

評価対象論文リスト(要因:乳製品、アウトカム:糖尿病)

評価判定日:2024/8/22

①既存の系統的レビュー・メタ解析・統合解析

1	Zhang K, Bai P, Deng Z. Dose-dependent effect of intake of fermented dairy foods on the risk of diabetes: results from a meta-analysis. <i>Canadian Journal of Diabetes</i> . 2022;46(3):307-312. doi:10.1016/j.jcjd.2021.09.003
2	Pimpin L, Wu JHY, Haskelberg H, Del Gobbo L, Mozaffarian D. Is butter back? A systematic review and meta-analysis of butter consumption and risk of cardiovascular disease, diabetes, and total mortality. <i>Schooling CM, ed. PLoS ONE</i> . 2016;11(6):e0158118. doi:10.1371/journal.pone.0158118
3	Gijsbers L, Ding EL, Malik VS, De Goede J, Geleijnse JM, Soedamah-Muthu SS. Consumption of dairy foods and diabetes incidence: a dose-response meta-analysis of observational studies. <i>The American Journal of Clinical Nutrition</i> . 2016;103(4):1111-1124. doi:10.3945/ajcn.115.123216
4	Gao D, Ning N, Wang C, et al. Dairy products consumption and risk of type 2 diabetes: systematic review and dose-response meta-analysis. <i>Baradaran HR, ed. PLoS ONE</i> . 2013;8(9):e73965. doi:10.1371/journal.pone.0073965
5	Aune D, Norat T, Romundstad P, Vatten LJ. Dairy products and the risk of type 2 diabetes: a systematic review and dose-response meta-analysis of cohort studies. <i>The American Journal of Clinical Nutrition</i> . 2013;98(4):1066-1083. doi:10.3945/ajcn.113.059030
6	Tong X, Dong JY, Wu ZW, Li W, Qin LQ. Dairy consumption and risk of type 2 diabetes mellitus: a meta-analysis of cohort studies. <i>Eur J Clin Nutr</i> . 2011;65(9):1027-1031. doi:10.1038/ejcn.2011.62
7	Elwood PC, Givens DI, Beswick AD, Fehily AM, Pickering JE, Gallacher J. The survival advantage of milk and dairy consumption: an overview of evidence from cohort studies of vascular diseases, diabetes and cancer. <i>J Am Coll Nutr</i> . 2008;27(6):723S-34S. doi:10.1080/07315724.2008.10719750
8	Fan M, Li Y, Wang C, et al. Dietary Protein Consumption and the Risk of Type 2 Diabetes: A Dose-Response Meta-Analysis of Prospective Studies. <i>Nutrients</i> . 2019;11(11):2783. Published 2019 Nov 15. doi:10.3390/nu11112783
9	Tian S, Xu Q, Jiang R, Han T, Sun C, Na L. Dietary Protein Consumption and the Risk of Type 2 Diabetes: A Systematic Review and Meta-Analysis of Cohort Studies. <i>Nutrients</i> . 2017;9(9):982. Published 2017 Sep 6. doi:10.3390/nu9090982
10	Schwingshackl L, Hoffmann G, Lampousi AM, et al. Food groups and risk of type 2 diabetes mellitus: a systematic review and meta-analysis of prospective studies. <i>Eur J Epidemiol</i> . 2017;32(5):363-375. doi:10.1007/s10654-017-0246-y
11	Neuenschwander M, Ballon A, Weber KS, et al. Role of diet in type 2 diabetes incidence: umbrella review of meta-analyses of prospective observational studies. <i>BMJ</i> . 2019;366:l2368. doi: 10.1136/bmj.l2368.

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12	Kirii K, Mizoue T, Iso H, et al. Calcium, vitamin D and dairy intake in relation to type 2 diabetes risk in a Japanese cohort. <i>Diabetologia</i> . 2009;52(12):2542-2550. doi:10.1007/s00125-009-1554-x
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■系統的レビュー・メタ解析・統合解析

No	Author	Title	Year	Category	Relative risk (95% CI)	Magnitude of association	Study location
1	Zhang, K., et al	Dose-Dependent Effect of Intake of Fermented Dairy Foods on the Risk of Diabetes: Results From a Meta-analysis.	2022	Fermented dairy products Higher dose Lower dose Cheese Higher dose Lower dose Yogurt Higher dose Lower dose	0.93 (0.86, 1.00) 0.95 (0.81, 1.10) 1.03 (0.94, 1.14) 0.97 (0.89, 1.06) 0.83 (0.73, 0.94) 0.93 (0.69, 1.24)	↓ — — — ↓ —	USA, Jpana, UK, Spain, Netherlands Sweden, Korea, Denmark
2	Pimpin, L., et al	Is Butter Back? A Systematic Review and Meta-Analysis of Butter Consumption and Risk of Cardiovascular Disease, Diabetes, and Total Mortality.	2016	Butter intake (Per daily 14g serving)	0.96 (0.93, 0.99)	↓	USA, Finland, Sweden, Multi-country (EPIC)
3	Gijsbers, L., et al	Consumption of dairy foods and diabetes incidence: a dose-response meta-analysis of observational studies.	2016	Total dairy (per 200 g/day) Low-fat dairy (per 200 g/day) High-fat dairy (per 200 g/day) Total milk (per 200 g/day) Low-fat milk (per 200 g/day) High-fat milk (per 200 g/day) Fermented dairy (per 100 g/day) *Low-fat fermented data of Ericson et al. were included. High-fat fermented dairy (per 40 g/day) *High-fat fermented data of Ericson et al. were included. Cheese (per 10 g/day) Yogurt (0 g/day vs. 80 g/day) Cream (per 5 g/day) Ice cream (0 g/day vs. 10 g/day) Sherbet (per 10 g/day)	0.97 (0.95, 1.00) 0.96 (0.92, 1.00) 0.98 (0.93, 1.04) 0.97 (0.93, 1.02) 1.01 (0.97, 1.05) 0.99 (0.88, 1.11) 0.98 (0.90, 1.06) 0.88 (0.82, 0.94) 1.00 (0.99, 1.02) 0.86 (0.83, 0.90) 0.99 (0.97, 1.01) 0.81 (0.78, 0.85) 1.00 (0.97, 1.02)	↓ — — — — — — ↓ — ↓ — ↓ —	USA, Spain, UK, Sweden, Puerto Rico, Australia, Japan, Finland, Denmark, China, 8 European countries in EPIC-InterAct study (France, Italy, Spain, UK, Netherlands, Germany, Sweden, Denmark)

4	Gao, D., et al	Dairy products consumption and risk of type 2 diabetes: systematic review and dose-response meta-analysis.	2013	Total dairy products (highest vs. lowest) Total dairy products (200 g/day) Low-fat dairy (highest vs. lowest) Low-fat dairy (200 g/day) Full-fat dairy (highest vs. lowest) Full-fat dairy (200 g/day) Total milk (highest vs. lowest) Total milk (200 g/day) Low-fat milk (highest vs. lowest) Low-fat milk (200 g/day) Full-fat milk (highest vs. lowest) Full-fat milk (200 g/day) Yogurt (highest vs. lowest) Yogurt (50 g/day) Cheese (highest vs. lowest) Cheese (30 g/day) Ice cream Total fermented Cream	0.89 (0.81, 0.98) 0.94 (0.91, 0.97) 0.81 (0.74, 0.89) 0.88 (0.84, 0.93) 0.95 (0.85, 1.07) 0.95 (0.88, 1.04) 0.89 (0.78, 1.01) 0.89 (0.79, 1.01) 0.82 (0.69, 0.97) 0.83 (0.70, 1.00) 1.12 (0.99, 1.27) 1.27 (0.97, 1.67) 0.85 (0.75, 0.97) 0.91 (0.82, 1.00) 0.82 (0.77, 0.87) 0.80 (0.69, 0.93) 0.84 (0.73, 0.95) 0.94 (0.75, 1.18) 0.96 (0.84, 1.12)	↓ ↓ ↓ ↓ – – – – ↓ – – – ↓ – ↓ ↓ – –	Australia, Denmark, England, UK, Japan, China, USA, Finland, Sweden, Multi-country (EPIC)
5	Aune, D., et al	Dairy products and the risk of type 2 diabetes: a systematic review and dose-response meta-analysis of cohort studies.	2013	Dairy products (per 400 g/d) High-fat dairy products (per 200 g/d) Low-fat dairy products (per 200 g/d) Milk (per 200 g/d) Cheese (per 50 g/d) Yogurt (per 200 g/d) Other subtypes (high vs low intake) Whole milk Low-fat/skim milk Fermented dairy products Cottage cheese Cream Sour cream Ice cream Sherbet	0.93 (0.87, 0.99) 0.98 (0.94, 1.03) 0.91 (0.86, 0.96) 0.87 (0.72, 1.04) 0.92 (0.86, 0.99) 0.78 (0.60, 1.02) 1.12 (0.99, 1.27) 0.82 (0.69, 0.97) 0.88 (0.79, 0.98) 0.91 (0.79, 1.04) 0.96 (0.84, 1.11) 0.98 (0.82, 1.16) 0.83 (0.73, 0.95) 0.90 (0.79, 1.03)	↓ – ↓ – ↓ – – ↓ ↓ – – – ↓ –	USA, Finland, France, UK, China, Japan, Europe, Denmark, Australia, Germany
6	Tong, X., et al	Dairy consumption and risk of type 2 diabetes mellitus: a meta-analysis of cohort studies.	2011	Dairy intake (highest vs. lowest) Low-fat dairy intake (highest vs. lowest) High-fat dairy intake (highest vs. lowest) Whole milk (highest vs. lowest) Yogurt (highest vs. lowest)	0.86 (0.79, 0.92) 0.82 (0.74, 0.90) 1.00 (0.89, 1.10) 0.95 (0.86, 1.05) 0.83 (0.74, 0.93)	↓ ↓ – – ↓	USA, UAS (mis-typing?), UK, Japan, China
7	Elwood, PC., et al	The survival advantage of milk and dairy consumption: an overview of evidence from cohort studies of vascular diseases, diabetes and cancer.	2008	Milk/Dairy Consumption (highst vs. lowest)	0.92 (0.86, 0.97)	↓	USA, UK
		Dietary Protein Consumption and the Risk of		Milk (100g/day) Milk (highest vs. lowest)	1.01 (1.00, 1.03) 0.98 (0.93, 1.02)	– –	China, Korea, Finland, Netherla

8	Fan, M., et al	Dietary Protein Consumption and the Risk of Type 2 Diabetes: A Dose-Response Meta-Analysis of Prospective Studies.	2019	Yogurt (100g/day) Yogurt (highest vs. lowest) Cheese (30g/day) Cheese (highest vs. lowest)	0.86 (0.81, 0.92) 0.83 (0.77, 0.89) 0.97 (0.93, 1.02) 0.94 (0.89, 1.00)	↓ — —	nds, Spain, Sweden, UK, Denmark, Australia, Japan, USA
9	Tian, S., et al	Dietary Protein Consumption and the Risk of Type 2 Diabetes: A Systematic Review and Meta-Analysis of Cohort Studies.	2017	Total dairy product (high vs. low) Whole Milk (high vs. low) Yogurt (high vs. low)	0.89 (0.84, 0.94) 0.87 (0.78, 0.96) 0.83 (0.70, 0.98)	↓ ↓ ↓	Finland, Australia, USA, Spain, Japan, UK, Singapore Finland, Australia, USA, Spain Finland, Australia, USA, Spain, Japan, Singapore
10	Schwingshackl, L., et al	Food groups and risk of type 2 diabetes mellitus: a systematic review and meta-analysis of prospective studies.	2017	Dairy products (highest vs lowest) Per 200 g/d Low-fat High-fat Europe America Asia & Australia	0.91 (0.85, 0.97) 0.97 (0.94, 0.99) 0.97 (0.94, 1.00) 1.00 (0.96, 1.04) 0.98 (0.95, 1.01) 0.98 (0.96, 1.01) 0.84 (0.71, 1.01)	↓ ↓ — — — — —	USA, Netherlands, Spain, Sweden, Australia, Japan, Finland, Iran, UK, Europe, Denmark, China
11	Neuenschwander, M., et al	Role of diet in type 2 diabetes incidence: umbrella review of meta-analyses of prospective observational studies.	2019	Yogurt (per 50 g/d) Total dairy (per 200 g/d) Fermented dairy products (260 g v 13 g) Butter (per 14 g/d) Low-fat dairy products (per 200 g/d) High fat dairy products (per 200 g/d) Cream (per 5 g/d) High fat milk (per 200 g/d) Low fat milk (per 200 g/d) Milk (per 200 g/d) Sherbet (per 10 g/d) Cheese (per 10 g/d) Cottage cheese (≥ 2 s/wk v < 1 s/mo)	0.94 (0.91, 0.98) 0.96 (0.94, 0.99) 0.94 (0.75, 1.17) 0.96 (0.93, 1.00) 0.96 (0.92, 1.00) 0.98 (0.93, 1.04) 0.99 (0.97, 1.01) 0.99 (0.88, 1.11) 1.01 (0.98, 1.05) 0.99 (0.94, 1.03) 1.00 (0.97, 1.03) 1.00 (0.99, 1.02) 0.91 (0.79, 1.04)	↓ ↓ — — — — — — — — — — —	This is an umbrella review of 53 meta-analyses.

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No	Author	Title	Year	Study period	Number of subjects	Source of subjects	Event followed	Number of incident cases or deaths	Participant's race	Category	Number among cases	Relative risk (95%CI)	P for trend	Confounding variables considered	Magnitude of association
12	Kirii, K., et al	Calcium, vitamin D and dairy intake in relation to type 2 diabetes risk in a Japanese cohort.	2009	Cohort I 1990-1995, Cohort II 1993-1998	59,796	JPHC	Incident of diabetes	1114	Japanese	Dairy products intake in men (g/d), <50 50-<150 150-<300 ≥300 Dairy products intake in women (g/d), <50 50-<150 150-<300 ≥300	217/8776 141/6016 189/7772 87/3313 136/7674 113/8154 160/11958 71/6133	Ref. 0.99 (0.79-1.23) 1.04 (0.85-1.28) 1.18 (0.90-1.56) Ref. 0.82 (0.64-1.07) 0.82 (0.64-1.04) 0.71 (0.51-0.98)	0.21 0.054	age, area, BMI, family history of diabetes mellitus, smoking status, alcohol intake, history of hypertension, exercise frequency, consumption of coffee, energy-adjusted magnesium and total energy	- - - - - - ↓