Driving characteristics of quad bikes and the riders’ knowledge of these characteristics

Fyrhjulingars köregenskaper och förarnas kunskap om dessa egenskaper

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Status: Complete with results

Background & policy context:

Riding quad bikes differs in many ways from driving passenger cars and the rider is not always aware of the differences required to maintain control of a vehicle that they are not trained to ride. One of the major differences with quad bikes compared to driving a car is that a quad bike has a tendency to roll over during sharp cornering.

Objectives:

The purpose of this study was to compare both static vehicle characteristics and driving dynamics of motorcycle-registered quad bikes of different models to identify any difficulties that may arise when using quad bikes in road traffic. The aim was also to study how driving style affects the quad bike’s driving dynamics and identify the riders’ knowledge of these.

Methodology:

The study consists of three parts of which the first two concerns vehicle handling characteristics studied by performing a series of static and dynamic performance tests. The static tests consisted of measuring the angle at which the vehicle rolled over sideways by means of a hydraulic tilting table. The dynamic test consisted of performing a series of test runs on different test tracks in order to study the dynamic behaviour of the quad bike. The third part addressed the question whether riders have the necessary knowledge to drive quad bikes safely by conducting focus group interviews with persons with different driving license categories and driving experience.

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Key Results:

The results of the static test showed that the rollover threshold of the quad bikes is affected by the weight of the rider due to the relative lightweight of the quad bike.

The dynamic tests verified that the rider could, by using his/her own body weight, compensate for the physical forces acting upon the vehicles’ tendency to roll over by using an active driving style. The focus group interviews showed that most of the interviewed persons believe that an active driving style is needed to drive safely and that the current training for the driving license lacks necessary training for driving a quad bike.
STRIA Roadmaps: Cooperative, connected and automated transport

Transport mode: Road transport

Transport sectors: Passenger transport

Transport policies: Safety/Security