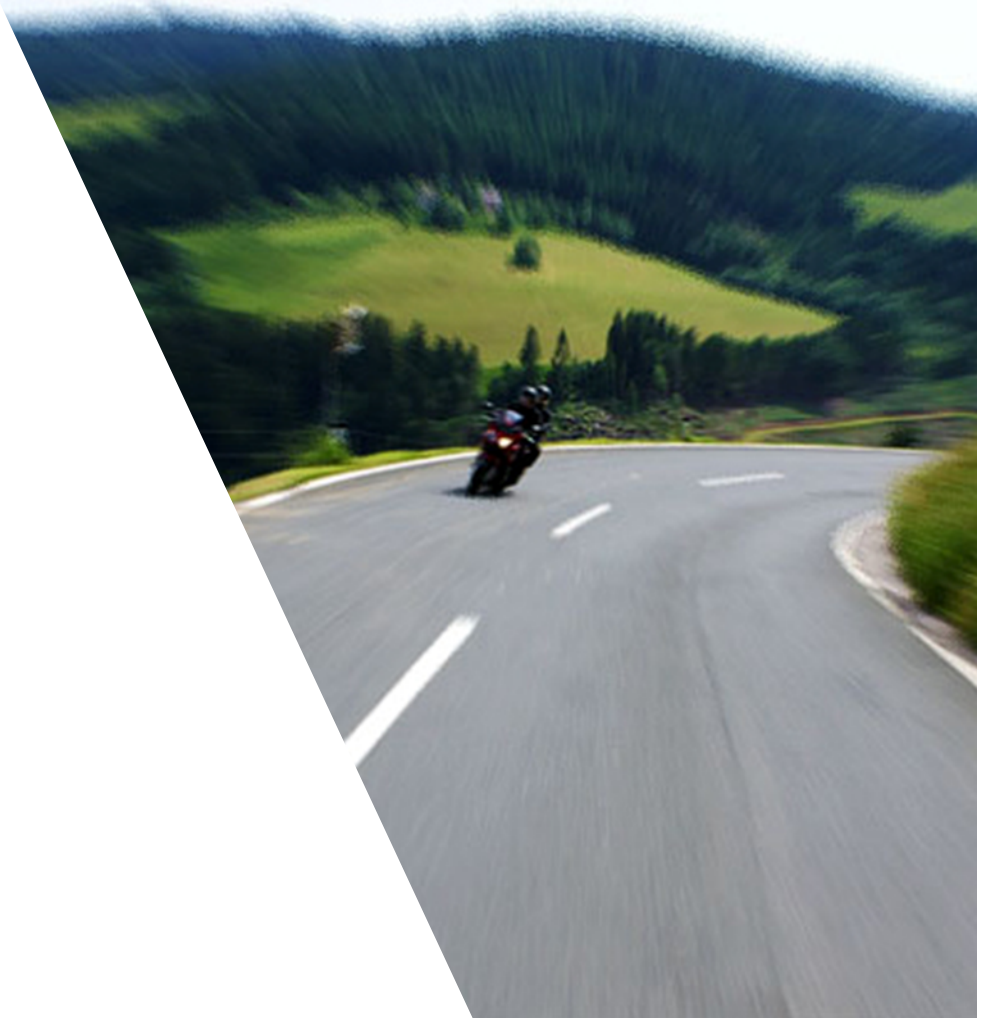


Evaluation of the additional class A practical training for motorcycle riders aged 39+ years



Current issue: 083

Vienna, 2020

Imprint

Media owner, publisher and editor:

Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and
Technology

Radetzkystraße 2, 1030 Vienna, Austria

Content development:

Responsible authors:

Mag. Dr. Michael Gatscha - Neurotraffic KG

Mag. Claudia Grand - Neurotraffic KG

Vienna, 2020

Initial publication:

November 2020

Project number:

199.981

Editor:

Dipl.-Ing. Alexander Nowotny

Editorial disclaimer:

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Financed by the Austrian Road Safety Fund in the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology.

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Executive Summary

This summary provides an overview regarding the evaluation of additional practical driver training measures aimed at novice motorcycle riders older than 39 years of age at licensure. This study was funded by the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology and executed by Neurotraffic KG.

1 Background

The increase in serious accidents specifically in the group of older motorcycle drivers in recent years highlights the need to improve safety in this target group. Operating of a motorcycle is a far more complex process compared to driving a car and puts greater demands on drivers of all ages. However, with advancing age, learning to handle heavy motorcycles is more difficult and more of a challenge for older drivers than for younger ones.

On January 19, 2013, the third EU driving license directive (directive 2006/126/EG) came into force in Austria. With the implementation of the directive, new license classes were created, instead of two motorbike classes, there three classes A1, A2 and A were established. For the formerly unrestricted class A (heavy motorcycles), the minimum age for access to heavy motorcycles was raised to 24 years in 2013 - or to 20 years for those who previously obtained an A2 driving license since the age of 18 (max. 35 kW).

Due to the high number of motorcycle accidents with injuries and fatalities, new legal provisions were introduced in 2015 to improve motorcycle driving school education in order to lower the number of serious motorcycle accidents. For this purpose, the practical part of initial motorcycle training was increased from 12 to 14 lessons, the theoretical part was reduced from 8 to 6 lessons in contrast. Moreover, people who have reached the age of 39 at the time of license application must have completed at least 16 practical riding lessons. This change has been in effect since March 16, 2015 and ended December 31, 2019.

The evaluation design is based on three levels: an evaluation of basic data, which includes data from the central driver's license register, a process evaluation for novice motorcycle riders and an analysis from Statistics Austria's accident database.

2 Basic data

The development of the number of driver's licenses was analysed before and after the introduction of the mandatory additional module for people aged 39 and over. For this purpose, a current data extract from the driver's license register was examined, target and control groups were defined for subsequent investigations. From the provided data set, frequencies of undertaken practical driving tests were analysed as well.

3 Accident analysis

It was examined, whether the available data sources provided evidence of positive effects of the measure in question. In order to evaluate the additional training based on accidents, data from motorcycle accidents with personal injuries in Austria from 2012 to 2018 were considered. The information was provided by the accident data management system of Statistics Austria. The data set included gender, the year in which the driver's license was issued, the main accident category and the presumed main accident cause.

4 Process evaluation

The process evaluation included a comparison of persons who completed the additional training (target group) with people who did not have to complete the training (control group). With the help of the Austrian Federal Computing Centre (BRZ), two random and anonymized samples were selected from the driver's license register, who had obtained the class A driver's license from 2016 and received a link or QR-code for filling out an online questionnaire. Furthermore, experiences of professional groups, driving school teachers and driving school owners involved in the training were integrated into the evaluation by means of expert questionnaires. The data was collected from August to September 2019.

5 Results - Basic data

In a first step, the development of the number of issued class A driving licenses class from 2010-2018 was analysed with regards to different characteristics, especially considering the background of the introduction and implementation of the 3rd EU Driving License Directive of 2013 which went into force in Austria via the 61st amendment of the motor vehicle act in 2015. It was examined whether these legislative changes had a noticeable impact on the previously defined target group in terms of size, location or gender.

The evaluation methodology typically examines potential impact (s) of an intervention by determining effects using at least two comparable groups (test group, control group). However, in the underlying case, a "real" control group was absent, i.e. a group that did not have to complete the legally required training within the same period. Therefore, a neighbouring group was defined as a "quasi-control group": beginner motorcycle riders in a 10-year age range of 29-38 years.

In the defined target group of 39-48-year-old motorcycle riders, there was a significant "pull-forward-effect" in 2012, i.e. a substantial number of people obtained class A driving license before the law was changed the following year. However, this fact was not a characteristic feature for the target group solely, but affected all analysed age groups of motorcycle riders for the observed period.

An evaluation regarding the introduction of the additional training from 2015 onwards for the target group 39+ years did not reveal any of such effects, since the number of issued class A licenses in this age group stayed approximately the same level since 2012, regardless of gender or federal state.

The development of the number of positively completed practical exams suggests that the two additional teaching units immediately prior to the riding test had a slightly positive effect for the entire target group, since the number of people who fail the exam has somewhat decreased since the measure was introduced, also regardless of gender.

6 Results - Accident analysis

An initial examination of crashes showed that people over 39 years of age had been more involved in serious accidents (injuries and fatalities) since 2012 compared to their younger counterparts. However, if one looks at single age groups in more detail, it became clear that the trend does not apply to all age ranges, but only to motorcycle riders who were older than 49 years at the time of the accident. A decreasing trend in the absolute number of accidents was observed for all other analysed age groups. These observed developments have already continued since 2012, the progress made since 2015 is unremarkable as well in this respect. However, if one only looks at the number of motorcycle riders killed, an increase in the age group 39 years and older could be identified.

In order to determine any accident-reducing effects of the mandatory additional training, it was necessary to carry out further evaluations for beginner riders, more precisely for the first year of riding. Since the possible effects can be expected to take place mainly at the beginning of the riders' career, further analyses were carried out taking this circumstance into account.

The evaluation of the riding experience according to separate years revealed that - contrary to expectations - motorcycle riders started to crash most frequently not in the first, but in the second year of riding. From the 3rd year of riding experience onwards, the frequency of accidents starts to decrease. Over the analysed period, the accident rate of beginner riders (1st to 4th year of riding experience) tended to be less the more riding experience was gained.

Normalized on the number of annually issued riding licenses, between 0.7% and 2.5% of all novice drivers have severe accidents, a finding valid for the first year of riding practice, when any training effects are most likely to come into force. In 2015, with the introduction of the measure, there a more favourable development for all examined age groups could be observed. The oldest group (49 to 58 years) had the largest average decrease (-0.8%), followed by the second oldest group (39 to 49 years; -0.4%). However, there was also an average decrease in accidents of 0.3% among the youngest age group (29-38 years), who did not have to complete any additional training. However, this development must be interpreted considering the statistically small number of seriously injured people in the first year of riding. Respective values were mostly in the single-digit range and subject to significant fluctuations.

There was a downward shift in the supposed main causes of accidents after the additional training was introduced within the target group regarding accidents due to distraction (-9.1%) and inappropriate speed choice (-5%). In relation to all causes of accidents, almost 10% more overtaking accidents and slightly more accidents regarding give-way violations were recorded within the target group in their first year of riding.

In the younger age group, who did not complete any compulsory additional training, there was also a reduction in accidents in the same observation period in which distraction or overtaking was assumed to be the main accident cause. It is questionable whether the distribution shift of in the number of accidents with supposed causes "Inappropriate speed choice" and "Distraction" can be attributed to the additional training within in the target group, since at least the latter cause has no obvious direct connection between training content and accident reason.

From the summary of the undertaken accident evaluations, single favourable developments as regards the number of accidents for the target group of older motorcycle riders (39+ years) could not be conclusively and unequivocally attributed to the effects of the two additional practical training lessons introduced in January 2015.

7 Results - Process evaluation

The comparison between representative control and target groups on the basis of self-information on attitudes, opinions and beliefs as well as information on riding performance, used motorcycle types, riding motives and critical situations and accidents revealed some statistically significant differences between the groups, but also some overlaps.

Analysing the number of practical training hours revealed that people of the control group completed fewer hours as expected, but above all, female study participants in both groups stated that they completed more hours of practical training than required by law.

In order to assess effects of the additional training, participants were asked about the content and experience of the last practical training units taken before the exam and also about accidents that may occurred already.

Since it is planned to carry out the additional training primarily on (winding) open roads, study participants of both groups were asked where their last lessons had taken place. Statistical comparisons showed only marginal, no significant differences in the practice area of the last practical training units taken before the exam. From a statistical point of view, both groups stated equally frequent that the last unit was held about 70% on open roads.

Significant different assessments only occurred as regards the subject of cornering technique for females, as these stated that they could practice this matter more often during additional training. Target group members of both sexes stated that their riding instructor dealt with issues such as the correct assessment of different road conditions and the importance of regular breaks during longer journeys significantly more often. From a statistical point of view, both groups did not differ between statements regarding triggering an inclined motorcycle position or aspects such as keeping safety distance or lane offset when riding behind each other.

An assessment concerning self-reported accidents of both groups showed no differences, since 9 out of 10 of the participants stated that they had not yet caused or experienced an accident by the time of the survey. From this source, it was therefore not possible to conclude that the additional training had any effect on reducing the number of accidents.

When asked about the assessment of personal riding style, however, differences in the self-description between the groups could be determined, since female study participants in

particular assessed their own riding style as being more safe, careful and cautious than participants of the control group. The same result could also be observed within male study participants.

The comparison of self-described riding abilities showed no differences between the groups in most aspects. However, it was possible to highlight the fact that obviously different riding skills characterized a "good rider" for both groups: avoiding a suddenly appearing obstacle or the ability to anticipate dangerous situations early as well as careful travel planning were essential factors for predicting the overall grade of one's own riding ability in female target group participants. Female subjects of the control group, rated "cornering abilities" only to significantly influence the overall mark of their own riding ability. A similar result could be observed for male participants of the target group, since skills such as "avoiding a suddenly appearing obstacle" and "anticipation of dangerous situations" also predicted the overall grade of one's ability to ride, but even more important was "emotional control".

Significant differences between female study participants in the older target group and the younger control group could be determined especially for the subjective feeling of safety when riding motorcycles in general, and in particular for country roads, since female persons who completed the additional training more often stated that they felt significantly safer in this regard. This result could be interpreted as a beneficial effect of the additional mandatory training.

With regard to adherence to the speed limit according to different road types, participants in the target group stated significantly more often to obey speed limits. The difference was equally valid for both sexes of the target group.

A more detailed analysis of riding motives showed that older subjects of the target group more often stated motives that emphasized riding pleasure at moderate speed, such as "coasting through the landscape" or "enjoyable cornering". In contrast, motives that are characterized by riding dynamics, such as acceleration and/or speed(ing) were more often mentioned by participants of the control group as being impelling factors to ride a motorcycle.

Subjects were also asked about their satisfaction with the training, in particular whether they felt well-prepared for the time after the practical riding exam. Differences among the target groups showed, that target group members more often stated that they had enough time to practice motorcycling or to learn correct steering and cornering techniques. Significantly more male participants stated that after training they felt fit enough to drive solo and/or in a group. This result can also be attributed to the effect of the additional training.

The vast majority of respondents were satisfied with the content of the training, but even more satisfied participants of the target group. Those who stated that they missed training contents highlight the lack of exercise options, specifically with regard on subjects of cornering (viewing technique, proper curve line choice) or exercises in the low speed range.

The theoretical and practical examination was generally well graded by both groups examined. Overall satisfaction with the practical training was equally high between the target and control groups. People who judged the practical training with a poor school mark, justified this assessment with either too little preparation time for solo riding in traffic or receiving small exercise variety and lack of individual support from riding instructors.

In general, the comparisons of the target group 39+ years with the control group led to the conclusion that the mandatory two-hour additional training had a positive effect with regard to satisfaction and preparation for riding in traffic. No direct or clear-cut effects in terms of reaching the goal of accident reduction could be identified whatsoever - at least based on the available survey data. To what extent observed differences between target and control groups with regard to self-assessed riding style, safety-related behaviour and riding motives can be attributed to content and effects of the two-hour additional training alone, however, seems questionable. The differences found could be explained more plausibly by age effects rather than training effects.

8 Recommendations

Findings from all available data sources suggest that the goal of the measure to reduce accidents among motorcyclists cannot be directly deducted and that the measure is clearly not suitable - at least in its current form - as an effective means of accident prevention. The reasons may to be found in the fact that the scope of two additional practical exercise units - although performed in real traffic - is too small to evoke a substantial gain in riding competence and experience to an extent that it has measurable and undoubtedly positive effects on severity and/or number of accidents.

At the same time, however, it must be emphasized that the new measure met with broad acceptance in the target group and, as available data suggest, there was no evidence of any risk-compensating or even risk-increasing effect. The additional practical units demonstrably led to greater satisfaction with the training in the target group for people from the age of 39 years. The additional training seemed to have led to subjectively higher riding skills among beginners, especially with regard to riding on rural roads without leading to a more risk-prone riding style. Furthermore, participants in the target group also felt better prepared for riding after the exam. The gain in subjective riding skills could not be substantiated by consistently lower accident numbers, nevertheless a plausible recommendation could be derived from it. The requirement to discontinue the measure would be understandable due to absence of distinct accident reduction effects within the target group. However, the measures' termination would counter at least subjective riding skills gain. Authors therefore do not recommend to discontinue the measure, but to establish additional training for people under the age of 39 years as well. Here, however, it would be particularly important for younger novice riders to pay close attention to any potential risk-compensating effects leading to overconfidence.

As a quality assurance measure, it is also recommended not only to implement the mandatory minimum number of riding hours, but to also collect a minimum amount of exposure on rural roads – if technically feasible.

The last recommendation concerns the inclusion of data from the 2nd phase education scheme in the established electronic accident record sheet. It is currently unknown whether and which 2nd phase modules had already been completed by riders at the time of the accident. This additional data would significantly improve analyses of accident evaluation, especially at the beginning of the motorcycle rider's (or car drivers) career in order to be able to evaluate models of rider and driver training more accurately in the future.

**Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and
Technology**

Radetzkystraße 2, 1030 Vienna, Austria

+43 (0) 800 21 53 59

servicebuero@bmvit.gv.at

bmk.gv.at