

**Assessment of Driving Fitness and Personal Resources**  
**Methoden zur Begutachtung der Fahreignung**

**Jürgen Brenner-Hartmann – TÜV SÜD Life Service**

## What are we talking about?

### **Driving ability**

What a person will learn in the driving school.  
(manouvering, traffic rules, risk avoidance)

### **Fitness to drive**

Includes medical risks as well as influence of drugs  
and alcohol (actual status)

### **Competence:**

Includes the general performance level and the  
performance potential (experience)

### **Driving aptitude**

Includes status of health, behavioural habits,  
attitudes, personality (continuing status or sudden  
impairment)

## What are we talking about?

### Driving ability

What a person will learn in the driving school.  
(manouvering, traffic rules, risk avoidance)

### Fitness to drive

Includes medical risks as well as influence of drugs  
and alcohol (actual status)

### Competence:

Includes the general performance level and the  
performance potential (experience)

### Driving aptitude

Includes status of health, behavioural habits,  
attitudes, personality (continuing status or sudden  
impairment)

## A little hint in the EU Driving Licence Directive

### *Annex II* - II. KNOWLEDGE, SKILL AND BEHAVIOUR FOR DRIVING A POWER-DRIVEN VEHICLE (excerpt)

Drivers of all power-driven vehicles must at any moment have the knowledge, skills and behaviour ... to be able to:

- Recognise traffic dangers and assess their seriousness;
- Comply with the road traffic regulations, and in particular those intended to prevent road accidents and to maintain the flow of traffic,
- Take account of all the factors affecting driving behaviour (e.g. alcohol, fatigue, poor eyesight, etc.) so as to retain full use of the faculties needed to drive safely



## Three Levels of Driving Aptitude

### 1. *Sufficient and constant performance capacity*

The driver must be able to be attentive, so he can perceive the traffic situations and react quickly and in the right way, if necessary

### 2. *Maintenance of performance and self-critical awareness*

The driver has to avoid to drive in bad physical conditions or under the influence of psychoactive substances (medicine / alcohol / drugs) affecting perception, attention or reaction.

### 3. *Risk decreasing attitudes and save behavioural habits*

The driver has to comply with traffic rules, security demands and should respect the needs of other participants

- What does that mean for the Testing of Driving Aptitude?
  - **Medical expertise** is needed to estimate the influence of diseases on driving fitness (actual, long-term and sudden influence) and the probability of worsening of symptoms
  - **Objective testing** is needed to measure the cognitive performance level
  - **Psychological expertise** is needed to assess personal attitudes, compensation strategies, treatment compliance, consumption risks (alcohol, drugs)

# Guidelines and recommendations for the experts (1)

“Begutachtungsleitlinien zur Kraftfahreignung”,

**Evaluation guidelines for driving ability**

The Federal Highway Research Institute (BASt) , 2014

“The evaluation guidelines are a compilation of physical and/or mental handicaps that make people unable to drive or limit their driving ability. They are intended to ease the case-by-case evaluation of driving ability. They are also intended as a reference tool for evaluators who have to judge driving license applicants or holders with regard to their ability to drive.”

<http://www.bast.de>

## Evaluation guidelines for driving ability – main topics

- Vision and Hearing
- Disabilities
- Heart and Vascular Diseases
- Diabetes Mellitus
- Kidney Diseases
- Diseases of the Nervous System
- Disorders of the Equilibrium Sense
- Fatigue (Sleep Apnea)
- Mental Health Problems
- Alcohol, Drugs
- Criminal Offenses and Traffic Rule Violations

Focus: Health Problems  
and Addiction



## Guidelines and recommendations for the experts (2)

### “Urteilsbildung in der Fahreignungsdiagnostik - Beurteilungskriterien”

#### Evaluation in the Diagnostics of Driving Aptitude – Assessment Criteria

German Society of Traffic Psychology (DGVP) and German Society of Traffic Medicine (DGVM) (Ed.), 2013

The Assessment Criteria are matched with the Evaluation Guidelines, focusing the main topics of the medical-psychological assessment (MPA) like alcohol or drug abuse, driving under influence, criminal offences and traffic-rule violations. They are in these questions more detailed and are “translating” the principles of the Guidelines into concrete findings. For that they are the everyday tools of the experts of the assessment centers.

<http://www.kirschbaum.de>

## Evaluation in the Diagnostics of Driving Aptitude – Assessment Criteria

### Part 1 – Decision making criteria

- Hypothesis A 1 – A 7 Alcohol: Addiction, Abuse, Driving under Influence (BAC > 0,16 % (in some countries > 0,11%) or repeated offences)
- Hypothesis D 1 – D 7 Drugs: Addiction to illegal Drugs, Consumption of any illegal Drugs other than THC, Driving under Influence of THC or daily consumption
- Hypothesis V 1 – V 5 Personality disorders, leading to criminal offences, Violation of traffic rules (dangerous behavioral habits).

### Part 2 – Methodical criteria

- Hypothesis CTU Chemical – Toxicological Examination (Abstinence Control Programs)
- Hypothesis PTV Psychological Tests (Attention, Reaction, Perception, On-road tests)
- Hypothesis MFU Medical Examination of Driving Aptitude
- Hypothesis PUG Psychological Interview

## Evaluation in the Diagnostics of Driving Aptitude – Assessment Criteria

### Part 1 – Decision making criteria

- Hypothesis A 1 – A 7 Alcohol: Addiction, Abuse, Driving under Influence (BAC > 0,16 % (in some countries > 0,11%) or repeated offences)
- Hypothesis D 1 – D 7 Drugs: Addiction to illegal Drugs, Consumption of any illegal Drugs other than THC, Driving under Influence of THC or daily consumption
- Hypothesis V 1 – V 5 Personality disorders, traffic rules (dangerous driving)

Focus: Behavioural Problems  
and evaluation methods

### Part 2 – Methodical criteria

- Hypothesis CTU Chemical – Toxicological Examination (Abstinence Control Programs)
- Hypothesis PTV Psychological Tests (Attention, Reaction, Perception, On-road tests)
- Hypothesis MFU Medical Examination of Driving Aptitude
- Hypothesis PUG Psychological Interview

## For Example: Problems with Alcohol

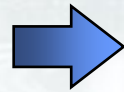
- Hypothesis A 1 Alcohol Addiction: diagnosis of addiction, evaluation of the therapeutic intervention, stability of abstinence, motivation to maintain abstinent
- Hypothesis A 2 Severe Alcohol Abuse: Necessity of Abstinence, Motivation to restrict alcohol, support by the social environment
- Hypothesis A 3 / A 4 Risky consumption of alcohol and missing to separate drinking and driving: Reduction of alcohol consumption, learning to identify critical situations, motivation to drive sober and ability to implement it durable
- Hypothesis A 5 Medical findings (symptoms for actual alcohol consumption, residual findings indicating a former alcohol abuse)
- Hypothesis A 6 Requirements for cognitive performance level, psychological tests, compensation (psychological observation of driving behavior - ODB)
- Hypothesis A 7 Judging the chance to have profits from a Driver Improvement Course, if the evaluation has found a negative prognosis



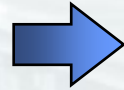
## For Example: Problems with Alcohol

- Hypothesis A 1 Alcohol Addiction: diagnosis of addiction, evaluation of the therapeutic intervention, stability of abstinence, motivation to maintain abstinent
- Hypothesis A 2 Severe Alcohol Abuse: Necessity of Abstinence, Motivation to restrict alcohol, support by the social environment
- Hypothesis A 3 / A 4 Risky consumption of alcohol and missing to separate drinking and driving: Reduction of alcohol consumption, learning to identify critical situations, motivation to drive sober and ability to implement it durable
- Hypothesis A 5 Medical findings (symptoms for actual alcohol consumption, residual findings indicating a former alcohol abuse)
- Hypothesis A 6 Requirements for cognitive performance level, psychological tests, compensation (**psychological observation of driving behavior - ODB**)
- Hypothesis A 7 Judging the chance to have profits from a Driver Improvement Course, if the evaluation has found a negative prognosis

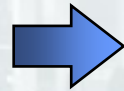
## ODB: Observation variables



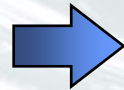
**speed behaviour**



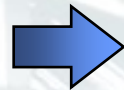
**distance behaviour**



**tracking behaviour**



**protecting behaviour**



**communication behaviour**

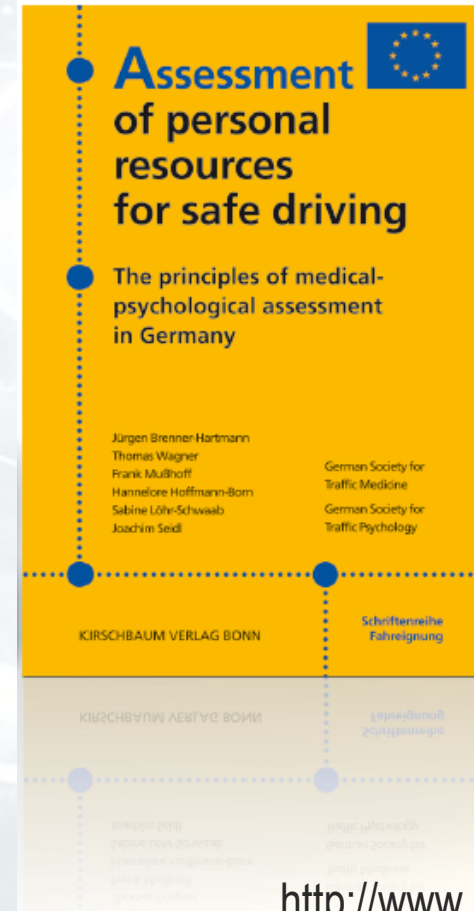


**endangering behaviour**

# ODB - Behavioural characteristics

a) Vehicle manoeuvring	unsure	-2	-1	0	+1	+2	Sure	
b) Attention	inconstant	-2	-1	0	+1	+2	Constant	
c) Orientation in traffic	unsure	-2	-1	0	+1	+2	Sure	
d) Adjustment to traffic flow	obstructing	-2	-1	0	+1	+2	Sure	
e) Anticipation	limited	-2	-1	0	+1	+2	Foresighted	
f) Reaction on Others	delayed	-2	-1	0	+1	+2	Appropriate	
g) Safety of reaction	unsure / unsave	-2	-1	0	+1	+2	sure and correct	<input type="checkbox"/>
<hr/>								
h) Risk-Behaviour	offensive	-2	-1	0	+1	+2	Defensive	
i) Communication / Partnership	assertive	-2	-1	0	+1	+2	Considerate	
k) Conflict-Behaviour	persisting	-2	-1	0	+1	+2	Balancing	<input type="checkbox"/>

# A short summary of the Principles of the Assesment Criteria





Thanks a lot for your attention!