

1 **Risk factors for overweight and obesity after childhood acute lymphoblastic leukemia in North**
2 **America and Switzerland: A comparison of two cohort studies**

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30 **Abstract (298/300):**

31 **Aim:** Survivors of childhood acute lymphoblastic leukemia (ALL) are at high risk for obesity as a late
32 effect of treatment. We aimed to identify differences in the prevalence of overweight and obesity
33 between ≥ 5 -year survivors of childhood ALL in the North American Childhood Cancer Survivors Study
34 (CCSS) and the Swiss Childhood Cancer Survivor Study (SCCSS), identify risk factors, and compare
35 between cohorts.

36 **Methods:** We included adult survivors of childhood ALL diagnosed before age 21 years between
37 1976–1999. CCSS participants were individually matched (3:1) to SCCSS participants on sex and
38 attained age. We used heights and weights to calculate body mass index for 1287 North American
39 and 429 Swiss survivors and compared them with 2034 North American and 678 Swiss siblings. We
40 assessed risk factors for being overweight (body mass index [BMI] 25–29.9kg/m²) and obese (BMI
41 ≥ 30 kg/m²) using multinomial logistic regressions.

42 **Results:** Overweight and obesity were more common in North American than in Swiss survivors
43 (overweight: 30%, 95% Confidence Interval 27–32 vs. 25%, 21–29; obesity: 29%, 27–32 vs. 7%, 5–
44 10) and siblings (overweight: 30%, 27–32 vs. 25%, 22–29; obesity: 24%, 22–26 vs. 6%, 4–8). North
45 American survivors were more likely to be obese than their siblings (OR=1.24; 1.01–1.53), a similar
46 trend was seen in Switzerland (1.27; 0.74–2.21). Among survivors, risk factors for obesity were:
47 residency in North America (5.8; 3.7–9.0), being male (1.7; 1.3–2.3), attained age (≥ 45 years: 5.1;
48 2.4–10.9), Non-Hispanic Black (3.4; 1.6–7.0), low household income (2.3; 1.4–3.5), and age < 5 years
49 at diagnosis (1.6; 1.1–2.2). Interaction tests found no relevant difference in risk factors between
50 cohorts.

51 **Conclusion:** Treatment-related risk for overweight and obesity was similar between countries.
52 However, the higher prevalence among North American survivors identified socio-demographic drivers
53 that have significant influence and should be targeted in intervention trials.