

# MicroMorts: how to avoid death

Tea Talk

Huh?

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# MicroMort

- A measure of risk
- $1/10^6$  probability of death (micro-mortality)
- e.g. Risk of death from a general anaesthetic =  $1/100000$  operations = 10 micromorts per op
- introduced by Ronald A. Howard  
pioneer of decision analysis

# Avoid life

as much as possible

- Being alive: the highest risk factor
  - 600000 (death/year) / 63.7 mil (population)  
= 9400 micromorts per year  
= 26 micromorts per day
- what if you didn't manage to?

Average life span in UK = 80 years  
1 death / 80 years  
= 12500 micromorts/year  
= 34 micromorts per day

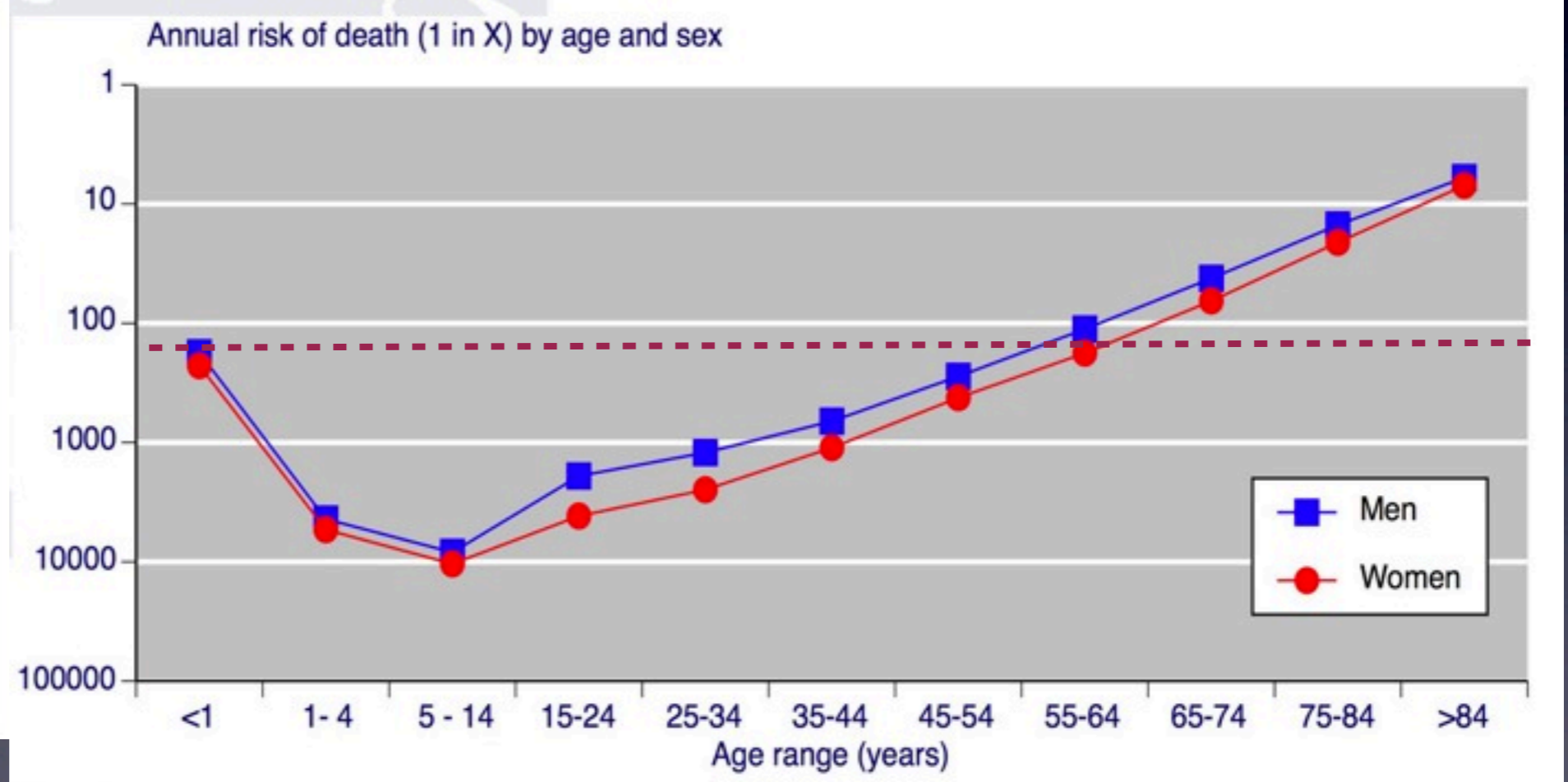
Death = side-effect of life

# Depends on age & sex

Table 1: Annual risk of death by age and sex in the UK

	Annual death risk 1 in X	
	Men	Women
All ages	136	193
Under 1	177	227
1- 4	4386	5376
5 - 14	8333	10417
15-24	1908	4132
25-34	1215	2488
35-44	663	1106
45-54	279	421
55-64	112	178
65-74	42	65
75-84	15	21
85 and over	6	7

Figure 1: Annual risk of death by age and sex in the UK



avoid aging

RANK	COUNTRY	(DEATHS/1,000 POPULATION)
1	<u>South Africa</u>	17.49
2	<u>Ukraine</u>	15.72
3	<u>Lesotho</u>	14.91
4	<u>Chad</u>	14.56
5	<u>Guinea-Bissau</u>	14.54
6	<u>Bulgaria</u>	14.30
7	<u>Afghanistan</u>	14.12
8	<u>Central African Republic</u>	14.11
9	<u>Somalia</u>	13.91
10	<u>Russia</u>	13.83
11	<u>Swaziland</u>	13.75
12	<u>Serbia</u>	13.71
13	<u>Estonia</u>	13.69
14	<u>Latvia</u>	13.60
15	<u>Namibia</u>	13.60
16	<u>Belarus</u>	13.51
17	<u>Botswana</u>	13.32
18	<u>Mali</u>	13.22
19	<u>Nigeria</u>	13.16
20	<u>Gabon</u>	13.13
21	<u>Zambia</u>	12.92
22	<u>Niger</u>	12.73
23	<u>Hungary</u>	12.72
24	<u>Moldova</u>	12.60
25	<u>Mozambique</u>	12.34
26	<u>Croatia</u>	12.13
27	<u>Burkina Faso</u>	11.96
28	<u>Romania</u>	11.88
29	<u>Angola</u>	11.67
30	<u>Lithuania</u>	11.55
31	<u>Germany</u>	11.29
32	<u>Slovenia</u>	11.25

also on countries

x 1000

<https://www.cia.gov/library/publications/the-world-factbook/rankorder/2066rank.html>



# Natural vs non-natural death

- 50 death per day by non-natural death in UK = 0.83 micromorts / day  
= 300 micromorts / year

ONS Mortality statistics [1], UK *Office of National Statistics* 2009, ISSN 1757-1375, accessed 2010-12-08

- So, room for improvement!  
about 3.2% of total 9400 micromorts / year.

# Avoid these countries

Intentional deaths per 100,000 people per year				
Rank (inverse) ▾	Country	Homicide	Suicide <sup>[1]</sup>	Intentional Death
107	 Greenland <sup>[32][33][34]</sup> (more info)	19.2	108.1	127.3
106	 Honduras <sup>[31]</sup>	91.6	3.84	95.44
105	 El Salvador	69.2	8.0	77.2
104	 Belgium	1.7	53.5	55.2
103	 Jamaica	52.2	0.1	52.3
102	 Venezuela	45.1	3.2	48.3
101	 South Africa <sup>[30]</sup>	31.1	15.4	46.5
100	 Trinidad and Tobago	35.2	10.7	45.9
99	 Belize	41.4	3.7	45.1
98	 Guyana (more info)	18.6	26.4	45
97	 Guatemala	38.5	3.6	42.1
96	 Colombia	33.4	4.9	38.3
95	 Saint Kitts and Nevis	38.2	0.0	38.2
94	 Lithuania <sup>[29]</sup> (more info)	6.6	31.6	38.2
93	 Kazakhstan (more info)	8.8	25.6	34.4
92	 South Korea <sup>[27][28]</sup> (more info)	1.1	31.7	32.8
91	 Puerto Rico	26.2	7.4	33.6
90	 Russia <sup>[26]</sup> (more info)	10.2	21.4	31.6
89	 Belarus <sup>[24][25]</sup>	4.05	22.9	27
88	 Kyrgyzstan	20.1	8.8	28.9
87	 The Bahamas	27.4	1.2	28.6
45	 United Kingdom <sup>[13]</sup> (more info)	1.2	11.8	13

x 10

If you find yourself in Greenland, Belgium, South Korea, Belarus, and U.K, avoid killing yourself.

# Avoid horse-riding on Ecstasy

- Hang gliding – 8 micromorts per trip
- Scuba diving – 4.72 micromorts per dive
- Skydiving (in the US) – 7 micromorts per jump
- Horse-riding – 15 micromorts
- Ecstasy (MDMA) – 0.5 micromorts per tablet  
(most cases involve other drugs)
- Skiing (1 day) – 0.5 micromorts



# Activities that increase 1 micromort

- Diving 15 meters (Bends)<sup>[citation needed]</sup>
- Drinking 0.5 liter of wine (cirrhosis of the liver)<sup>[5]</sup>
- Smoking 1.4 cigarettes (cancer, heart disease)<sup>[5]</sup>
- Spending 1 hour in a coal mine (black lung disease)<sup>[5]</sup>
- Spending 3 hours in a coal mine (accident)<sup>[5]</sup>
- Living 2 days in New York or Boston in 1979 (air pollution)<sup>[5]</sup>
- Living 2 months with a smoker (cancer, heart disease)<sup>[5]</sup>
- Drinking Miami water for 1 year (cancer from chloroform)<sup>[5]</sup>
- Eating 100 charcoal-broiled steaks (cancer from benzopyrene)<sup>[5]</sup>
- Eating 40 tablespoons of peanut butter (liver cancer from aflatoxin B)<sup>[5]</sup>
- **Eating 1000 bananas**  
(cancer from radioactive 1 kBED of Potassium-40)<sup>[citation needed]</sup>
- Travelling 6 minutes by canoe (accident)<sup>[5]</sup>
- Travelling 6 miles by motorbike (accident)<sup>[6]</sup>
- Travelling 17 miles by walking (accident)<sup>[7]</sup>
- Travelling 10 miles<sup>[5]</sup> (or 20 miles<sup>[7]</sup>) by bicycle (accident)
- Travelling 230 miles (370 km) by car (accident)<sup>[6]</sup> (or 250 miles<sup>[7]</sup>)
- **Travelling 6000 miles (9656 km) by train (accident)**<sup>[6]</sup>
- Travelling 1000 miles (1600 km) by jet (accident)<sup>[5]</sup>
- Travelling 6000 miles (10,000 km) by jet  
(cancer due to increased background radiation)<sup>[8]</sup>
- Travelling 12,000 miles (19,000 km) by jet in the United States  
(terrorism)<sup>[9]</sup>

Stay home

# check out

- [https://www.youtube.com/watch?v=VLmBJ4\\_5eG4](https://www.youtube.com/watch?v=VLmBJ4_5eG4)
- <http://understandinguncertainty.org/micromorts>

# Also, a similar idea

## Microlife

From Wikipedia, the free encyclopedia

A **microlife** is a unit of **risk** representing half an hour change of **life expectancy**.<sup>[*citation needed*]</sup>

"A daily loss or gain of 30 minutes can be termed a microlife, because 1 000 000 half hours (57 years) roughly corresponds to a lifetime of adult exposure."<sup>[1]</sup>

**Microlives gained/lost per day, based on estimated life expectancy effects of long term lifestyle and demographic risk factors, for men and women aged 35**

Risk factor and daily exposure	Men	Women
<b>Smoking</b>		
Smoking 15–24 cigarettes	-10	-9
<b>Alcohol intake</b>		
First drink (of 10 g alcohol)	1	1
Each subsequent drink (up to 6)	-½	-1
<b>Obesity</b>		
Per 5 units above body mass index 22.5	-3	-3
Per 5 kg above optimum weight for average height	-1	-1
<b>Sedentary behaviour</b>		
2 hours watching television	-1	-1
<b>Diet</b>		
Red meat, 1 portion (85 g, 3 oz)	-1	-1
Fruit and vegetable intake, =5 servings (blood vitamin C >50 nmol/L)	4	3
<b>Coffee intake</b>		
2-3 cups	1	1

<b>Physical activity</b>		
First 20 minutes of moderate exercise	2	2
Subsequent 40 minutes of moderate exercise	1	½
<b>Statins</b>		
Taking a statin	1	1
<b>Air pollution</b>		
Living in Mexico City v London	-½	-½
<b>Sex</b>		
Being male v female	-4	—
<b>Geography</b>		
Resident of Russia v Sweden	-21	-9
<b>Era</b>		
Living in 2010 v 1910	15	15
Living in 2010 v 1980	8	5