Different Aspects of Electromagnetic Hypersensitivity

A. Wojtysiak, J. Reißenweber, F. Gholamrezaei, E. David
Institute of Physiology and Physiopathology
Electropathological Research Center of the University Witten/Herdecke

☞ 02302/669-347  ☞ 02302/669-316  ☞ wojty@uni-wh.de  ☞ www.uni-wh.de
Electrophathological Research Center

• Information:
  » authorities
  » physicians / colleagues
  » general public
  » companies

• Research:
  » electromagentical hypersensitivity
  » work places
  » melatonin
  » cellbiology
  » cardiac pacemakers
Definition

Self reported:

• perception of weak emf
and / or:

• health impairment caused by weak emf
Institut für Normale und Pathologische Physiologie
Zentrum für Elektrophysiology

Hypothesis

influences on central nervous system (autonomous nervous system) caused by conscious or unconscious perception of field
Program

• Medical Check:
  » Anamnesis
  » General and Neurological Examination

• Questionnaires:
  » specially designed
  » Hypochondria-Hystery-Inventory HHI

• Provocation Experiments
Procedure

- Introductory Conversation
- Medical Anamnesis
- 1. Test series
- Psycho-social Anamnesis
- Medical Examination
- 2. Test series
- Blood Sampling
- Final Discussion and Advice
Experimental Course

Test Series 1  (3+10 blocks)

Test Series 2  (10 blocks)

Single block:

```
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| off | on  | off | off | off | off | off | off | off | off |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

"learning phase" (patient knows field status)

MF: 50 Hz
10 µT
Test Environment
Randomization

![Graph showing data points for EHS-persons and healthy volunteers.](image)

- **EHS-persons**
- **Healthy volunteers**

**Axes:**
- **X-axis:** Average score [%]
- **Y-axis:** Score count [% of experiments]
Age Correlation

age [years] vs. average score [%]

30 35 40 45 50 55 60 65 70 75

20 25 30 35 40 45 50 55 60 65
Melatonin Time Course

![Graph showing plasma melatonin levels over time for healthy controls, 50 Hz exposure, and EHS persons.](image-url)
## Symptoms

| symptoms               | patients | 16 | 17 | 18 | 21 | 22 | 23 | 24 | 25 | 26 | 29 | 30 | 31 | 32 | 33 | 34 | abundance |
|------------------------|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------|
| exhaustion             |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| sleep disorders        |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| concentration failure  |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| back pains             |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| headache               |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| allergies              |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| feeling of oppression  |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| crawling sensation     |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| depression             |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| cardiac pains          |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| hypertension           |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| IEI                    |          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| PMLs (pg/ml)           | 5,8 16 8,1 8,0 15,9 9,1 8,4 14,0 79 10 9,7 14 9,2 8,6 7,7 |          |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
| average score          | 70% 50 50% 65% 50% 50% 35% 60% 55% 50% 55% 65% 50% 40% 70% 54,5 |          |    |    |    |    |    |    |    |    |    |    |    |    |    |          |
Hypochondria-Hystery-Inventory

Hypochondria-Hystery-Inventory

Patient distribution factor

- HP2
- HPges
- HY

Patient

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

continuous distribution factor
Hypochondria-Hystery-Inventory

Standardized Psychological Evaluation
11 Patients tested

Results:

• no hypochondric or hysteroid tendencies
• criteria not to be used for diagnosis

✍ cannot account for phenomenon
✍ evaluation ceased
where are we?

Patient → Research

EMF

Diagnosis → Therapy

Knowledge → Advice

healthy
Conclusion

- **Questionnaires:**
  - no symptomatic definition possible
  - no hypochondria or hystery phenomenon

- **Medical Check:**
  - no evidence for medical definition

- **Exposure Experiments**
  - no conscious / unconscious perception

- **Future:**
  - check reported exposures
  - combination of methods
Coworkers

Eduard David
Jörg Reissenweber
Birgit Grothus
Fatemeh Gholamrezaei
Sabine Kentner
Gerda Vöge
Michael Pfotenhauer
Manfred Rulhoff