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Caution screen!

### **Abstract:**

TV viewing has increased in recent decades - never before have adults, adolescents and even young children watched TV for as long as it is today. That an activity that is exercised in such a high frequency, does not remain without consequences for Body and spirit, is clear, because humans are characterized by an enormous ability to adapt. Empirical studies on the effects of increased consumption of television show negative effects on behavior and susceptibility as well as the body and spirit. The warning 'Caution screen' appears advisable.

### **1 The adjusting human**

To designate human beings as the crown of evolution or creation no longer corresponds to the spirit of time. We know too much about the refined abilities of so-called low animals. Nevertheless, there is a talent that sets humans apart from all other living creatures: the ability to adapt.

Every human has the ability to adjust their body and spirit (i.e. brain) to its environment and its needs like no other living organism. The great thing about it is that these adjustments do not require heroic acts of physical or cognitive force. They are simply a matter of time and happen along the way, so to speak. They are easy if they have been required by our body and brain from an early age.

Someone who often plays the violin, is good at playing the violin and can move the fingers of their left hand faster and more precise. More nerve cells for the representation of these fingers are used in the brain. Anyone who started to play the violin from an early age has more space in their brain for the fingers of their left hand. Those who often play chess are good at playing chess. The brain collects uncountable chess positions, and chess moves are analyzed and noticed more easily. Those who often play table tennis are good at table tennis matches and can play the fast balls, balls that a layman like me could not perceive.

With enough practice we can do things that someone without practice would think impossible. The Guinness Book of World Records is full of amazing human abilities, which have been achieved through uncountable hours of practice and on the basis of the human ability to adapt Body and mind. People adapt to what they occupy themselves with: with their body, their brain and their attitude.

What does the average guy of the Western culture adapt itself and their children to? Television, as statistics suggest.

American toddlers and infants aged 0 to 6 years spend an average of 2 hours in front of the television or the computer or game console. (Rideout 2003, Spitzer 2005). American children and adolescents between 2 to 17 years spend an average of more than 4 1/2 hours in front of screen media (Woodard 2000), of which nearly 2 1/2 hours are in front of the television.

German statistics indicate that more than half of the 3 to 5 year olds, on an average day turn on the TV and watch it for nearly 2 hours. The 6 to 9 year olds increase this number to 59% with a watch time of 2 hours and twenty minutes. T 10 to 13 year olds are at 65% and almost 3 hours. Three-quarters of people aged over 14 are watching TV for almost 4 3/4 hours every day. On average, this implies 3 1/2 hours of television every day for every person 14 years and older in

Germany. (Feierabend 2004).

Our bodies, brains and attitudes have therefore sufficient opportunity to adjust to our television consumption. This wealth of TV consumption has an impact on the body, the mental performance and behavior dispositions of consumers. The question is: what are they?

## 2 The effects of increased TV consumption

### 2.1 The impact on the body

One of the empirically well-documented effects of television consumption on the Body is associated with obesity.

Three Studies are presented as examples. Over 20 years ago children's physicians (Dietz and Gortmaker 1985) published data from 6,965 children aged 6 to 11 and 6,671 adolescents aged 12 to 17 on the relationship between TV consumption and obesity. The authors could show in their study that TV consumption at age 6 through 11 years could predict obesity better than for example socio-economical factors such as education or the income of parents. It showed that children and adolescents who watched television a lot, a few years later were in fact heavier than the others. The authors conclude that they have managed to establish a causal relationship between TV consumption and obesity. Gortmaker (1996) showed in a study with 746 children and adolescents aged 10 to 15 that the probability of becoming and staying obese measurably increased with every additional hour per day of television watched. Both the percentage of obese children (Prevalence) as well as the percentage of newly obese children (incidence) increases depending on the daily television consumption?

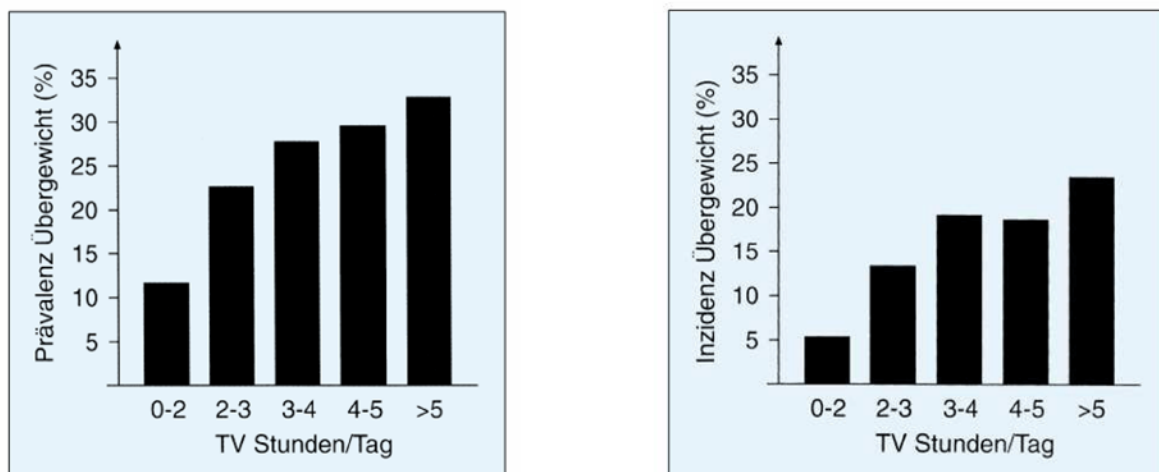


Figure 1: Prevalence and incidence of obesity in dependence of daily television consumption (according to data from Gortmaker 1996, from Spitzer 2005)

From the first graphic it is clear that among children and adolescents, with less than 2 hours of television per day, a little more than 10% are obese. Among children and adolescents with more than 5 hours of television per day, about 30% are obese.

The best published data on the impact of TV consumption on the weight comes

from a birth cohort study in New Zealand (Hancox 2004). 1,037 children, whose average TV consumption and Body Mass Index (BMI) was collected every 2 to 3 years. It showed: the longer the children aged 5 to 15 sat in front of the TV, the higher was their BMI. The authors calculated that 17% of obesity of the now 26 year olds can be led back to too much television in their childhood.

The listed three studies go are 3 of meanwhile about 50 studies, all on the correlation between TV consumption and obesity. In short: TV makes fat!

## **2.2 The impact on the mental performance**

International studies, especially from the last few years aim at the relationship between television on one side and cognitive conditions and other performances on the other side. Examples here are the three following studies. Attention, cognitive test values and the educational level have been put in relation to TV consumption.

In a study of more than 2,500 children in the US, the relationship between TV viewing and attention deficits was investigated (Christakis et al. 2004). It showed a correlation between the consumption of television at the age of 1 to 3 and attention problems at age 7. This link was established not dependent on the socio-economical ratio of the mother or other factors collected. The more time children spent in front of the TV the higher the likelihood that they develop attention deficit issues in elementary school.

From the same record of this national American study about the development of children and adolescents, more than 2,000 aged 0 to 5 children were questioned about their television consumption and was linked to test results for a series of cognitive functions at the age of 6 ( Zimmermann & Christakis 2005). The comparison between children watching more than 3 hours daily and the ones watching less than 3 hours daily showed a derogation of their cognitive functions because of their television consumption. Concentration, the ability to read, language understanding and mathematical skills were worse for the children watching more than 3 hours per day. This effect was independent from other factors such as the effect of social origin or the intelligence of the mother.

A third study referred to the data from the New Zealand Study (Hancox et al. 2005). It recorded all the children that were born in the town of Dunedin between April 1972 and March 1973. In regular intervals they were interviewed about their TV consumption, and at the age of 26 about the educational attainment they reached. Nearly 1,000 children were studied, and the average duration of TV consumption at age 5 to 15, as well as their education on a scale from 1 (no professional qualifications) to 4 (University degree) were put in relation to each other. It showed that increased television consumption corresponded with a lower degree of education

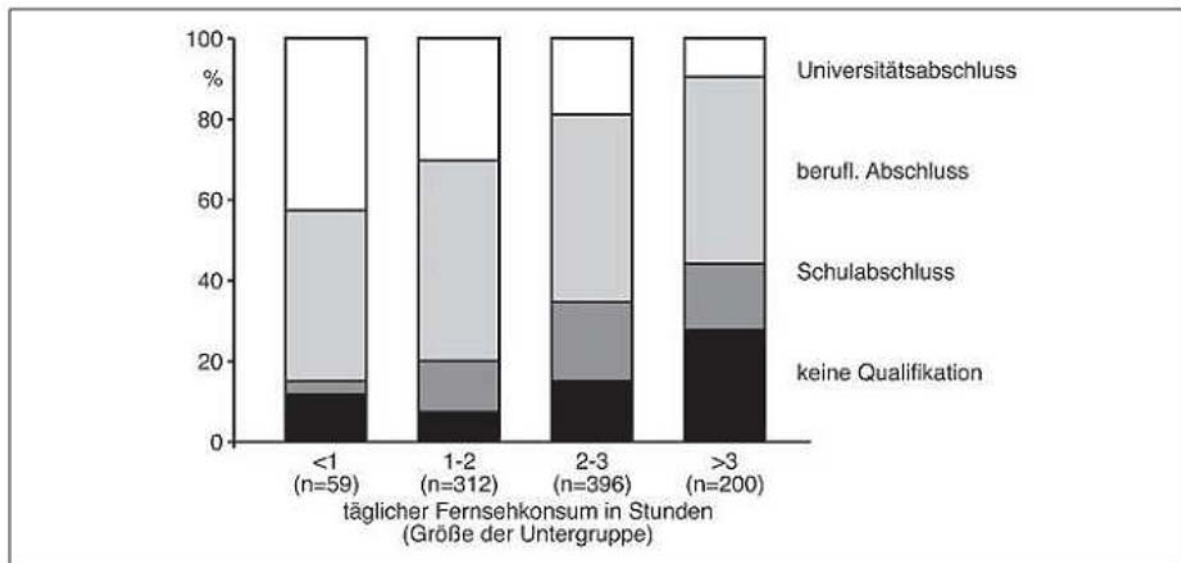


Figure 2: Effect of daily TV consumption in childhood and youth on vocational skills at age 26 years. (according to data from Hancox 2005, from Spitzer 2005)

A lower degree of education could also be explained with a low IQ and low socio-economical status statements. However, these factors were projected and it was found: the result is Independent of IQ or social origin. It appeared that the strongest influence on professional qualifications was on children with average intelligence. Of course, independent from TV consumption, the moderately talented child is less likely to go to University than the highly skilled and talented individual. But what happens for the broad mass depends much on how much television is watched.

The three studies show the negative effect of increased television consumption, especially in young age, on the mental development of the consumer. It was shown that increased TV viewing with corresponds with reduced cognitive performance and low educational attainment. In short: TV makes stupid.

### 2.3 The impact on the behavior

Besides the length of television consumption, which impacts the body and mental development, the content of the television program also influences the behavior of consumers. What content is there and what behavior is influenced?

The American Medical Association has estimated that an 11 years old has seen more than 8,000 murders and 100,000 acts of violence on television. Children in households with cable or VCR see 32,000 murders and 40,000 attempted murders by the time they are 18. On German television, violence occurs in almost 80% of TV programs (Lukesch et al. 2004 a, b).

What influence this violence on television has on real life is exemplified in the results of a study with about 700 American children (Johnson et al. 2002). The children and their families were studied regarding their television habits, aggressive behavior and other factors that could influence violence and aggression. It showed that the factors child neglect, growing up in an unsafe neighborhood, low family income, low education levels and psychiatric disorders of parents corresponded with aggressive behavior in the age of 16 and 22. When the influence of these variables was eliminated by statistical methods, there was still a correlation between TV viewing and aggressive behavior. Furthermore it

showed, that television does not only generate aggression with those who already have aggressive tendencies, but also those who have not previously had shown aggressive behavior (Fig. 3).

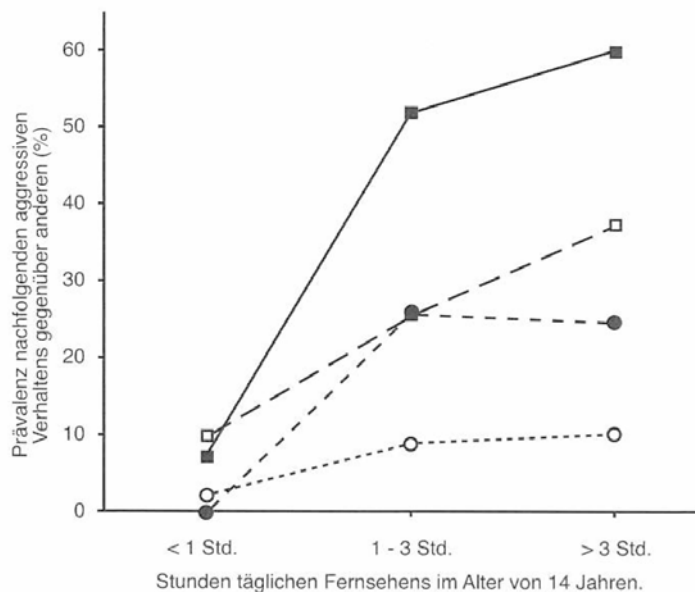


Figure 3: Rise of violence at the age of 16 or 22 years in dependence of television consumption with 14 years for boys (squares) and girls (circles) and for previously violent (black symbols) and not previously violent (white symbols) (according to data from Johnson 2002, from Spitzer 2005)

Besides the proposed study, there are a large number of studies about the influence of television consumption on real violence and disposition to violence. The number of studies is so large that these studies are combined in so-called meta-studies.

A meta-study by Anderson (1977) summarized studies from the period 1956 to 1976 of about 30,000 test subjects together. 4.1 % of the studies found a weak negative relationship between television violence. In 19.2 % no relationship was found. About three quarters of the studies found a positive correlation: More TV went hand in hand with more violence. Looking only at studies of preschool children showed there was no study that found a reduction or no correlation between TV viewing and violence. Especially for preschool children, television consumption is associated with violence.

A meta-study by Paik and Comstock (1994) was based on 217 studies involving 1,142 individual comparisons in the period from 1957 to 1990 and found a significant influence of television on real violence, again particularly evident in children.

These and other meta-studies, field studies and lab experiments show that television promotes the disposition for violence. IN short: TV makes violent.

### 3 The adapting TV consumer

The television consumers adapt themselves equally well to their environment and its influences as humans in general. When people do something on a regular basis, the body and brain adapt. The younger the person, the more adaptable are their body and brain.

Those who watch TV often (three-quarters of German adults on average nearly 4 ¾ hours; 65% of 10 to 13 year olds on average nearly 3 hours), adjust their body and brain to the television and its content.

The body of the television consumer adapts to the increased time of inactivity.

This leads, also through an unhealthy diet, to an increased risk of obesity.

The brain of the television consumer adapts to the fast screen sequences and unnatural stimulus quantities with an enlarged focus of attention. It then becomes harder to lessen focus of attention, i.e. to concentrate. This leads to an increased risk of attention deficit disorder. Apart from that, the brain could get used to the mental passivity, what would explain the higher risk for cognitive deficits and lower educational achievement.

The behavior of the consumer television adapts to the violent content of the world of television. A brain copies the sum of all-world experiences of its carriers, the real ones as well as the ones mediated by the media. If this world experience consists of a high degree of experiences of violence, it can lead to an increased risk for aggression and disposition for violence.

"Television makes fat, stupid and violent." Surely, this statement generalizes in an improper way and it is very loosely worded. With the prevailing data situation however, we are not only entitled but obliged to warn accordingly: Beware of the screen!

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