TECHNISCHE UNIVERSITÄT DRESDEN

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Protecting or harming oneself: Options of older cyclists to cycle safely

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Study

Original aim:

Evaluation of 6 months sports training for older cyclists (funded by German traffic ministry)

Pre-test (experimental and control groups):

- Questionnaires about behaviour in traffic
- Performance in bike course

Subjects

- 314 cyclists (189 men, 125 women)
  - ½ cycled (nearly) daily
  - ¼ cycled 3-4 days /week
  - ¼ cycled 1-2 days /week
  - few less
- 60-88 years old (mean 68 years)
- Living in or close to 14 small and medium sized cities in Saxony and Saxony-Anhalt

Which risk groups / risky behaviour can be identified?

Potential influences:

- Physical / medical problems
- Lack of motility/ fitness / coordination
- Exposure
    - Amount cycled
    - Cycling conditions
    - Dangerous situations

=> Prevention?

Crashes

Number of
- Collisions
- Single bike crashes

After 59th birthday

Correction for exposure
- Collisions
- Single bike crashes

Per year after 59th birthday

Number and reporting of crashes

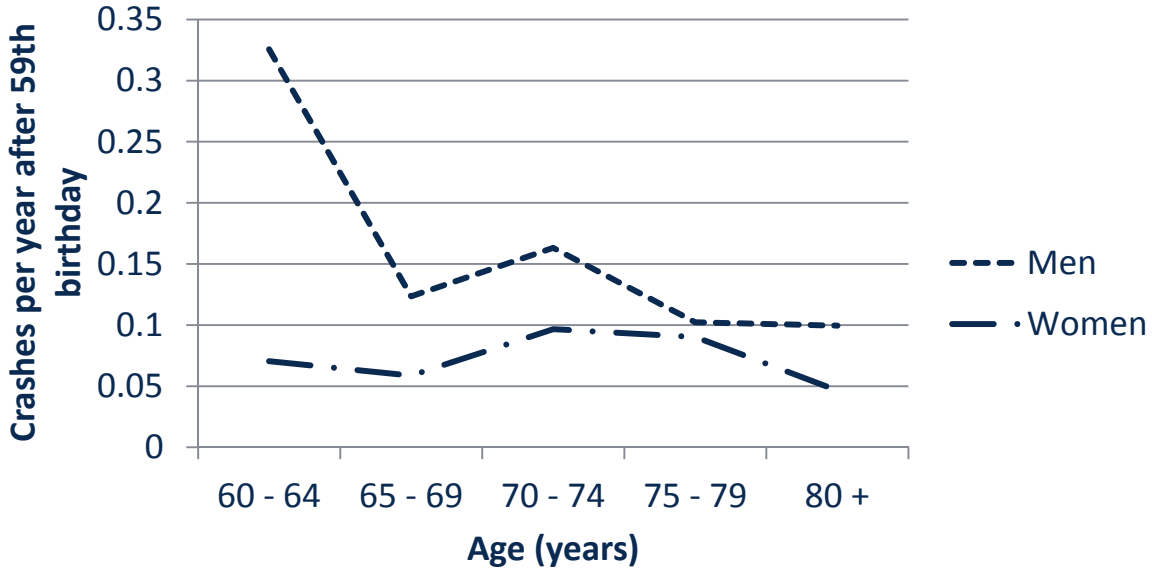
After 59th birthday:

- 60 collisions
  269 persons no collision, max. 3
- 249 single-bike crashes (SBC, 81% of all crashes)
  200 persons no single-bike crash, max. 20

Police was informed about

- 19% of collisions
  - 50% of collisions with cars
  - 0% of collisions with non-motorized traffic (bike, pedestrian, dog)
- 5% of single-bike crashes

Crashes: age and gender



Different effects for male and female cyclists:
- Men 60-64 with very high exposure have many crashes

⇒ Prevention: Information about risk situations?

No peak at very old age (participants)

Gender effect

=> Here only partial correlations reported, controlled for gender

Exposure

Correlation number of accidents / year

- Estimated km/year (r=.15, p=.042)
- Measured km/day t1(jan/feb) to t2(jun/jul) (r=.14, p=.047, n=212)
- Owns racing bike (r=.11, p=.011)

Physical / medical problems

More cycling accidents:

Persons who gave up driving

- Medical reasons (r=.30, p=.046)
- Advice of doctor (r=.48, p=.001)

!!! Driving licence does not expire, no regular checkup required in Germany

German doctors do not often talk about driving

- Temporal sequence not asked, bike accident might be the cause
- Potential target group for prevention measures

Reported physical problems

More cycling accidents / year:

- More problems with motility in general (r=.12, p=.039)
- More problems with motility when cycling (r=.05, n.s.)
- More problems with heart / circulation in general (r=.06, n.s.)
- More problems with heart / circulation when cycling (r=.13, p=.048)
- No correlation with reported problems with:
    - Nerve system (very rare in sample)
    - Diabetes (rare in sample)
    - Muscle strength
    - Vision
    - Hearing in general

Hearing aid

Persons with hearing aid who do not use it in traffic

- Report hearing difficulties in spite of hearing aid ($r=.42$, $p=.032$, $n=24$)
- Hearing aid off when outside ($r=.65$, $p=.008$, $n=14$)
- Hearing aid off when speaking on the phone ($r=.52$, $p=.042$, $n=14$)

- Wrong device?
  - Ill advice?
  - Costs?
- Lack of acceptance?
- Unrealistic perception to hear well enough?

Bike course

Performance in general: uncorrelated with accidents

Zero, low positive and low negative correlations of single tasks with accidents

Problem of tests (bike course and sports tests)

- Measure performance

  Performance = (abilities & skills) + ambition

  Abilities & skills: positive for traffic safety
  Ambition: negative for traffic safety

  Any idea for a solution of this problem???

Lack of rule compliance

Cycle on the footpath (r=.12, p=.035)

Run stop signs (r=.17, p=.003)

Cycle in streets which are forbidden for all traffic (r=.13, p=.028)

Lack of care for oneself / acceptance of age

Do NOT cycle more carefully compared to when 59 years old ($r = .19$, $p = .001$)

Cycle when ice / snow ($r = .24$, $p = .001$)

(studded tires for bikes rather unknown in Germany)

Do NOT care for surface when cycling in the dark ($r = .12$, $p = .048$)

Do NOT prefer good surfaces ($r = .17$, $p = .005$)

Potential for prevention

Cyclists with hearing aids
- Economic interest of dealers

Cyclists who gave up driving for medical reasons
- Doctors?
- Confidential self-checks for drivers not accepted

Information about dangerous situations?
- Acceptance of traffic rules
- Cycling on the footpath
- Single bike crashes
    - Surfaces
    - Ice

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Thank you for your attention!

Questions?

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