

Do centenarians make it to 100 by avoiding, delaying, or surviving diseases?

Diseases and biomarkers of Swedish centenarians and non-centenarians from the same birth cohorts

Karin Modig

Associate Professor,

Unit of Epidemiology

Institute of Environmental Medicine

Karolinska Institute, Sweden

WCE

WORLD CONGRESS OF EPIDEMIOLOGY 2024



Background

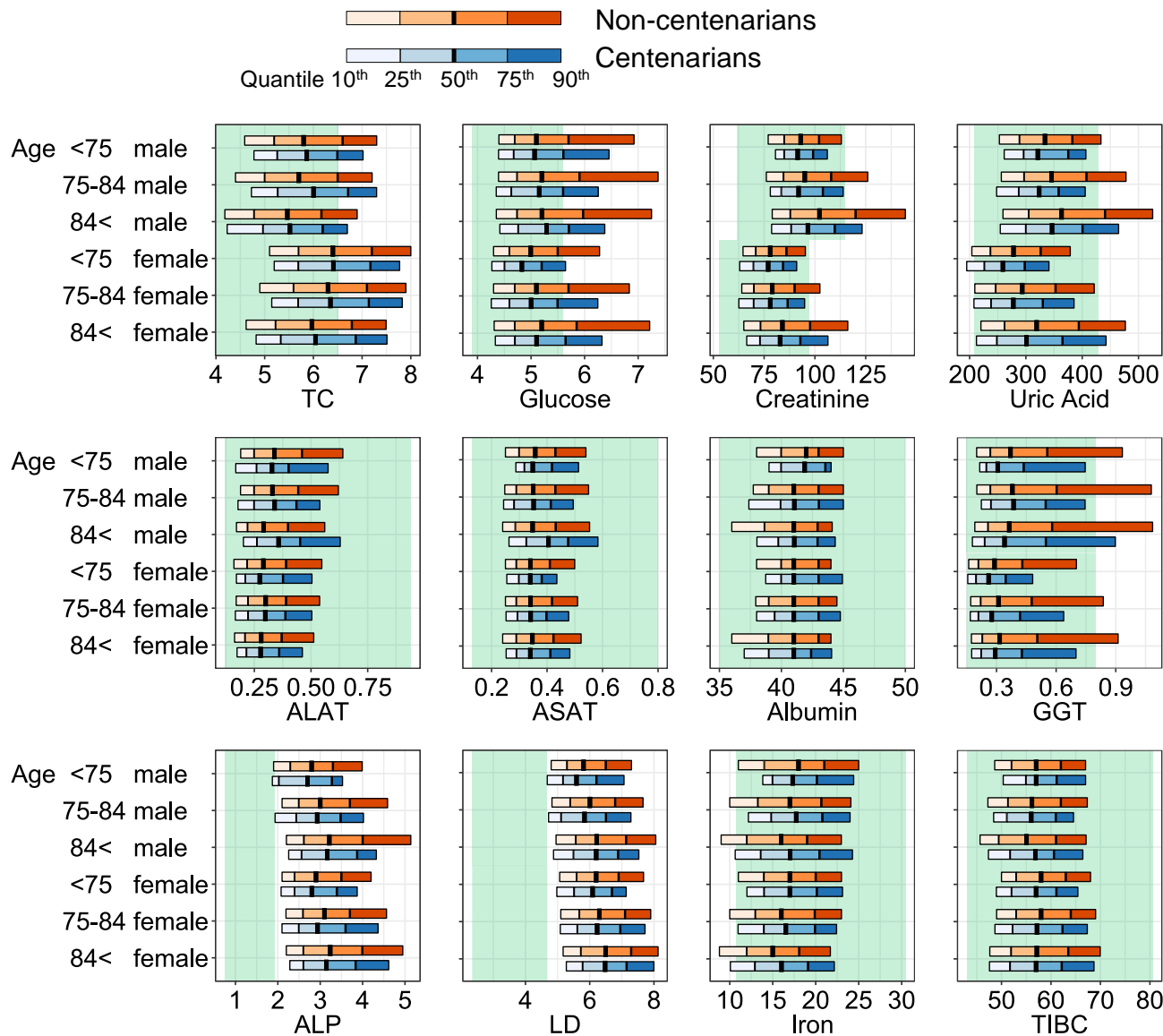
Centenarians are the fastest growing age segment of the population in Sweden and in many other countries

Understanding how they achieve exceptionally long lives can help us understand ageing processes

Methods

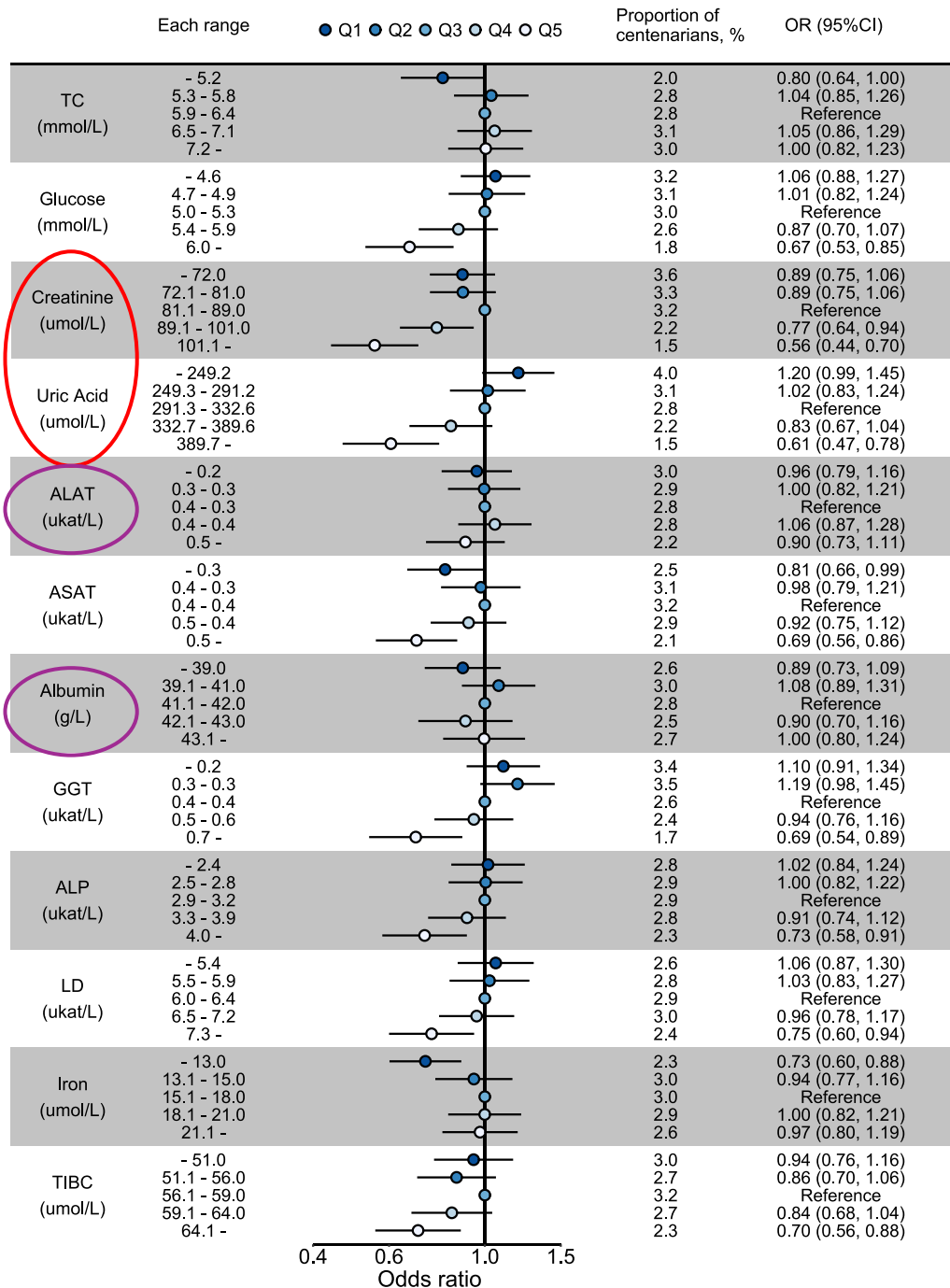
- Data – large population-based administrative health records
- Biomarkers assessed between 1985 and 1996, then linked to administrative data and individuals are followed prospectively for up to 35 years
- Condition on death, select individuals from the same birth cohorts and look at those reaching exceptional age, and those not

Results for biomarkers



Biomarker profiles of centenarians and non-centenarians at comparable ages earlier in life

Murata, et al. Biomarker profiles and exceptional longevity: Comparison of centenarians and non-centenarians in a 35-year follow-up of the Swedish AMORIS cohort. 2023 GeroScience



Association between biomarker quintiles and becoming a centenarian estimated with logistic regression adjusted for age, sex, and CCI.

Almost all biomarkers show a lower chance for the highest level of the marker

Strongest association for Uric acid and creatinine

Cholesterol and Iron lower chance for low levels,

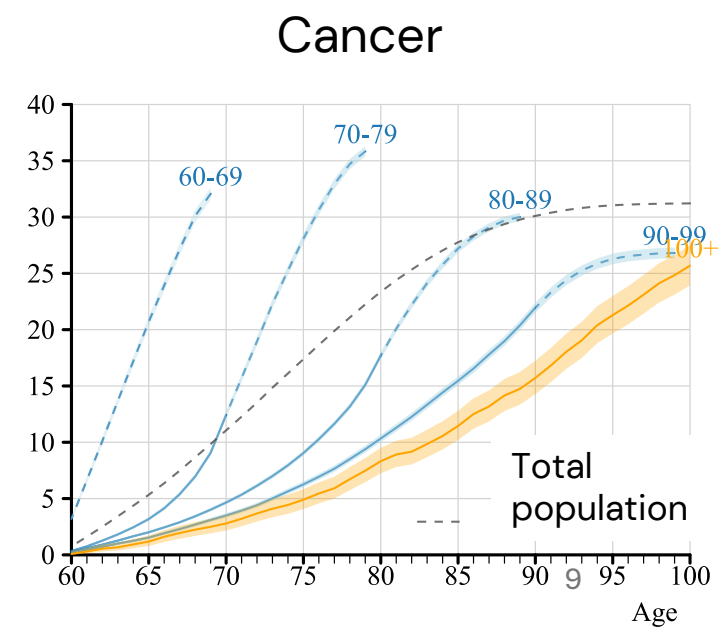
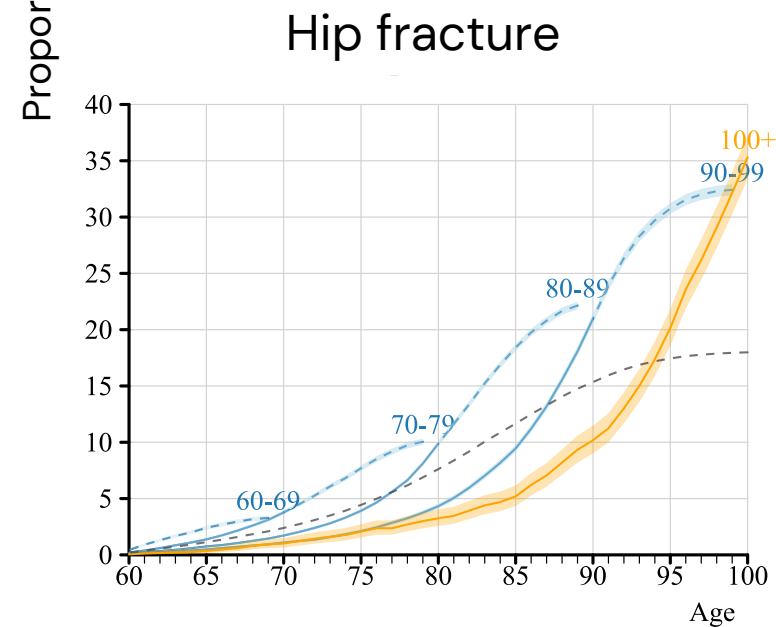
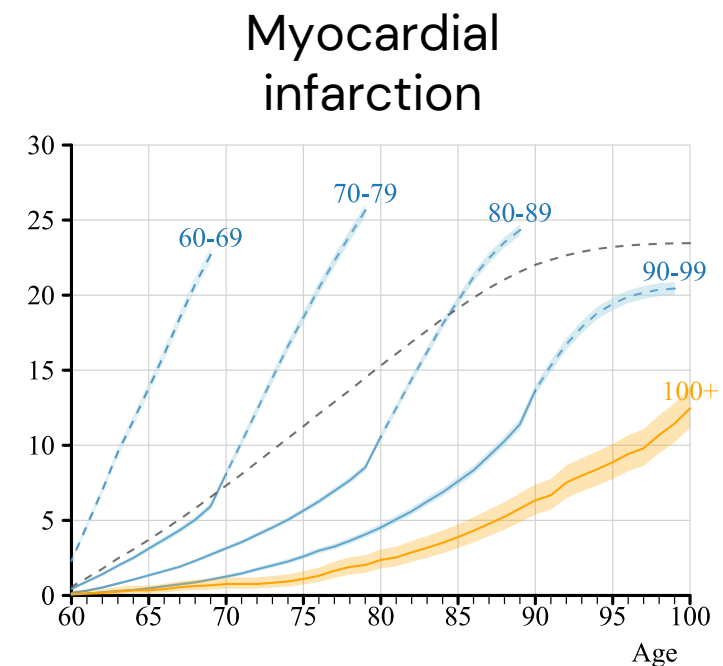
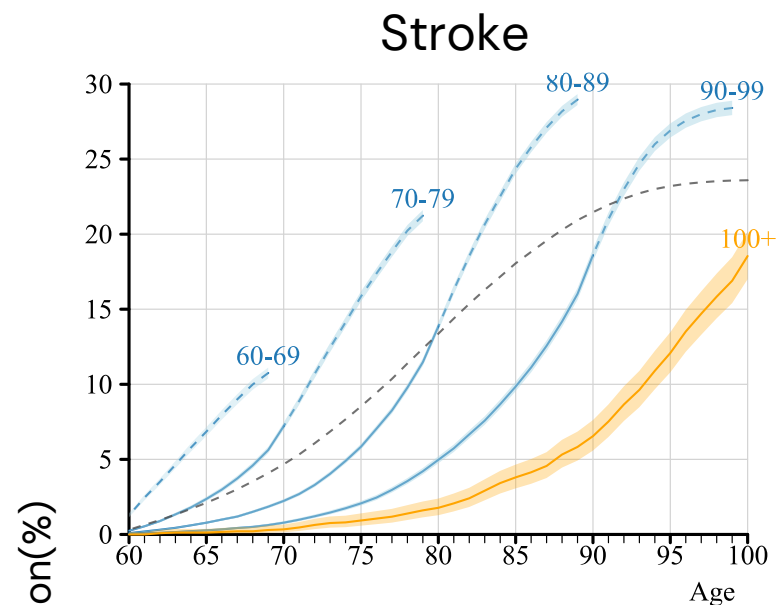
No association for Albumin or Alat

Results for diseases

Characteristics of study participants

	Died between ages 60–69 years	Died between ages 70–79 years	Died between ages 80–89 years	Died between ages 90–99 years	Died >=100 years	Total
No. of people, (%)	28,487 (16.7)	45,876 (26.9)	59,830 (35.0)	34,227 (20.0)	2367 (1.4)	170,787
No. of women, (%)	10,120 (35.5)	20,050 (43.7)	33,990 (56.8)	24,019 (70.2)	1989 (84.0)	90,168 (52.8)

Cumulative incidence over age, by age at death



Conclusions

- ❖ Already from age 65 onwards, a difference in commonly available biomarkers was observed between individuals who eventually became centenarians and those who did not
- ❖ Centenarians had lower age-specific incidence for almost all the included diseases → **Delaying disease onset**
- ✓ Despite living longer, centenarians remained at a lower lifetime risk of many diseases → **Avoiding disease**
- ✓ Hip fracture → **Delaying disease, then attained at higher rate**

Thank you

