

# CELL PHONE AND HEALTH

## A review of 220 peer reviewed papers

[Mobilfunk und Gesundheit]  
([MOBILFUNK 2000 T-Mobil.pdf](#))

Dr K. Hennies, Dr HP Neitzke, Dr H. Voigt  
ECOLOG Institute in Hannover

Commissioned by T-Mobil (Deutsche Telekom MobilNet GmbH)  
April 2000

<http://www.ecolog-institut.de/templates/index.php?hauptmenue=9&nav2=7&nav3=>

In 2000, the same year the Stewart Report was commissioned by the UK Government, T-Mobil in Germany (the parent company of T-Mobile) commissioned a highly rated independent research institute, the ECOLOG Institute in Hannover, to review all relevant available research to date with regards to the health risks of mobile telecommunications. This review of over 220 peer reviewed and published papers found clear evidence for the cancer initiating and cancer promoting effects of high frequency electromagnetic fields used by mobile telephone technology.

Experiments on cell cultures at power flux densities much lower than the guidelines, yielded clear evidence for **geno-toxic effects** of these fields, like single and double stranded **DNA breaks** and **damage to chromosomes**. The findings that high frequency electromagnetic fields influence cell transformation, cell growth promotion and cell communication also point on a **carcinogenic potential** of the fields used for mobile telephony. The study also found **teratogenic effects** and **loss of fertility** in animal studies. Moreover, **disruptions of other cellular processes**, like the synthesis of proteins and the control of cell functions by enzymes, have been demonstrated.

Numerous **experiments on humans as well as on animals** proved **effects on the central nervous system**, which reach from neuro-chemical effects to modifications of the brain potentials and impairments of certain brain functions. Loss of memory and cognitive function for instance has been demonstrated by animal experiments.

From experiments with volunteers, who were exposed to the fields of mobile telephones, there is clear evidence for influences on certain **cognitive functions**. Possible risks for the brain also arise from an increased permeability of the **blood-brain barrier** to potentially harmful substances, observed in several experiments on animals exposed to mobile telephone fields.

The ECOLOG report also found evidence for **disruptions of the endocrine and the immune system**. High frequency electromagnetic fields cause stress reactions, showing up in an increased production of **stress hormones** in experimental animals and they lead to a reduction of the concentration of the hormone **melatonin** in the blood of exposed animals and humans. Melatonin has a central control function for the hormone system and the diurnal biological rhythms and it is able to retard the development of certain tumours.

A common observation in many of the studies was the **importance of pulse modulation**. Pulse modulated fields seemed to have a stronger effect than continuous fields and that in some cases, it was the pulse of a certain frequency which triggered the reaction and absence of pulse or pulse of a different frequency lead to less significant effects or no effect at all.

**In total, the Ecolog report came to dramatically different conclusions than the Stewart Report and called for an immediate downward regulation of the power flux density that should be allowed by the guidelines by a factor of 10000.**