

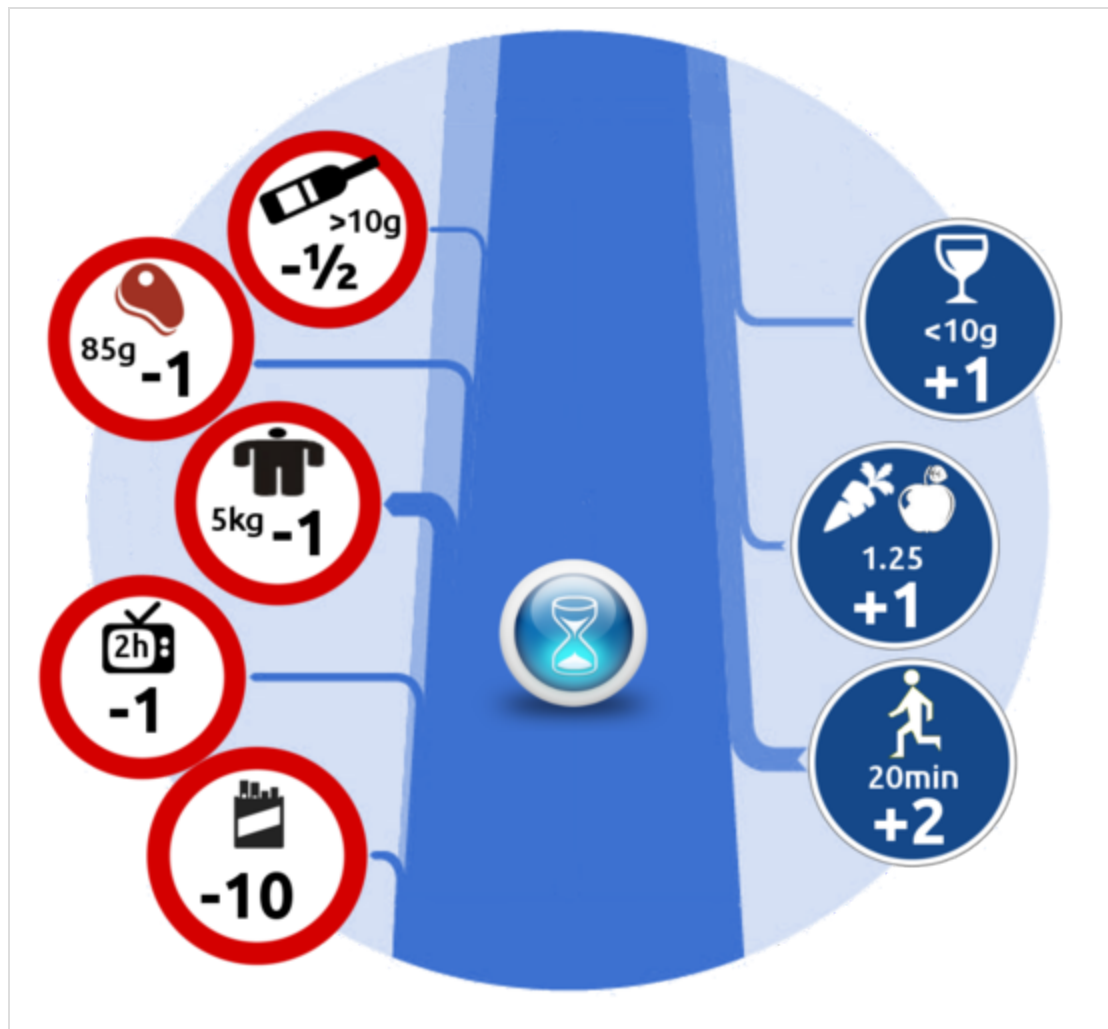
Microlife

A **microlife** is a unit of risk representing half an hour change of life expectancy.^[1]

Discussed by David Spiegelhalter and Alejandro Leiva, and also used by Lin et al.^[2] for decision analysis, microlives are intended as a simple way of communicating the impact of a lifestyle or environmental risk factor, based on the associated daily proportional effect on expected length of life. Similar to the micromort (one in a million probability of death) the microlife is intended for "rough but fair comparisons between the sizes of chronic risks".^[1] This is to avoid the biasing effects of describing risks in relative hazard ratios, converting them into somewhat tangible units. Similarly they bring long-term future risks into the here-and-now as a gain or loss of time.

"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."^[1]

The microlife exploits the fact that for small hazard ratios the change in life expectancy is roughly linear.^[3] They are by necessity rough estimates, based on averages over population and lifetime. Effects of individual variability, short-term or changing habits, and causal factors are not taken into account.



Graphic representation of microlives

Microlives gained/lost per day of exposure, based on estimated life expectancy effects of long term lifestyle and demographic risk factors, for men and women aged 35 years.^[1]

Risk factor	Men	Women
Smoking		
Smoking 15–24 cigarettes	-10	-9
Alcohol intake		
First drink (of 10 g alcohol)	1	1
Each subsequent drink (up to 6)	-½	-1
Obesity		
Per 5 units above body mass index of 22.5 each day	-3	-3
Per 5 kg above optimum weight for average height each day	-1	-1
Sedentary behaviour		
2 hours watching television	-1	-1
Diet		
Red meat, 1 portion (85 g, 3 oz)	-1	-1
Fruit and vegetable intake, =5 servings (blood vitamin C >50 nmol/L)	4	3
Coffee intake		
2-3 cups	1	1
Physical activity		
First 20 minutes of moderate exercise	2	2
Subsequent 40 minutes of moderate exercise	1	½
Statins		
Taking a statin	1	1
Air pollution		
Per day living in Mexico City v London	-½	-½
Geography		
Per day being a resident of Russia v Sweden	-21	-9
Era		
Per day living in 2010 v 1910	15	15
Per day living in 2010 v 1980	8	5

See also

- [Micromort](#)
- [Risk communication](#)

References

1. Spiegelhalter, D. (2012-12-14). "Using speed of ageing and "microlives" to communicate the effects of lifetime habits and environment" (<http://www.bmj.com/content/bmj/345/bmj.e8676.full.pdf>) (PDF). *BMJ*. **345** (dec14 14): e8223. doi:10.1136/bmj.e8223 (<https://doi.org/10.1136%2Fbmj.e8223>). ISSN 1756-1833 (<https://>

www.worldcat.org/issn/1756-1833). PMID 23247978 (<https://pubmed.ncbi.nlm.nih.gov/23247978>). S2CID 27745393 (<https://api.semanticscholar.org/CorpusID:27745393>).

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- Haybittle, J. (1998-10-01). "The use of the Gompertz function to relate changes in life expectancy to the standardized mortality ratio" (<https://doi.org/10.1093/ije/27.5.885>). *International Journal of Epidemiology*. Oxford University Press (OUP). **27** (5): 885–889. doi:10.1093/ije/27.5.885 (<https://doi.org/10.1093/ije/27.5.885>). ISSN 1464-3685 (<https://www.worldcat.org/issn/1464-3685>). PMID 9839748 (<https://pubmed.ncbi.nlm.nih.gov/9839748>).

Further reading

- Spiegelhalter, David (2012-02-09). "Microlives: A lesson in risk taking" (<https://www.bbc.com/future/story/20120209-a-lesson-in-risk>). *BBC*. Retrieved 2018-12-25.
- "Microlives" (<http://understandinguncertainty.org/microlives>). *Understanding Uncertainty*. Retrieved 2018-12-25.
- "BMJ Microlives" (<https://web.archive.org/web/20161007003115/https://journals.bmj.com/site/microlives/>). *BMJ Microlives*. Archived from the original (<https://journals.bmj.com/site/microlives/>) on 2016-10-07. A calculator for about eight different factors' effect upon microlives.

External links

-  Media related to [Microlife](#) at Wikimedia Commons

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