crash (likely/extremely likely):</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking drivers*</td>
<td>89%</td>
<td>86%</td>
</tr>
<tr>
<td>Excessive speeders*</td>
<td>63%</td>
<td>38%</td>
</tr>
<tr>
<td>Elderly drivers</td>
<td>30%</td>
<td>38%</td>
</tr>
<tr>
<td>Young drivers*</td>
<td>28%</td>
<td>20%</td>
</tr>
<tr>
<td>Street racers*</td>
<td>69%</td>
<td>48%</td>
</tr>
</tbody>
</table>

* Statistically significant
<table>
<thead>
<tr>
<th>Attitudes (agree/strongly agree)</th>
<th>No stunt % or mean</th>
<th>Stunt % or mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario’s Stunt Driving Law sections:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 kms over speed limit*</td>
<td>49%</td>
<td>20%</td>
</tr>
<tr>
<td>Ghost riding*</td>
<td>82%</td>
<td>71%</td>
</tr>
<tr>
<td>Prevent car from passing*</td>
<td>61%</td>
<td>46%</td>
</tr>
<tr>
<td>Driving with person in trunk*</td>
<td>71%</td>
<td>61%</td>
</tr>
</tbody>
</table>

* Statistically significant
<table>
<thead>
<tr>
<th>Attitudes (agree/strongly agree)</th>
<th>No stunt % or mean</th>
<th>Stunt % or mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario’s Stunt Driving Law sections:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driving close as possible to other*</td>
<td>70%</td>
<td>56%</td>
</tr>
<tr>
<td>Performing wheelies*</td>
<td>66%</td>
<td>41%</td>
</tr>
<tr>
<td>Performing doughnuts/ burnouts*</td>
<td>52%</td>
<td>23%</td>
</tr>
<tr>
<td>Attitude towards street racing/stunt driving*</td>
<td>M=29.7</td>
<td>M=41.7</td>
</tr>
</tbody>
</table>

* Statistically significant
<table>
<thead>
<tr>
<th>Driver Behaviours</th>
<th>No stunt mean or %</th>
<th>Stunt mean or %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Behaviour Violations Q.*</td>
<td>M=6.3</td>
<td>M=11.3</td>
</tr>
<tr>
<td>Self Report Driver Aggression Q.*</td>
<td>M=3.6</td>
<td>M=5.9</td>
</tr>
<tr>
<td>Risk-Taking Driving Scale*</td>
<td>M=7.6</td>
<td>M=10.0</td>
</tr>
</tbody>
</table>

* Statistically significant
## Comparison of Stunt Driving and Non Stunt Driving Respondents

<table>
<thead>
<tr>
<th>Driver Behaviours</th>
<th>No stunt mean or %</th>
<th>Stunt mean or %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver in collision in past 5 years</td>
<td>18%</td>
<td>23%</td>
</tr>
<tr>
<td>Stopped for traffic offence in past year*</td>
<td>12%</td>
<td>31%</td>
</tr>
</tbody>
</table>

* Statistically significant
Causes?

Personal factors

- Age (neurodevelopmental affinity for risk-taking)
- Personality e.g., sensation seeking, aggression

Environmental factors

- Social learning theory (imitating observed behaviours)
  - Friends/family
  - Mass and social media
Neurodevelopmental Changes We Want to See

• Ability to suppress inappropriate thoughts and actions in favour of goal oriented ones.

• Development of ability to delay gratification.

• Development of impulse control.

• Called emotional regulation
Emotional regulation

• Increases with age.

• Has a genetic component (e.g., Attention Deficit Hyperactivity Disorder, Sensation (thrill) Seeking personality).

• Also an experiential component (brains are malleable and can be programmed).
During adolescence two neurodevelopmental changes occur that affect risk taking during teen years and beyond.
Adolescence

1) During puberty, neurological changes seem to result in heightened sensitivity for reward and heightened sensitivity to the social benefits of risky activities.

Specifically, preferences for activities that require less effort yet produce high excitement with peers, such as:
- video-games,
- skate boarding,
- drinking/drugs,
- street racing,
- stunt driving, etc.
2) Connections to pre-frontal does not fully mature until mid-20s, and for males often later.

- Prefrontal cortex responsible for the complex processing of information, ranging from making judgements, to controlling impulses, foreseeing consequences, and setting goals and plans.

- An immature prefrontal cortex thought to be the neurobiological explanation for why teenagers show poor judgement and too often act before they think.
• Sensation-seeking (closely tracking hyper-responsivity in reward systems) peaks between 15 and 25 years of age with highest risk taking behaviours.

• Good news - speeding and other risky driving decline as people age.

• Unfortunately, some never fully mature.

• Some continue to display sensation seeking, risk taking behaviours with elevated sensitivity to rewards and elevated behavioural disinhibition.

Brown, Ouimet, Eldeb et al. 2017
• Not an excuse.

• Propensity for risk taking can be pro-social or anti-social.

• E.g., risk in speaking out of some students after the Stoneman Douglas, Florida, High School shooting.

• Depends on skills, interests, family supports, friends, etc.
Personality

• Sensation (thrill) seeking – both state and trait.

• People with low arousal level who are easily bored and want varied, novel, intense experiences.

• Sometimes show readiness to engage in risky behaviours for such experiences.

• All evidence that persons high in sensation seeking more likely to engage in street racing, stunt driving and other risky behaviours.

Personality and other Behaviours

• Aggression and competitive attitudes also associated with street racing and stunt driving.

• Driving after drinking associated with street racing.

• Driving after cannabis use associated with street racing.

• Drug and property crime offences associated with street racing.

Vingilis, Smart, Mann et al. 2011;
Vingilis, Seeley, Wiesenthal et al. 2013;
Environmental factors

Social learning theory

• Behaviours observed that are positively valued and rewarded, could have potential to be imitated.

• Friends/family beliefs, values and behaviours can be influencers (Scott-Parker, Watson & King 2009).

• Mass and social media
Street racing video games

“Burnout is a wild arcade racer with spectacular crashes that will leave you sweating, short of breath and begging for more. Drive like a madman through everyday traffic, swerve into oncoming lanes, cut people off and take loads of risks – hyperventilating is part of the fun.”
Recent experimental, laboratory studies by Fischer et al. (2007, 2008, 2009) tested whether exposure to risk-glorifying video games promotes increased risk-taking inclinations.

Fischer et al. (2007) hypothesized that racing video games can “prime” risk-taking thoughts, emotions and behavioural reactions.
Participants randomly assigned to play a racing games subsequently exhibited significantly more risk taking
thoughts, emotions and behaviours in video-simulated critical road traffic situations than those randomly assigned to a neutral (non-racing) game.
• In video games the player often identifies with the game character.
• This can affect self-perception.
• Hypothesis:
  • Self-perception as reckless driver should occur more often with persons playing:
    • “drive’em up” racing games (e.g., Grand Theft Auto, Carmageddon, Burnout, Need for Speed) which reward violations, collisions and dangerous driving versus
    • “circuit” driving Formula 1 type games (e.g. Gran Turismo, Ridge Racer, MotoGP) or non-racing neutral video games.
So what predicted self-reported stunt driving?

In addition to:

- Average hrs per week driving
- Driver thrill seeking
- Competitive attitude toward driving
- Attitude toward street racing

We found:

- Drive’em up games, but not circuit games

New medium in town- YouTube

- Term “street racing” and “stunt driving” yields millions of results.

- What do we know about the content and effects of these videos?

- Nothing – no research on topic (Vingilis, Yilderim-Yenier, Vingilis-Jaremko et al. 2017)

- We conducted:

  1) a content analysis of top 60 viewed YouTube videos on street racing, stunt driving; 2) focus groups with men 18-30 on their thoughts and experiences with these types of videos.
The most popular type of videos

Street racing – illegal, unsanctioned

~19,300,000 results

Street racing crashes

~2,240,000 results

#1 has title: Ultimate 2016 STREET RACING Crash Compilation - Best Street Race Crashes
Stunt Driving: Examples from YouTube videos

Sidewalk skiing – an automotive driving stunt where vehicle is driven while balanced only on two wheels, often to change tires on vehicle while in motion.

~ 59,100 results
Vehicle Surfing – on hood, roof or other part of vehicle while in motion, or being dragged by vehicle e.g., couch.

~233,000 results
Ghost Riding – Driver not in care or control of vehicle, while in motion and sits on or dances around vehicle or stands on seat of motorcycle, often to music.

~120,000 results
Many “fail” videos, i.e., “accident” and “death” YouTube videos,

E.g., Vehicle Surfing Fail videos
~ 362,000 results
Results

Content analysis shows:

• Videos show mostly young males engaging in multiple risky driving behaviours.

• Often audiences close by with no barriers.

• Almost no negative consequences shown.
Results

• With focus groups, duality of thoughts and feelings:
  
  • Both negative and positive views *among* and *within* participants

  “I think it's really hard because you're drawn to this, you're like wow, that's so cool, I wish I could do that. But at the same time you're, like that's so stupid, I would never do that. So it's kind of finding that balance.”
Focus groups felt young people especially could be encouraged by videos.

“And that is sort of a trend on YouTube where you have some people doing stupid things to themselves, and the real tragedy is because it’s so entertaining and because the audience of YouTube tends to be very young impressionable kids, you get this sort of viral trend going on where everybody wants to imitate it, it’s kind of like a copycat whatever.”

“They went in Hwy 401 - there was over a thousand bikes, they were doing it just cause they’d seen it on YouTube.”
• Videos with negative consequences could deter.

• “At the end it kind of restored my faith in the police force in that they actually caught this guy. So that was one.”

• Good videos showing consequences could be effective but probably a different audience for different types of videos.
So what can we do about it?

Education?

• Driver’s education

• Public education (e.g. Street Legal)

Legal?

• Bill 203 - Ontario’s Street Racers, Stunt and Aggressive Drivers Legislation
Street Legal
Blue line racing
http://bluelineracing.ca/

http://www.edmontonpolice.ca/AboutEPS/CommunityInitiatives/StreetLegal.aspx

• Provides safer racing alternatives through legal, sanctioned events that take place on hundreds of drag strips across North America each weekend through its Street Legal program.

• In Edmonton, Mike Wynnyk, Terry Innes and Eleanor Innes formed a charity known as Blue Line Racing. Blue Line Racing is responsible for the promotion of the Street Legal Program in Edmonton.
Ontario Street Racing and Stunt Driving Law


- Racing: 1 or more vehicles with elements of race or chase.

- Stunt driving: spinning tires; lifting some or all tires; ghost riding; preventing vehicle from passing; playing chicken; drive as close as possible to pedestrian, vehicle or object; no nitrous oxide system; greater than 50 km over posted speed limit.
Ontario Street Racing and Stunt Driving Law - penalties

• Immediate 7-day vehicle impoundment, licence suspension, prior to conviction.

• Fine $2000-10,000, 6 demerit points, possible up to 6 months in prison, up to 2 years licence suspension.

• If second conviction within 10 years, up to 10 years licence suspension.
Results

Monthly roadside driver’s licence suspensions for racing/stunts, Sept 2007-Dec 2011, Ontario, Canada
Drivers suspended for racing/stunts by age at first suspension and gender for the period of September 2007 – December 2011

<table>
<thead>
<tr>
<th>Drivers age</th>
<th>% of suspended drivers by gender per licenced driver</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>16-24</td>
<td>1.21</td>
</tr>
<tr>
<td>25-64</td>
<td>0.37</td>
</tr>
<tr>
<td>&gt;65</td>
<td>0.04</td>
</tr>
<tr>
<td>Total</td>
<td>0.44</td>
</tr>
</tbody>
</table>
## Average speed by counting stations pre-and post-new law

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Hope (HWY 401)</td>
<td>109.1 kph</td>
<td>105.8 kph</td>
</tr>
<tr>
<td>Medonte (HWY 11)</td>
<td>93.6 kph</td>
<td>90.0 kph</td>
</tr>
<tr>
<td>Putman (HWY 401)</td>
<td>101.6 kph</td>
<td>100.6 kph</td>
</tr>
</tbody>
</table>
Speeding-related casualties (primary intervention group)

Intervention analysis, young male drivers (58 fewer collision casualties per month after legislation)
Speeding-related casualties (secondary intervention group)

Intervention analysis, mature male drivers
Speeding-related casualties (comparison group)

0 50 100 150 200
predicted observed
p-value= 0.2

Intervention analysis, young female drivers
Speeding-related casualties (comparison group)

Time

log(monthly casualties)


predicted
observed

p-value= 0.6

Intervention analysis, mature female drivers
General conclusions

• Street racers and stunt drivers generally seem to be young males who engage in a range of risky driving and delinquent behaviours.

• Majority of car and racing enthusiasts in our survey did not engage in illegal racing or stunt driving.

• Of the minority who did, their beliefs, attitudes, behaviour and personality were consistent with risky driving.
General conclusions

• Those who played “drive’m up” racing video games had higher odds of stunt driving.

• Ontario’s Street Racers, Stunt and Aggressive Drivers law was found to be an effective measure in reducing extreme speeding convictions and speeding-related collision casualties of male drivers when compared to female drivers, suggesting a possible deterrent effect.