

Supplementary Table 3: Number of cases and controls, pooled odds ratios and 95% confidence intervals for height by sex and NHL subtype.

Height Quintile ^a	Controls	NHL ^b	OR ^c	95% CI	DLBCL ^b	OR ^c	95% CI	FL ^b	OR ^c	95% CI	CLL/SLL ^b	OR ^c	95% CI
<i>Males:</i>	9453	5928			1857			1090			1084		
-20%	2191	1371	0.97	0.87-1.08	439	1.05	0.89-1.24	255	1.11	0.89-1.35	250	0.87	0.71-1.08
-40%	2120	1213	1.00	0.90-1.12	393	1.10	0.93-1.30	229	1.13	0.90-1.38	221	0.94	0.76-1.17
-60%	1634	1047	1	-	305	1	-	171	1	-	221	1	-
-80%	1711	1115	1.10	0.98-1.23	358	1.16	0.98-1.38	193	1.09	0.87-1.36	197	1.08	0.87-1.35
-100%	1523	985	1.19	1.06-1.34	297	1.19	1.00-1.43	209	1.47	1.18-1.84	162	1.16	0.92-1.46
Missing	274	197			65			33			33		
<i>Test for heterogeneity^d</i>		$\chi^2=93.6$ $p=0.04$			$\chi^2=91.3$ $p=0.06$			$\chi^2=67.5$ $p=0.50$			$\chi^2=65.6$ $p=0.13$		
<i>Females:</i>	7054	4516			1406			1174			661		
-20%	1708	1068	0.92	0.82-1.03	347	0.95	0.80-1.14	274	0.88	0.73-1.07	145	0.72	0.56-0.93
-40%	1329	879	1.00	0.88-1.13	254	0.91	0.75-1.11	234	0.99	0.81-1.22	137	0.94	0.72-1.22
-60%	1444	903	1	-	270	1	-	240	1	-	141	1	-
-80%	1203	793	1.04	0.92-1.18	260	1.08	0.89-1.30	195	0.94	0.76-1.16	102	0.81	0.61-1.07
-100%	1134	698	1.00	0.87-1.14	223	0.98	0.80-1.19	193	1.01	0.82-1.25	101	0.94	0.71-1.25
Missing	236	175			52			38			35		
<i>Test for heterogeneity^d</i>		$\chi^2=82.5$ $p=0.19$			$\chi^2=66.1$ $p=0.67$			$\chi^2=70.9$ $p=0.38$			$\chi^2=57.7$ $p=0.30$		

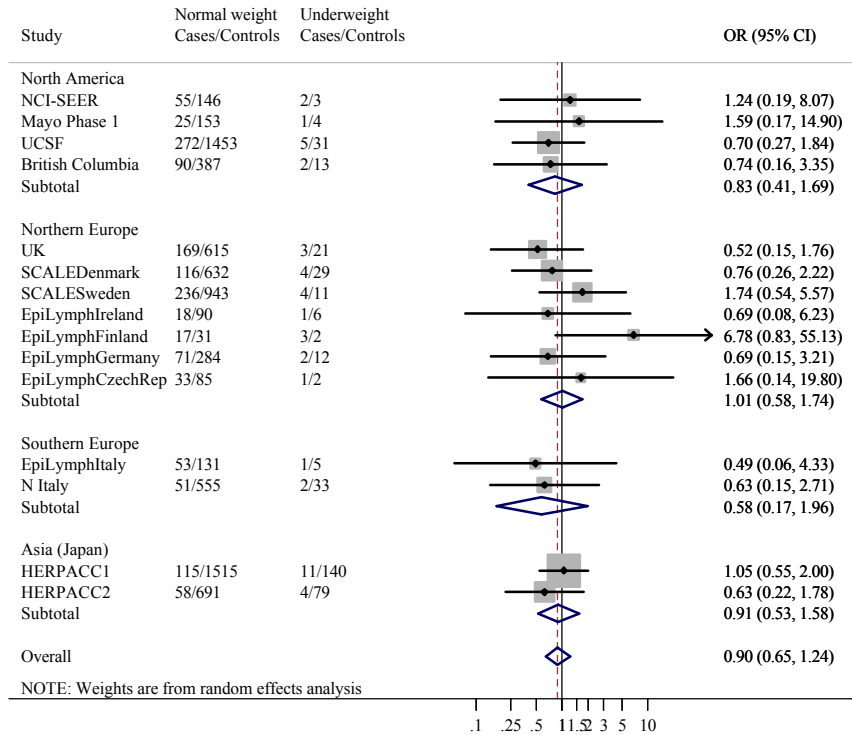
Height Quintile ^a	Controls	MZBCL ^b	OR ^c	95% CI	MCL ^b	OR ^c	95% CI	Burkitt ^b	OR ^c	95% CI	Other BCL ^b	OR ^c	95% CI	TCL ^b	OR ^c	95% CI
<i>Males:</i>	9453	366			289			66			233			291		
-20%	2191	81	0.93	0.66-1.31	81	1.12	0.79-1.59	9	0.74	0.28-1.95	43	0.76	0.49-1.16	63	0.90	0.61-1.32
-40%	2120	81	1.18	0.84-1.67	44	0.77	0.51-1.16	15	1.20	0.50-2.88	40	0.85	0.55-1.31	52	0.83	0.55-1.24
-60%	1634	62	1	-	57	1	-	8	1	-	49	1	-	49	1	-
-80%	1711	64	1.08	0.75-1.56	62	1.25	0.86-1.82	14	1.25	0.52-3.02	42	1.10	0.71-1.69	70	1.21	0.83-1.78
-100%	1523	62	1.37	0.95-1.98	38	1.02	0.66-1.56	16	1.66	0.70-3.93	54	1.71	1.14-2.58	36	0.77	0.49-1.20
Missing	274	16			7			4			5			21		
<i>Test for heterogeneity^d</i>		$\chi^2=48.8$ $p=0.44$			$\chi^2=59.1$ $p=0.05$			$\chi^2=13.0$ $p=0.67$			$\chi^2=28.5$ $p=0.49$			$\chi^2=37.5$ $p=0.88$		
<i>Females:</i>	7054	361			101			30			170			185		
-20%	1708	92	1.05	0.77-1.45	30	1.14	0.65-2.02	3	0.26	0.07-1.01	30	0.87	0.51-1.47	37	0.83	0.52-1.33
-40%	1329	67	1.20	0.85-1.69	18	1.00	0.52-1.90	7	0.63	0.22-1.82	32	1.31	0.78-2.20	41	1.26	0.79-2.01
-60%	1444	77	1	-	21	1	-	8	1	-	30	1	-	37	1	-
-80%	1203	66	1.29	0.91-1.83	17	1.01	0.52-1.95	4	0.40	0.12-1.36	43	1.87	1.14-3.05	28	0.99	0.60-1.66
-100%	1134	48	0.97	0.67-1.42	12	0.87	0.42-1.79	7	0.69	0.24-1.98	29	1.52	0.89-2.59	26	0.87	0.52-1.46
Missing	236	11			3			1			6			16		
<i>Test for heterogeneity^d</i>		$\chi^2=52.0$ $p=0.19$			$\chi^2=24.1$ $p=0.57$			$\chi^2=17.8$ $p=0.003$			$\chi^2=39.8$ $p=0.004$			$\chi^2=24.0$ $p=0.98$		

^aQuintiles derived from study-sex-specific distributions of height among controls. ^bNHL: non-Hodgkin lymphoma; DLBCL: diffuse large B-cell lymphoma; FL: follicular lymphoma; CLL/SLL: chronic lymphocytic leukaemia/ small lymphocytic lymphoma; MZBCL: marginal zone B-cell lymphoma; MCL: mantle cell lymphoma; Burkitt:

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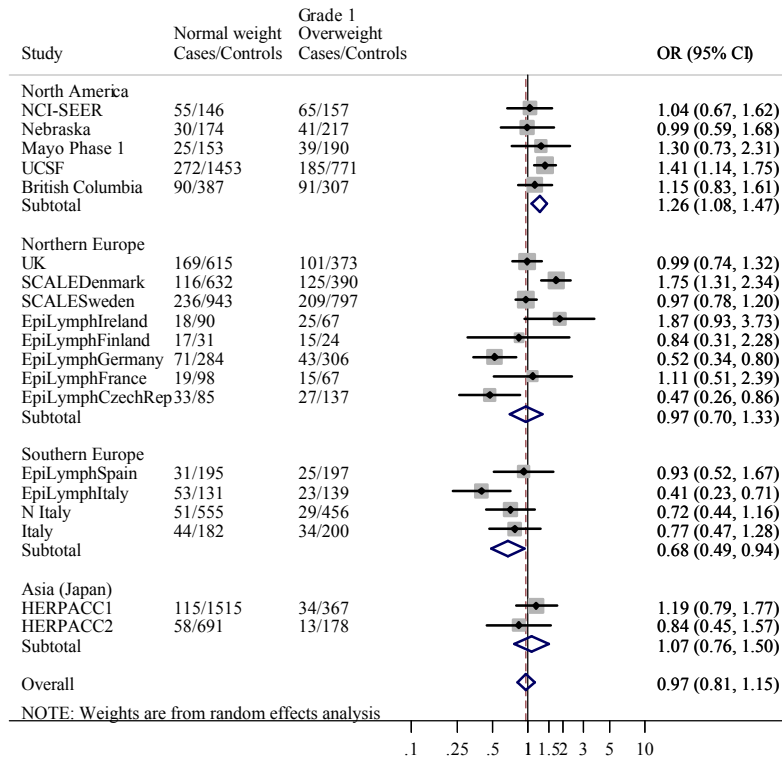
Burkitt lymphoma; Other BCL: other B-cell lymphoma; TCL: T-cell lymphoma. ^cOdds ratios and 95% confidence intervals adjusted for study, age and race were estimated using unconditional logistic regression. ^dTest for heterogeneity was conducted by testing for evidence of interaction between height and studies using the likelihood ratio test.

Supplementary Figure 1(a): Meta-analysis of the risk of DLBCL associated with BMI <18.5 kg m⁻² (Underweight) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).



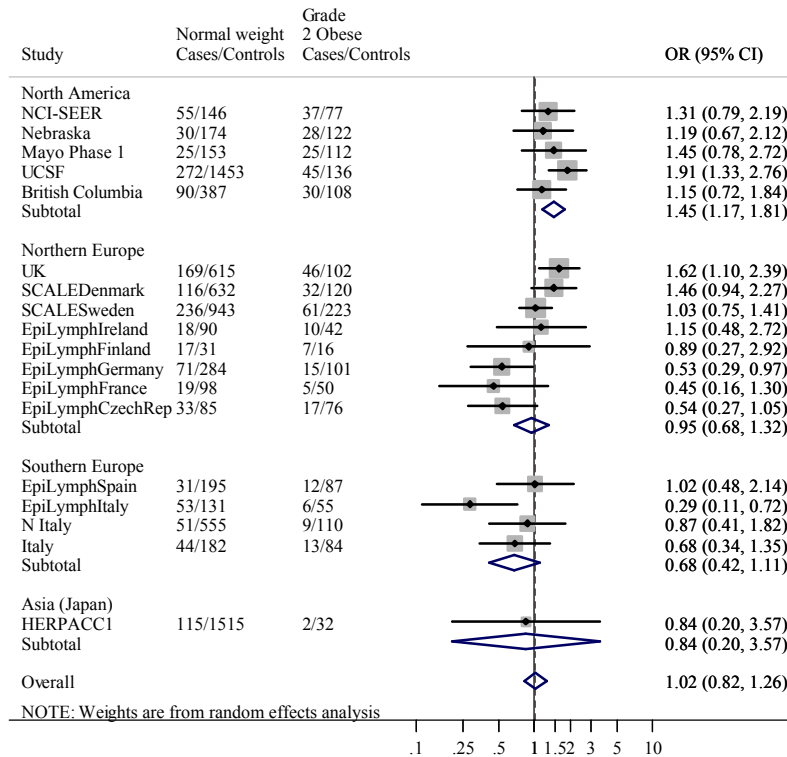
Test for heterogeneity: $Q=7.99$, $p=0.89$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=0.0\%$. For continents: North America: $Q=0.64$, $p=0.89$, $I^2=0.0\%$; Northern Europe: $Q=5.94$, $p=0.43$, $I^2=0.0\%$; Southern Europe: $Q=0.03$, $p=0.85$, $I^2=0.0\%$; Asia (Japan): $Q=0.68$, $p=0.41$, $I^2=0.0\%$. Test for heterogeneity between continents: $Q=0.70$, $p=0.87$. Pooled odds ratios by study design were: Population-based studies: OR=0.80, 95% CI 0.51-1.27, $Q=2.74$, $p=0.91$, $I^2=0.0\%$; Clinic-based studies: OR=0.94, 95% CI 0.55-1.60, $Q=0.90$, $p=0.64$, $I^2=0.0\%$; Hospital-based studies: OR=1.30, 95% CI 0.43-3.88, $Q=3.68$, $p=0.30$, $I^2=18.5\%$. Test for heterogeneity between study designs: $Q=0.67$, $p=0.72$.

Supplementary Figure 1(b): Meta-analysis of the risk of DLBCL associated with BMI 25-29.99 kg m⁻² (Grade 1 overweight) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).

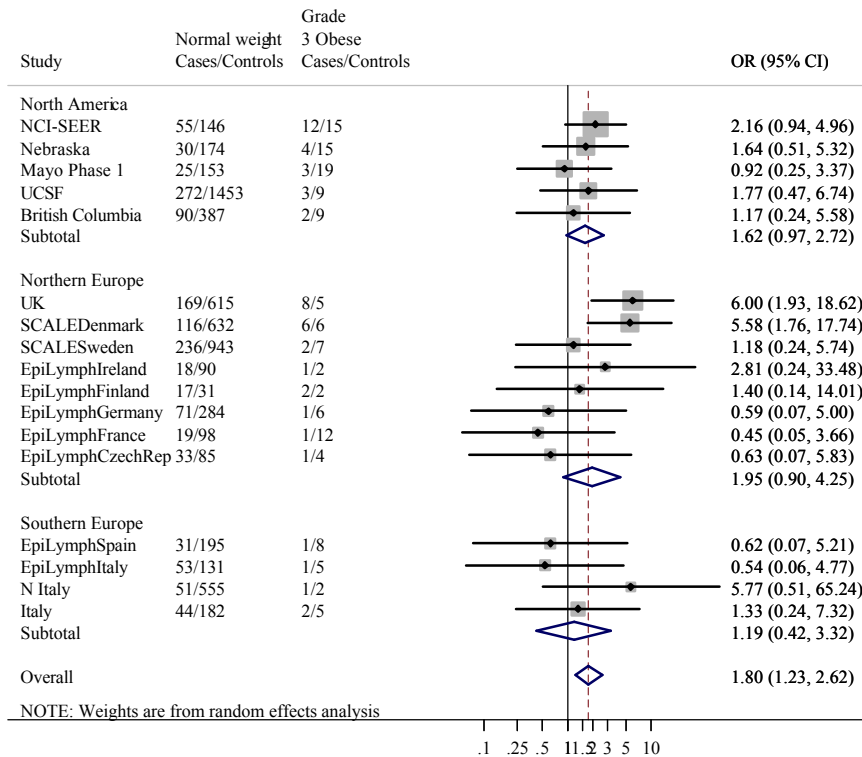


Test for heterogeneity: $Q=56.5$, $p<0.001$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=68.1\%$. For continents: North America: $Q=2.84$, $p=0.58$, $I^2=0.0\%$; Northern Europe: $Q=32.4$, $p<0.001$, $I^2=78.4\%$; Southern Europe: $Q=4.62$, $p=0.20$, $I^2=35.0\%$; Asia (Japan): $Q=0.83$, $p=0.36$, $I^2=0.0\%$. Test for heterogeneity between continents: $Q=15.8$, $p=0.001$. Pooled odds ratios by study design were: Population-based studies: OR=0.99, 95% CI 0.77-1.26, $Q=40.8$, $p<0.001$, $I^2=80.4\%$; Clinic-based studies: OR=1.13, 95% CI 0.84-1.51, $Q=1.15$, $p=0.56$, $I^2=0.0\%$; Hospital-based studies: OR=0.85, 95% CI 0.63-1.15, $Q=9.81$, $p=0.13$, $I^2=38.8\%$. Test for heterogeneity between study designs: $Q=4.70$, $p=0.10$.

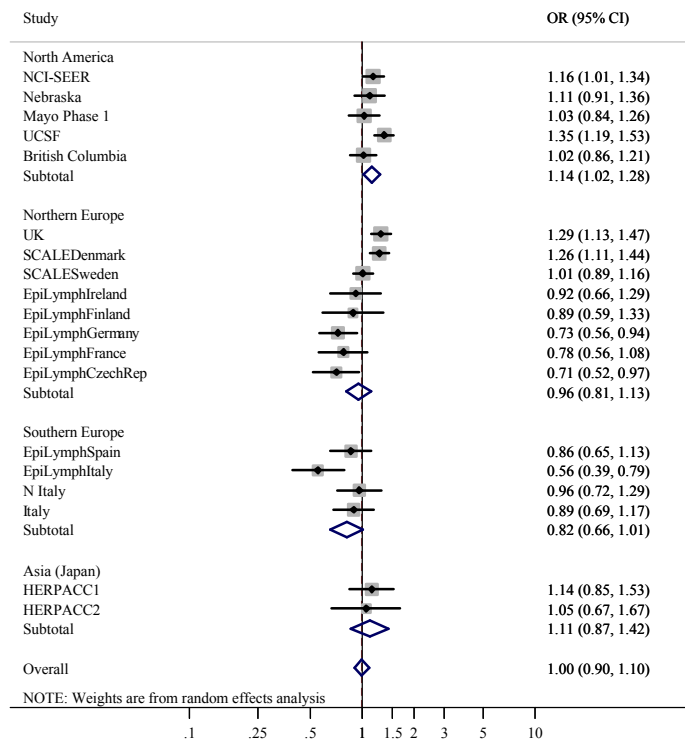
Supplementary Figure 1(c): Meta-analysis of the risk of DLBCL associated with BMI 30-39.99 kg m⁻² (Grade 2 obese) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).



Test for heterogeneity: $Q=38.8$, $p=0.002$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=56.1\%$. For continents: North America: $Q=3.74$, $p=0.44$, $I^2=0.0\%$; Northern Europe: $Q=18.1$, $p=0.01$, $I^2=61.3\%$; Southern Europe: $Q=4.86$, $p=0.18$, $I^2=38.2\%$; Asia (Japan): no test for heterogeneity as only one study. Test for heterogeneity between continents: $Q=12.1$, $p=0.007$. Pooled odds ratios by study design were: Population-based studies: OR=1.13, 95% CI 0.85-1.51, $Q=26.3$, $p=0.001$, $I^2=69.6\%$; Clinic-based studies: OR=1.34, 95% CI 0.75-2.37, $Q=0.46$, $p=0.50$, $I^2=0.0\%$; Hospital-based studies: OR=0.76, 95% CI 0.56-1.02, $Q=3.70$, $p=0.72$, $I^2=0.0\%$. Test for heterogeneity between study designs: $Q=8.32$, $p=0.016$.

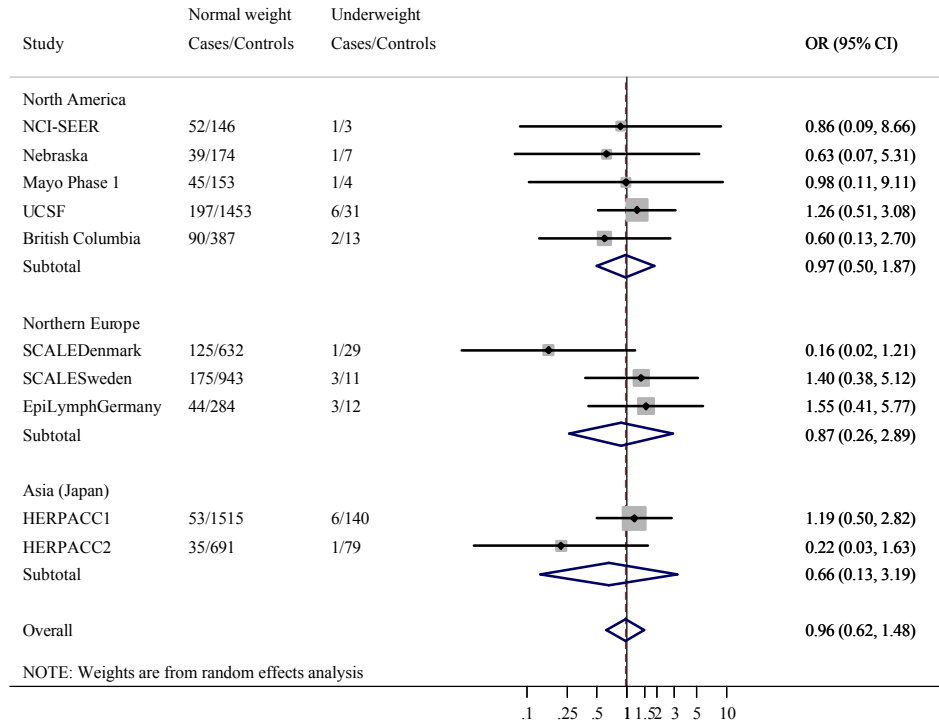
Supplementary Figure 1(d): Meta-analysis of the risk of DLBCL associated with BMI ≥ 40 kg m⁻² (Grade 3 obese) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).

Test for heterogeneity: $Q=16.7$, $p=0.40$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=4.4\%$. For continents: North America: $Q=1.38$, $p=0.85$, $I^2=0.0\%$; Northern Europe: $Q=11.1$, $p=0.14$, $I^2=36.7\%$; Southern Europe: $Q=2.51$, $p=0.47$, $I^2=0.0\%$. Test for heterogeneity between continents: $Q=1.78$, $p=0.41$. Pooled odds ratios by study design were: Population-based studies: OR=2.13, 95% CI 1.30-3.49, $Q=10.1$, $p=0.27$, $I^2=21.0\%$; Clinic-based studies: OR=0.92, 95% CI 0.25-3.37, no test for heterogeneity as only one study; Hospital-based studies: OR=1.18, 95% CI 0.52-2.65, $Q=3.64$, $p=0.72$, $I^2=0.0\%$. Test for heterogeneity between study designs: $Q=2.97$, $p=0.23$.

Supplementary Figure 2: Meta-analysis of the risk of DLBCL associated with 5 kg m⁻² increase in BMI above 18.5 kg m⁻² (Normal weight and above).

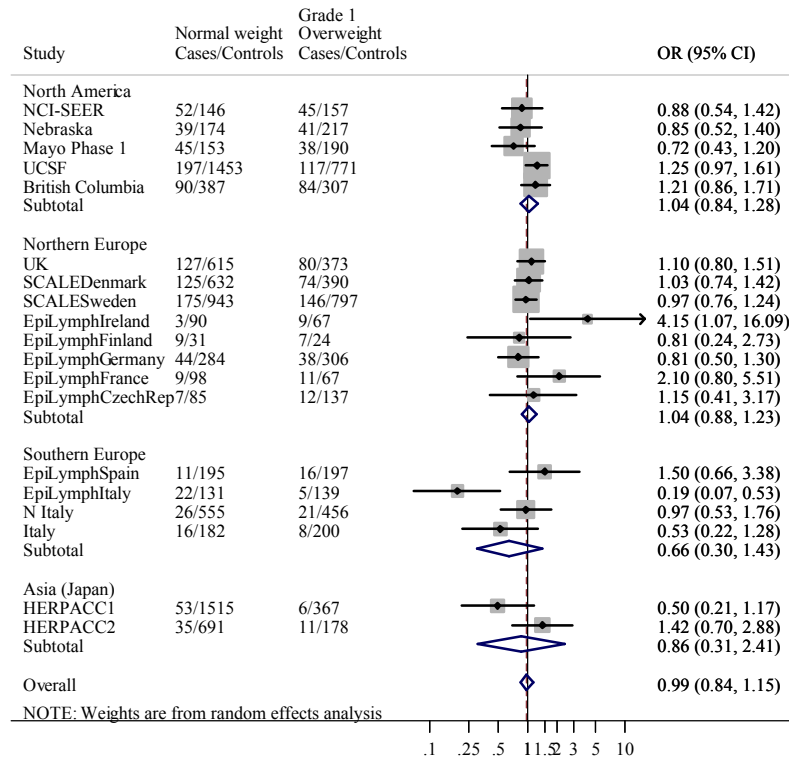
Test for heterogeneity: $Q=67.6$, $p<0.001$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=73.4\%$. For continents: North America: $Q=8.88$, $p=0.06$, $I^2=55.0\%$; Northern Europe: $Q=35.0$, $p<0.001$, $I^2=80.0\%$; Southern Europe: $Q=6.45$, $p=0.09$, $I^2=53.5\%$; Asia (Japan): $Q=0.07$, $p=0.79$, $I^2=0.0\%$. Test for heterogeneity between continents: $Q=17.1$, $p=0.001$. Pooled odds ratios by study design were: Population-based studies: OR=1.06, 95% CI 0.93-1.21, $Q=45.2$, $p<0.001$, $I^2=82.3\%$; Clinic-based studies: OR=1.06, 95% CI 0.91-1.24, $Q=0.29$, $p=0.86$, $I^2=0.0\%$; Hospital-based studies: OR=0.86, 95% CI 0.76-0.96, $Q=2.65$, $p=0.85$, $I^2=0.0\%$. Test for heterogeneity between study designs: $Q=19.4$, $p<0.001$.

Supplementary Figure 3(a): Meta-analysis of the risk of Follicular lymphoma associated with BMI <18.5 kg m⁻² (Underweight) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).



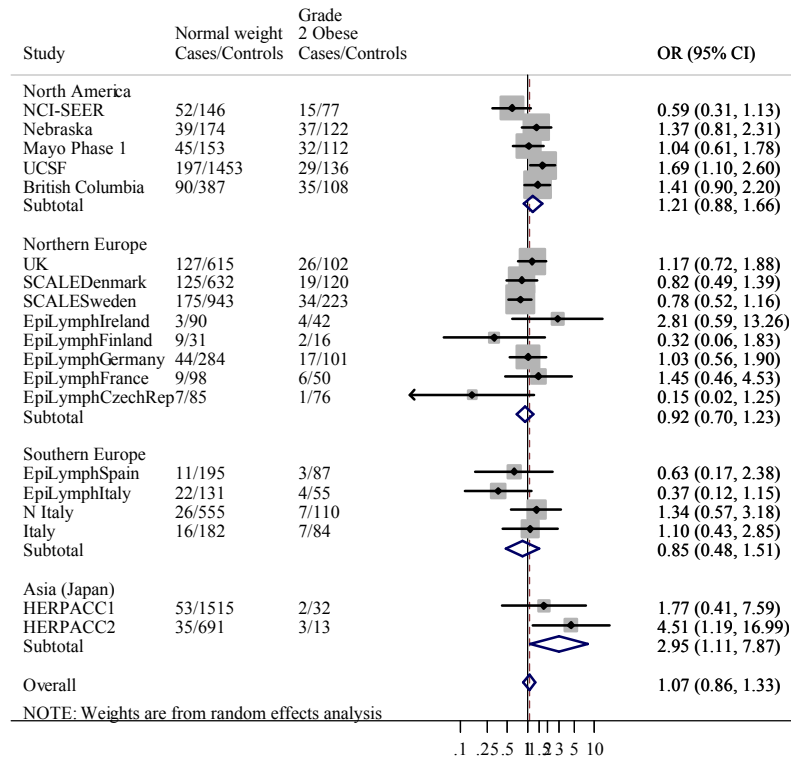
Test for heterogeneity: $Q=7.05$, $p=0.63$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=0.0\%$. For continents: North America: $Q=0.89$, $p=0.93$, $I^2=0.0\%$; Northern Europe: $Q=3.83$, $p=0.15$, $I^2=47.8\%$; Asia (Japan): $Q=2.30$, $p=0.13$, $I^2=56.6\%$. Test for heterogeneity between continents: $Q=0.03$, $p=0.99$. Pooled odds ratios by study design were: Population-based studies: OR=0.98, 95% CI 0.57-1.67, $Q=4.73$, $p=0.58$, $I^2=0.0\%$; Clinic-based studies: OR=0.86, 95% CI 0.35-2.08, $Q=2.31$, $p=0.32$, $I^2=13.3\%$; no hospital-based studies contributed data to this meta-analysis. Test for heterogeneity between study designs: $Q=0.02$, $p=0.89$.

Supplementary Figure 3(b): Meta-analysis of the risk of Follicular lymphoma associated with BMI 25-29.99 kg m⁻² (Grade 1 overweight) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).



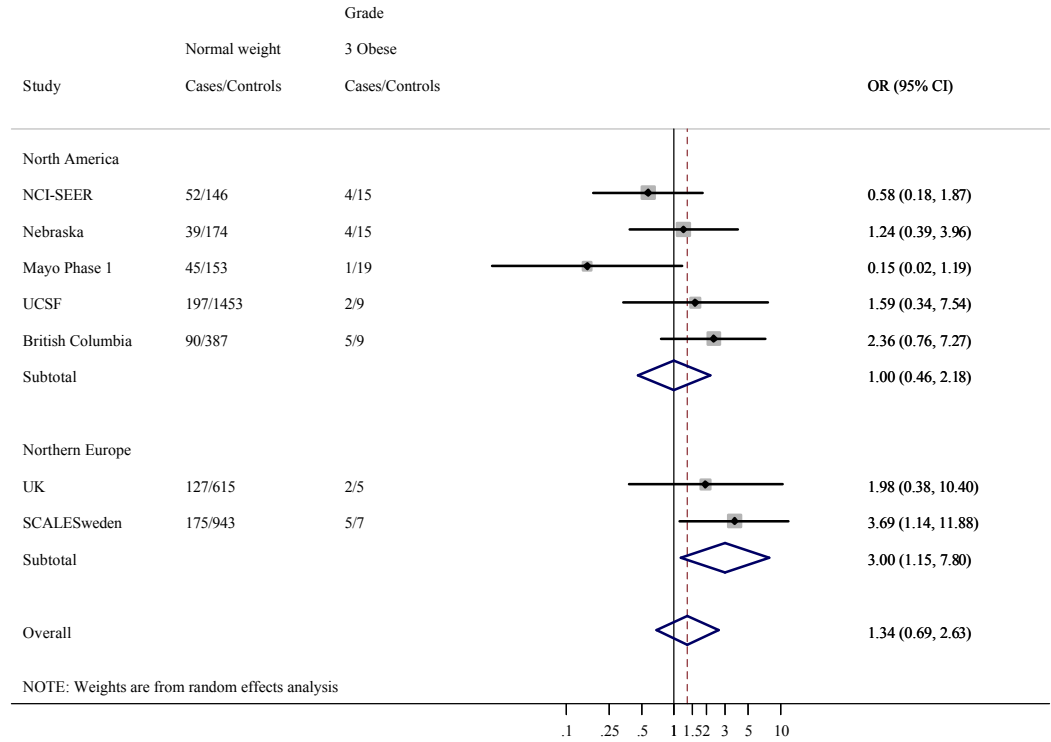
Test for heterogeneity: $Q=30.8$, $p=0.03$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=41.5\%$. For continents: North America: $Q=5.78$, $p=0.22$, $I^2=30.7\%$; Northern Europe: $Q=7.69$, $p=0.36$, $I^2=9.0\%$; Southern Europe: $Q=11.0$, $p=0.01$, $I^2=72.6\%$; Asia (Japan): $Q=3.43$, $p=0.06$, $I^2=70.9\%$. Test for heterogeneity between continents: $Q=2.92$, $p=0.40$. Pooled odds ratios by study design were: Population-based studies: OR=0.98, 95% CI 0.83-1.17, $Q=16.0$, $p=0.043$, $I^2=49.9\%$; Clinic-based studies: OR=0.81, 95% CI 0.47-1.40, $Q=3.85$, $p=0.15$, $I^2=48.1\%$; Hospital-based studies: OR=1.19, 95% CI 0.78-1.83, $Q=8.94$, $p=0.18$, $I^2=32.9\%$. Test for heterogeneity between study designs: $Q=2.02$, $p=0.36$.

Supplementary Figure 3(c): Meta-analysis of the risk of Follicular lymphoma associated with BMI 30-39.99 kg m⁻² (Grade 2 obese) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).



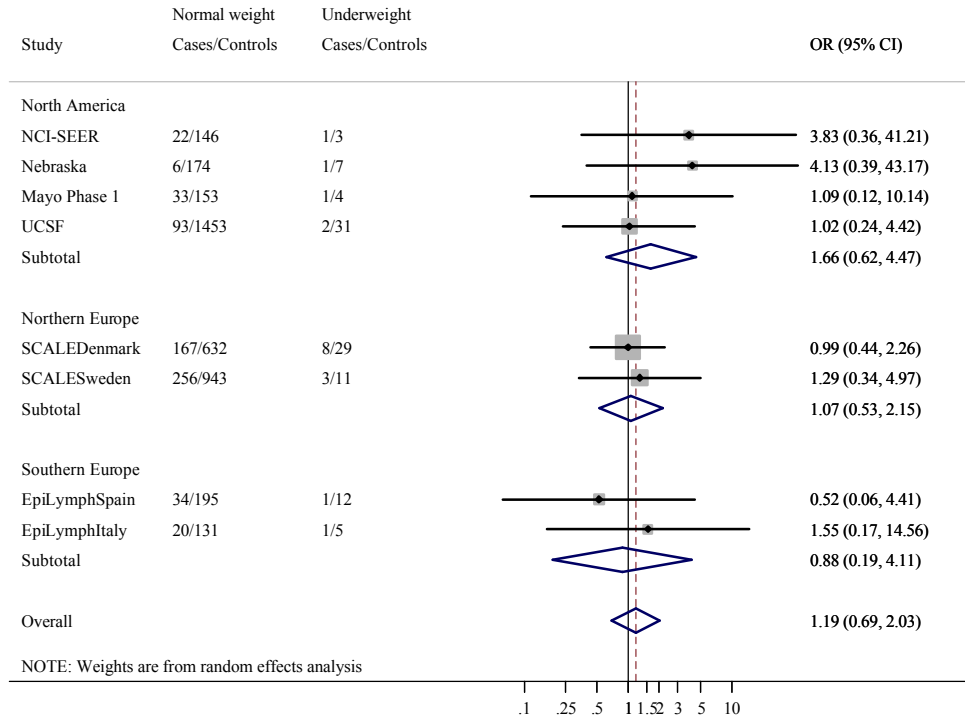
Test for heterogeneity: $Q=29.4$, $p=0.04$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=38.9\%$. For continents: North America: $Q=7.79$, $p=0.10$, $I^2=48.7\%$; Northern Europe: $Q=8.75$, $p=0.27$, $I^2=20.0\%$; Southern Europe: $Q=3.64$, $p=0.30$, $I^2=17.6\%$; Asia (Japan): $Q=0.86$, $p=0.35$, $I^2=0.0\%$. Test for heterogeneity between continents: $Q=8.40$, $p=0.04$. Pooled odds ratios by study design were: Population-based studies: OR=1.03, 95% CI 0.80-1.33, $Q=16.7$, $p=0.033$, $I^2=52.2\%$; Clinic-based studies: OR=1.73, 95% CI 0.71-4.20, $Q=4.20$, $p=0.12$, $I^2=52.3\%$; Hospital-based studies: OR=0.99, 95% CI 0.58-1.70, $Q=7.75$, $p=0.26$, $I^2=22.6\%$. Test for heterogeneity between study designs: $Q=0.77$, $p=0.68$.

Supplementary Figure 3(d): Meta-analysis of the risk of Follicular lymphoma associated with BMI ≥ 40 kg m⁻² (Grade 3 obese) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).



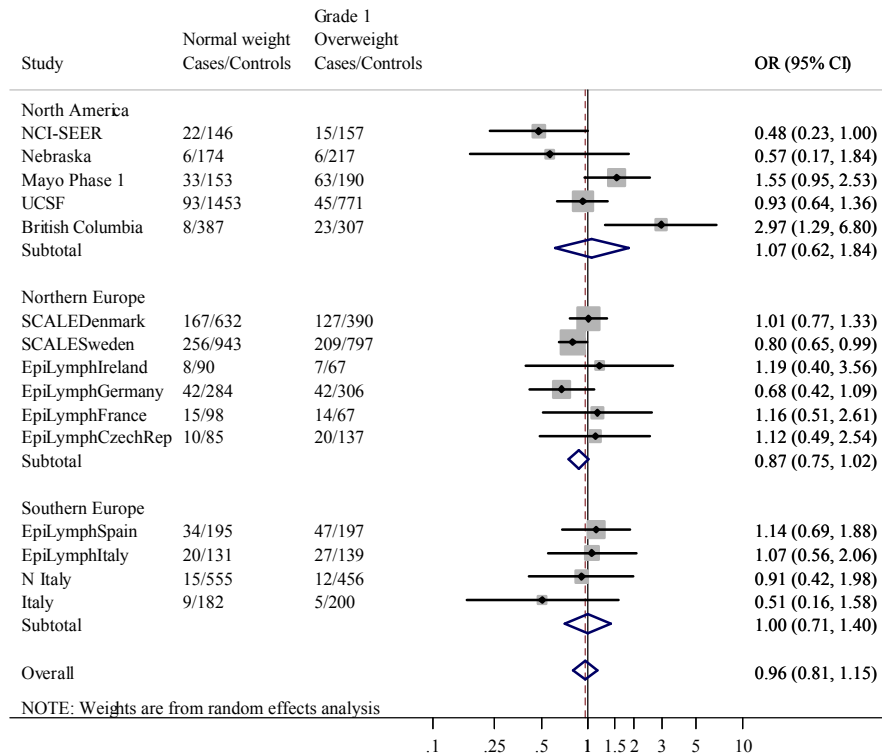
Test for heterogeneity: $Q=10.3$, $p=0.11$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=41.8\%$. For continents: North America: $Q=6.69$, $p=0.15$, $I^2=40.2\%$; Northern Europe: $Q=0.36$, $p=0.55$, $I^2=0.0\%$. Test for heterogeneity between continents: $Q=3.27$, $p=0.07$. Pooled odds ratios by study design were: Population-based studies: OR=1.63, 95% CI 0.94-2.81, $Q=5.53$, $p=0.35$, $I^2=9.6\%$; Clinic-based studies: OR=0.16, 95% CI 0.02-1.20, no test for heterogeneity as only one study; no hospital-based studies contributed data to this meta-analysis. Test for heterogeneity between study designs: $Q=4.78$, $p=0.029$.

Supplementary Figure 4(a): Meta-analysis of the risk of CLL/SLL associated with BMI <18.5 kg m⁻² (Underweight) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).



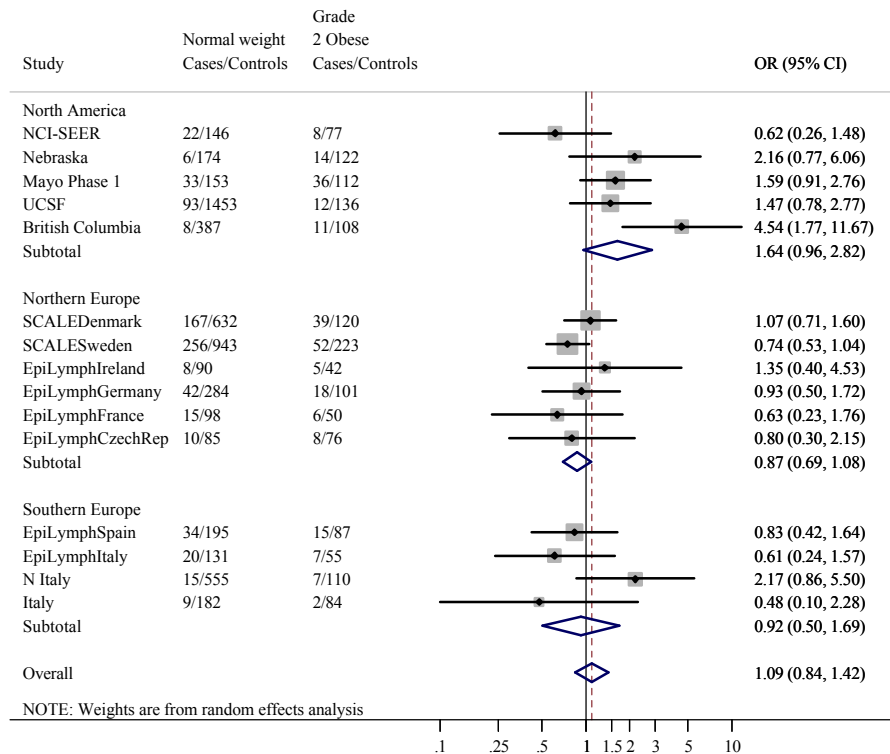
Test for heterogeneity: $Q=2.89$, $p=0.90$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=0.0\%$. For continents: North America: $Q=1.61$, $p=0.66$, $I^2=0.0\%$; Northern Europe: $Q=0.11$, $p=0.74$, $I^2=0.0\%$; Southern Europe: $Q=0.48$, $p=0.49$, $I^2=0.0\%$. Test for heterogeneity between continents: $Q=0.69$, $p=0.71$. Pooled odds ratios by study design were: Population-based studies: OR=1.27, 95% CI 0.72-2.25, $Q=2.26$, $p=0.81$, $I^2=0.0\%$; Clinic-based studies: OR=1.09, 95% CI 0.12-10.1, no test for heterogeneity as only one study; Hospital-based studies: OR=0.52, 95% CI 0.06-4.41, no test for heterogeneity as only one study. Test for heterogeneity between study designs: $Q=0.63$, $p=0.73$.

Supplementary Figure 4(b): Meta-analysis of the risk of CLL/SLL associated with BMI 25-29.99 kg m⁻² (Grade 1 overweight) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).



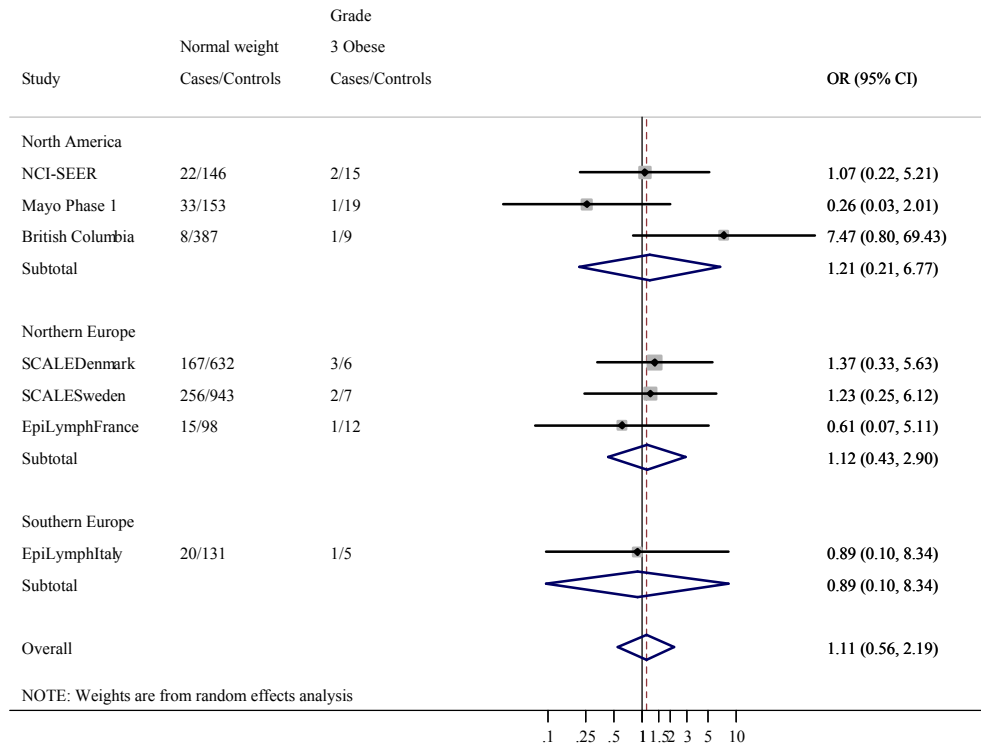
Test for heterogeneity: $Q=21.9$, $p=0.081$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=36.1\%$. For continents: North America: $Q=14.3$, $p=0.006$, $I^2=72.0\%$; Northern Europe: $Q=3.90$, $p=0.57$, $I^2=0.0\%$; Southern Europe: $Q=1.71$, $p=0.64$, $I^2=0.0\%$. Test for heterogeneity between continents: $Q=2.03$, $p=0.36$. Pooled odds ratios by study design were: Population-based studies: OR=0.89, 95% CI 0.70-1.13, $Q=14.7$, $p=0.040$, $I^2=52.4\%$; Clinic-based studies: OR=1.55, 95% CI 0.95-2.53, no test for heterogeneity as only one study; Hospital-based studies: OR=1.03, 95% CI 0.76-1.41, $Q=1.91$, $p=0.86$, $I^2=0.0\%$. Test for heterogeneity between study designs: $Q=5.29$, $p=0.071$.

Supplementary Figure 4(c): Meta-analysis of the risk of CLL/SLL associated with BMI 30-39.99 kg m⁻² (Grade 2 obese) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).



Test for heterogeneity: $Q=26.3$, $p=0.024$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=46.8\%$. For continents: North America: $Q=9.62$, $p=0.05$, $I^2=58.4\%$; Northern Europe: $Q=2.71$, $p=0.74$, $I^2=0.0\%$; Southern Europe: $Q=4.79$, $p=0.19$, $I^2=37.4\%$. Test for heterogeneity between continents: $Q=9.19$, $p=0.01$. Pooled odds ratios by study design were: Population-based studies: OR=1.11, 95% CI 0.77-1.61, $Q=18.7$, $p=0.009$, $I^2=62.6\%$; Clinic-based studies: OR=1.59, 95% CI 0.91-2.76, no test for heterogeneity as only one study; Hospital-based studies: OR=0.96, 95% CI 0.65-1.42, $Q=4.99$, $p=0.42$, $I^2=0.0\%$. Test for heterogeneity between study designs: $Q=2.60$, $p=0.27$.

Supplementary Figure 4(d): Meta-analysis of the risk of CLL/SLL associated with BMI ≥ 40 kg m⁻² (Grade 3 obese) compared to BMI 18.5-24.99 kg m⁻² (Normal weight).



Test for heterogeneity: $Q=5.19$, $p=0.52$; Variation in odds ratios (OR) attributable to heterogeneity: $I^2=0.0\%$. For continents: North America: $Q=4.75$, $p=0.09$, $I^2=57.9\%$; Northern Europe: $Q=0.40$, $p=0.82$, $I^2=0.0\%$; Southern Europe: no test for heterogeneity as only one study. Test for heterogeneity between continents: $Q=0.04$, $p=0.98$. Pooled odds ratios by study design were: Population-based studies: OR=1.47, 95% CI 0.68-3.16, $Q=2.45$, $p=0.65$, $I^2=0.0\%$; Clinic-based studies: OR=0.26, 95% CI 0.03-2.01, no test for heterogeneity as only one study; Hospital-based studies: OR=0.61, 95% CI 0.07-5.11, no test for heterogeneity as only one study. Test for heterogeneity between study designs: $Q=2.74$, $p=0.25$.

Supplementary Table 4: Number of cases and controls, pooled odds ratios and 95% confidence intervals for body mass index by rarer NHL subtype.

BMI ^a	Controls (N=16507)	MZBCL ^b (N=727)	OR ^c	95% CI	MCL ^b (N=390)	OR ^c	95% CI	Burkitt ^b (N=96)	OR ^c	95% CI	Other BCL ^b (N=403)	OR ^c	95% CI	TCL ^b (N=476)	OR ^c	95% CI						
<i>WHO category (kg m⁻²):</i>																						
<18.5	424	18	1.06	0.64-1.73	3	0.67	0.21-2.15	5	3.13	1.19-8.25	4	0.90	0.32-2.49	9	0.90	0.45-1.78						
18.5-24.99	8360	347	1	-	152	1	-	45	1	-	182	1	-	211	1	-						
25-29.99	5340	248	0.99	0.83-1.18	171	1.12	0.89-1.41	31	0.95	0.59-1.55	153	0.88	0.70-1.11	158	1.10	0.88-1.37						
30-39.99	1666	77	0.83	0.64-1.08	53	1.01	0.73-1.41	9	0.78	0.37-1.65	50	0.81	0.58-1.13	55	1.08	0.79-1.49						
≥40	132	9	1.10	0.55-2.22	1	0.31	0.04-2.26	0	0	0-3.64 ^d	1	0.23	0.03-1.64	5	1.01	0.40-2.52						
Missing	585	28			10			6			13			38								
<i>Test for heterogeneity^e</i>			$\chi^2=46.5$ $p=0.09$				$\chi^2=20.9$ $p=0.75$				$\chi^2=17.9$ $p=0.33$				$\chi^2=14.8$ $p=0.79$				$\chi^2=32.0$ $p=0.52$			

^aBody mass index grouped: using WHO categories where <18.5 kg m⁻² is considered Underweight; 18.5-24.99 kg m⁻² Normal weight; 25-29.99 kg m⁻² Grade 1 Overweight; 30-39.99 kg m⁻² Grade 2 Obese; and ≥40 kg m⁻² Grade 3 Obese. ^bMZBCL: marginal zone B-cell lymphoma; MCL: mantle cell lymphoma; Burkitt: Burkitt lymphoma; Other BCL: other B-cell lymphoma; TCL: T-cell lymphoma. ^cOdds ratios and 95% confidence intervals adjusted for study, sex, age, and race were estimated using unconditional logistic regression. ^dConfidence interval estimated using exact methods. ^eTest for heterogeneity was conducted by testing for evidence of interaction between BMI and studies using the likelihood ratio test.