

## Supplementary Materials

**Supplementary Table S1** Details of GWAS used for exposures and outcomes

Variables	Sample size	Case	Control	No. SNPs	Participates	Year of release	PMID/source
Type 1 diabetes	25,063	9,358	15,705	12,783,129	European	2020	32005708
Type 2 diabetes	659,316	62,892	596,424	5,030,727	European	2018	30054458
VTE	218,792	9,176	209,616	16,380,466	European	2021	FinnGen biobank
DVT	194,604	4,576	190,028	16,380,409	European	2021	FinnGen biobank
PE	218,413	4,185	214,228	16,380,466	European	2021	FinnGen biobank

Abbreviations: DVT, deep vein thrombosis; GWAS, genome-wide association studies; No. SNPs, number of single-nucleotide polymorphisms; PE, pulmonary embolism; VTE, venous thromboembolism.

**Supplementary Table S2** Distribution of F-statistic for instrumental variables used

Exposures	Outcomes	No. SNPs	F statistic, range	F statistic, mean
Type 1 diabetes	VTE	37	30.5–1,465.5	118.6
	DVT	37	30.5–1,465.5	118.6
	PE	37	30.5–1,465.5	118.6
Type 2 diabetes	VTE	114	29.9–1,578.3	76.7
	DVT	114	29.9–1,578.3	76.7
	PE	114	29.9–1,578.3	76.7
VTE	Type 1 diabetes	12	29.8–354.3	107.3
	Type 2 diabetes	6	31.2–163.2	81.7
DVT	Type 1 diabetes	9	31.8–369.8	104.9
	Type 2 diabetes	5	31.8–91.2	53.4
PE	Type 1 diabetes	6	34.9–131.1	80.5
	Type 2 diabetes	3	34.9–131.1	96.8

Abbreviations: DVT, deep vein thrombosis; No. SNPs, number of single-nucleotide polymorphisms; PE, pulmonary embolism; VTE, venous thromboembolism.

**Supplementary Table S3** Details of GWAS used for covariates

Covariates	Sample size	No. SNPs	Participates	Year of release	PMID
Smoking per day	337,334	11,913,712	European	2019	30643251
Body mass index	315,347	27,854,527	European	2018	30108127

Abbreviation: GWAS, genome-wide association studies; No. SNPs, number of single-nucleotide polymorphisms.

**Supplementary Table S4** The results of sensitivity analysis for associations between diabetes and VTE

Exposures	Outcomes	Methods	No. SNPs	OR (95% CI)	p-Value
Type 1 diabetes	VTE	MR Egger	37	0.96 (0.94–0.99)	0.008
		Weighted median	37	0.96 (0.94–0.99)	0.001
		Weighted mode	37	0.96 (0.94–0.98)	0.002
	DVT	MR Egger	37	0.95 (0.91–0.98)	0.004
		Weighted median	37	0.96 (0.93–0.99)	0.018
		Weighted mode	37	0.96 (0.94–0.99)	0.018
	PE	MR Egger	37	0.97 (0.94–1.01)	0.185
		Weighted median	37	0.96 (0.93–0.99)	0.017
		Weighted mode	37	0.97 (0.94–1.00)	0.039
Type 2 diabetes	VTE	MR Egger	114	0.90 (0.79–1.04)	0.149
		Weighted median	114	0.92 (0.84–1.01)	0.068
		Weighted mode	114	0.92 (0.83–1.02)	0.118
	DVT	MR Egger	114	0.94 (0.78–1.12)	0.488
		Weighted median	114	0.96 (0.85–1.08)	0.501
		Weighted mode	114	0.96 (0.84–1.10)	0.539
	PE	MR Egger	114	0.94 (0.79–1.11)	0.481
		Weighted median	114	0.98 (0.87–1.11)	0.780
		Weighted mode	114	0.97 (0.82–1.15)	0.718

Abbreviations: CI, confidence interval; DVT, deep vein thrombosis; No. SNPs, number of single-nucleotide polymorphisms; OR, odds ratio; PE, pulmonary embolism; VTE, venous thromboembolism.

**Supplementary Table S5** The results of pleiotropy analysis for associations between diabetes and VTE

Exposures	Outcomes	Intercept	p-Value
Type 1 diabetes	VTE	0.011	0.064
	DVT	0.019	0.014
	PE	0.005	0.573
Type 2 diabetes	VTE	0.006	0.269
	DVT	0.002	0.811
	PE	0.002	0.723

Abbreviations: DVT, deep vein thrombosis; MR, Mendelian randomization; PE, pulmonary embolism; VTE, venous thromboembolism.

Note: The potential pleiotropy was tested by MR egger regression. An intercept value of MR egger regression not statistically different from the null ( $p > 0.05$ ) suggested that there was no horizontal pleiotropy.

**Supplementary Table S6** The results of sensitivity analysis for associations between VTE and diabetes

Exposures	Outcomes	Methods	No. SNPs	OR (95% CI)	p Value
VTE	Type 1 diabetes	MR Egger	12	0.97 (0.86–1.10)	0.689
		Weighted median	12	0.99 (0.90–1.10)	0.904
		Weighted mode	12	0.98 (0.87–1.11)	0.778
	Type 2 diabetes	MR Egger	6	0.95 (0.79–1.14)	0.592
		Weighted median	6	1.06 (1.00–1.12)	0.054
		Weighted mode	6	1.05 (0.98–1.13)	0.213
DVT	Type 1 diabetes	MR Egger	9	0.99 (0.90–1.10)	0.906
		Weighted median	9	1.00 (0.92–1.07)	0.903
		Weighted mode	9	0.98 (0.91–1.07)	0.714
	Type 2 diabetes	MR Egger	5	0.93 (0.59–1.48)	0.788
		Weighted median	5	1.05 (0.99–1.11)	0.102
		Weighted mode	5	1.04 (0.96–1.13)	0.375
PE	Type 1 diabetes	MR Egger	6	1.08 (0.78–1.49)	0.675
		Weighted median	6	1.00 (0.88–1.14)	0.983
		Weighted mode	6	1.08 (0.86–1.35)	0.551
	Type 2 diabetes	MR Egger	3	0.93 (0.71–1.23)	0.715
		Weighted median	3	1.05 (1.00–1.10)	0.070
		Weighted mode	3	1.05 (0.98–1.13)	0.323

Abbreviations: CI, confidence interval; DVT, deep vein thrombosis; No. SNPs, number of single-nucleotide polymorphisms; OR, odds ratio; PE, pulmonary embolism; VTE, venous thromboembolism.

**Supplementary Table S7** The results of pleiotropy analysis for associations between VTE and diabetes

Exposures	Outcomes	Intercept	p-Value
VTE	Type 1 diabetes	0.003	0.887
	Type 2 diabetes	0.017	0.342
DVT	Type 1 diabetes	−0.012	0.541
	Type 2 diabetes	0.021	0.662
PE	Type 1 diabetes	−0.028	0.570
	Type 2 diabetes	0.023	0.631

Abbreviations: DVT, deep vein thrombosis; MR, Mendelian randomization; PE, pulmonary embolism; VTE, venous thromboembolism.

Note: The potential pleiotropy was tested by MR Egger regression. An intercept value of MR Egger regression not statistically different from the null ( $p > 0.05$ ) suggested that there was no horizontal pleiotropy.