

**Epidemiological Study (case-control study, pooled analysis)****Pooled analysis of two case-control studies on use of cellular and cordless telephones and the risk for malignant brain tumours diagnosed in 1997-2003. epidemiol.**

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**Aim of study (according to author)**

A pooled analysis of two previous case-control studies on the use of cellular and cordless telephones and the risk of malignant brain tumors was conducted in Sweden.

***Background/further details:***

The first case-control study regarding the period 1997-2000 was published in the [publications 9520](#) and [9895](#), the second study regarding the period 2000-2003 in [publications 12068](#) and [12259](#).

**Endpoint/type of risk estimation**

- brain tumor: malignant brain tumors

Estimate of incidence by odds ratio (OR)

**Exposure**

- mobile phone/mobile communication system, analog mobile phone, digital mobile phone
- type of exposure: personal
- assessment by questionnaire (first year of use, type of phone, mean minutes of daily use over the years, use in a car with external antenna or a hands-free, ear most frequently used)
- assessment by interview (supplementing data)

groups of exposure:

Reference group 1:	unexposed
group 2:	analog, cumulative lifetime use: 1- 1,000 hours
group 3:	analog, cumulative lifetime use: 1,001 - 2,000 hours
group 4:	analog, cumulative lifetime use: > 2,000 hours
group 5:	digital, cumulative lifetime use: 1- 1,000 hours
group 6:	digital, cumulative lifetime use: 1,001 - 2,000 hours
group 7:	digital, cumulative lifetime use: > 2,000 hours
group 8:	cordless, cumulative lifetime use: 1- 1,000 hours
group 9:	cordless, cumulative lifetime use: 1,001 - 2,000 hours
group 10:	cordless, cumulative lifetime use: $\geq$ 2,000 hours
group 11:	analog > 1- to 5-year latency period
group 12:	analog > 5- to 10-year latency period
group 13:	analog > 10-year latency period
group 14:	analog total, > 1-year latency period
group 15:	analog $\leq$ 85 h, > 1- to 5-year latency period
group 16:	analog $\leq$ 85 h, > 5- to 10-year latency period
group 17:	analog $\leq$ 85 h, > 10-year latency period
group 18:	analog $\leq$ 85 h, total, > 1-year latency period
group 19:	analog > 85 h, > 1- to 5-year latency period
group 20:	analog > 85 h, > 5- to 10-year latency period
group 21:	analog > 85 h, > 10-year latency period

group 22:	analog > 85 h, total, > 1-year latency period
group 23:	digital > 1- to 5-year latency period
group 24:	digital > 5- to 10-year latency period
group 25:	digital > 10-year latency period
group 26:	digital total, > 1-year latency period
group 27:	digital ≤ 64 h, > 1- to 5-year latency period
group 28:	digital ≤ 64 h, > 5- to 10-year latency period
group 29:	digital ≤ 64 h, > 10-year latency period
group 30:	digital ≤ 64 h, total, > 1-year latency period
group 31:	digital > 64 h, > 1- to 5-year latency period
group 32:	digital > 64 h, > 5- to 10-year latency period
group 33:	digital > 64 h, > 10-year latency period
group 34:	digital > 64 h, total, > 1-year latency period
group 35:	cordless > 1- to 5-year latency period
group 36:	cordless > 5- to 10-year latency period
group 37:	cordless > 10-year latency period
group 38:	cordless total, > 1-year latency period
group 39:	cordless ≤ 195 h, > 1- to 5-year latency period
group 40:	cordless ≤ 195 h, > 5- to 10-year latency period
group 41:	cordless ≤ 195 h, > 10-year latency period
group 42:	cordless ≤ 195 h, total, > 1-year latency period
group 43:	cordless > 195 h, > 1- to 5-year latency period
group 44:	cordless > 195 h, > 5- to 10-year latency period
group 45:	cordless > 195 h, > 10-year latency period
group 46:	cordless > 195 h, total, > 1-year latency period

## Population

### ■ case group

men and women, aged from 20 to 80 years

diagnosis: brain tumor, histopathologically verified

observation period: 1997 - 2003

study location: Uppsala/Örebro and Linköping medical regions (1997-2003), Stockholm and Gothenburg regions (1997-2000), Sweden

source of data: Cancer registry

exclusion criteria: deceased, medical conditions

### ■ control group

selection: population-based

matching: sex, age, area, 1:1 (case:control)

Further parameters acquired by questionnaire (working history, exposure to different agents, smoking habits)

Study size ⓘ	cases	controls
number eligible	1,008	2,437
number participating	905	2162
rate of participating	90%	89%

## Statistically significant results ⓘ

group	exposure	endpoint	cases	controls	parameter (OR)	confidence interval
4	analog, cumulative lifetime use: > 2,000 hours	malignant brain tumor	21	8	5.9	2.5-14
7	digital, cumulative lifetime use: > 2,000 hours	malignant brain tumor	21	12	3.7	1.7-7.7
10	cordless, cumulative lifetime use: $\geq$ 2,000 hours	malignant brain tumor	43	50	2.3	1.5-3.6
13	analog > 10-year latency period	high-grade astrocytoma	59	84	2.7	1.8-4.2
25	digital > 10-year latency period	high-grade astrocytoma	15	18	3.8	1.8-8.1
37	cordless > 10-year latency period	high-grade astrocytoma	23	45	2.2	1.3-3.9

Statistical analysis using unconditional logistic regression (adjusted for age, sex, socioeconomic status, year of diagnosis)


### **Results/conclusion (according to author)**

The pooled analysis showed that use of cellular telephones and cordless telephones for more than 10 years significantly increased the risk for malignant brain tumors. The risk increased with cumulative lifetime number of hours of use.

(Study character: epidemiological study, case-control study, pooled analysis)

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