Children's cycling skills and the impact of physical activity

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Introduction
Psychomotor skills of children and adolescents have decreased over the last few years. One indicator is the decrease of pupil’s bicycle handling skills as shown in the graph below. This development can be explained partly by a general decrease of children’s physical activity levels.

![Graph showing bicycle handling skills decreasing over time](image)

**Bicycle handling skills decreasing over time**
- 1997: 5% strongly decreased, 46% slightly decreased, 4% stable
- 2008/09: 22% strongly increased, 50% slightly increased, 3% strongly increased

**OBJECTIVE**
Testing the cycling skills of third and fourth graders in bicycling training courses to verify the hypotheses claiming that:
- Physically active pupils (60 min activity per day, WHO-recommendation) use active travel modes more frequently.
- Physically active pupils show better cycling skills.
- The encouragement of children’s families influences children’s level of physical activity.

**METHOD**
Pupils from five primary schools in Lower Austria (total sample size of 152) participated in this survey. Different quantitative and qualitative methods were combined to give a comprehensive overview of this topic:
- Activities and preferences reported by primary school children
- Objective observations during cycling skill tests before/after a one-hour cycling training session
- In-depth interviews with children’s parents
- Evaluation of the pupil’s educational performance by their teachers

**RESULTS**
Comparison of children’s cycling skills as observed in the cycling training course, compared with statements from children and parents (n=31):

- Most parents over- or underestimate their children’s cycling skills
- Difficulties at left turn (looking over shoulder, hand signal, lane swerve, turning) and slalom

Physical activity and cycling skills of children

- **Physical activity (hours per week) and cycling skills (1 = high skills of primary school children (stat. by parents N=31) and logarithmic trend lines with coefficients of determination)**

![Graph showing physical activity and cycling skills](image)

- **R² = 0.2414**
- **R² = 0.1487**
- **R² = 0.0201**

- mean of 7.9 hours per week: children seem to fulfill the WHO – recommendation of one hour per day, but are active on weekends mainly
- 65% of the children do not heed this advice
- The group of children who fulfill the recommendation had better cycling skills (mean = 1.54) than the others (mean = 1.73)

**CONCLUSIONS**
- Turning left and slalom are two skills where children have some deficits – children need good psychomotor coordination to meet multiple challenges (e.g. left turn)
- Children largely overestimate their bicycle skills
- Children with higher physical activity levels show higher bicycle riding competence.