Background:
The characteristic personality picture of the psychopath, also called sociopath or antisocial personality, is of specific relevance in the forensic setting. This severe disorder is mainly related to severe disturbances in early relations, such as the internalization of experienced parental violence and cruelty or negative parental models with regard to moral standards and values. But even in a normal environment, antisocial behavior often persists and eventually impairs the development of basic skills. Since antisocial behavior is strongly correlated, the importance of the heredity factor for the development of an antisocial personality disorder is also frequently discussed [5].

Several investigations have demonstrated that psychopathological and antisocial behavior is characterized by specific personality traits and are characterized by high risk of violent crime and criminality. Psychopaths show reduced electrodermal reactions to stress and show less positive punishment. Several investigations have demonstrated further psychophysiological dysfunctions in these subjects, and these significant neuroanatomical correlates are reported as well. A study by Schuurman et al. in Archives of General Psychiatry in February 2000 [6] on a sample of subjects with antisocial personality disorder showed a reduced volume of prefrontal grey matter as well as reduced autonomic activity. In stress situations they showed significantly altered heart rates and electrodermal responses as well as startle reflexes compared to both normal controls and patients suffering from psychosis or addiction. In addition, the inappropriateness of the psychopath could be functionally defined as the power to effectively control the process of maintenance of identity (4).

The prefrontal cortex is a part of a neural circuit that is crucial to fear conditioning and response to stress. Poor conditioning is theoretically associated with post development of conscience. Thus, subjects to social criticism and other external stimuli, a parallel to the condition could be assumed. Psychopaths and other social factors interact with the multiple brain regions of the emotional regulatory system and thus may play a role in the development of antisocial behavior for the understanding.

Method:
In a subsample of 64 male offenders a standardized psychophysiological stress test was administered. Psychophysiological indices consisted of skin conductance, heart rate, skin temperature and muscle tension (Mosaic Test). The pretest was conducted in the forensic hospital, during which psychological activation levels are measured (baseline, warning stage, stress stage, recovery stage). During the baseline the habitual resting level is measured. The second warning stage demonstrated the subjective response to the stress and the expectation of the stress stimulus. The stress stage itself consists of a short visual-esthetic stimulus. The recovery phase is measured again (see [2]).

Results:
In a total sample were compared to a normal control group. The subsample “violent offenders” (n=29) showed a markedly reduced skin conductance compared to normals, especially during the warning stress and recovery stages. The heart rate responses in social and autonomic stages, but in the stress situation itself significantly lower (trend analysis). Moreover, the values for these subjects show less differences throughout the test interval as compared to controls. Thus, the hypothesis was confirmed that subjects with high spatial intelligence and low muscle tension and visuo-spatial task achievement and the corresponding interaction effects were analyzed. 

Table 1: Analysis of variance results for PCL- SV total score

Table 2: Analysis of variance results for PCL- SV1 “superficial”

Table 3: Analysis of variance results for PCL- SV2 “alcoholistic behavior”

Discussion:
As expected, offenders showed overall reduced autonomic responding in comparison to a normal population. Within-group correlations between physiological indices and psychometric test data also yielded expected results. For instance, dissatisfac- tion and low social orientation corresponded to reduced skin conductance and heart rate responding. Moreover, subjective excitability and hyperkinesia and emotional reactivity with low involvement in these physiological processes are highly relevant.

The results obtained from our sample confirm the predicted hypotheses. According, the muscle tension effects varied in relation to the following subgroups: 
- Psychopathology (PCL- SV), however, showed a higher muscle tension for high muscle tension subjects than for low muscle tension subjects. 
- A stronger aggression inhibition (FAF 5) correlates with higher skin conductance values at all 4 stages (r=0.22 to r=0.23).

Hypothesis:
In our study we investigated the following differences in dangerousness (PCL- SV) with respect to muscle tension and visual-spatial task achievement (MT) are possible:

- Subjects with high muscle tension (EMG) and lower involvement on the visual-spatial task (MT) are more dangerous as defined by PCL score compared to subjects with less tension and better visual-spatial achievement.

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