評価対象論文リスト（要因：魚、アウトカム：糖尿病）

評価判定日：2024/4/24

①既存の系統的レビュー・メタ解析・統合解析

1	Wallin A, Di Giuseppe D, Orsini N, Patel PS, Forouhi NG, Wolk A. Fish consumption, dietary long-chain n-3 fatty acids, and risk of type 2 diabetes: systematic review and meta-analysis of prospective studies. Diabetes Care. 2012;35(4):918-929. doi:10.2337/dc11-1631
2	Zhou Y, Tian C, Jia C. Association of fish and n-3 fatty acid intake with the risk of type 2 diabetes: a meta-analysis of prospective studies. Br J Nutr. 2012;108(3):408-417. doi:10.1017/S0007114512002036
3	Wu JH, Micha R, Imamura F, et al. Omega-3 fatty acids and incident type 2 diabetes: a systematic review and meta-analysis. Br J Nutr. 2012;107 Suppl 2(0 2):S214-S227. doi:10.1017/S0007114512001602
4	Zhang M, Picard-Deland E, Marette A. Fish and marine omega-3 polyunsatured Fatty Acid consumption and incidence of type 2 diabetes: a systematic review and meta-analysis. Int J Endocrinol. 2013;2013:501015. doi:10.1155/2013/501015
5	Namazi N, Brett NR, Bellissimo N, Larijani B, Heshmati J, Azadbakht L. The association between types of seafood intake and the risk of type 2 diabetes: a systematic review and meta-analysis of prospective cohort studies. Health Promot Perspect. 2019;9(3):164-173. Published 2019 Aug 6. doi:10.15171/hpp.2019.24
6	Yang X, Li Y, Wang C, et al. Meat and fish intake and type 2 diabetes: Dose-response meta-analysis of prospective cohort studies. Diabetes Metab. 2020;46(5):345-352. doi:10.1016/j.diabet.2020.03.004
7	Pastorino S, Bishop T, Sharp SJ, et al. Heterogeneity of Associations between Total and Types of Fish Intake and the Incidence of Type 2 Diabetes: Federated Meta-Analysis of 28 Prospective Studies Including 956,122 Participants. Nutrients. 2021;13(4):1223. Published 2021 Apr 7. doi:10.3390/nu13041223
8	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. Eur J Epidemiol. 2017;32(5):363-375. doi:10.1007/s10654-017-0246-y
9	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. BMJ. 2019;366:l2368. Published 2019 Jul 3. doi:10.1136/bmj.l2368
10	Xun P, He K. Fish Consumption and Incidence of Diabetes: meta-analysis of data from 438,000 individuals in 12 independent prospective cohorts with an average 11-year follow-up. Diabetes Care. 2012;35(4):930-938. doi:10.2337/dc11-1869

②日本人個別疫学研究

11	Nanri A, Mizoue T, Noda M, et al. Fish intake and type 2 diabetes in Japanese men and women: the Japan Public Health Center-based Prospective Study. *Am J Clin Nutr*. 2011;94(3):884-891. doi:10.3945/ajcn.111.012252

■系統的レビュー・メタ解析・統合解析

No	Author	Title	Year	Study location	Category	Relative risk (95% CI)	Magnitude of association
1	Wallin, A., et al	Fish consumption, dietary long-chain n-3 fatty acids, and risk of type 2 diabetes: systematic review and meta-analysis of prospective studies.	2012	USA, England, Finland, Netherlands, Germany,China, Japan	**USA;** a one serving per week increment in total fish consumption	1.05 (1.02, 1.09)	↑
					Europe; a one serving per week increment in total fish consumption	1.03 (0.96, 1.11)	−
					Asian; a one serving per week increment in total fish consumption	0.98 (0.97, 1.00)	↓
2	Zhou, Y., et al	Association of fish and n-3 fatty acid intake with the risk of type 2 diabetes: a meta-analysis of prospective studies.	2012	Netherland, USA, China	Increment of one time (about 105 g)/week of fish intake (four times/month)	1.04 (1.03, 1.06)	↑
					Highest v. lowest fish intake	1·14 (0·97, 1·34)	−
3	Wu, JH., et al	Omega-3 fatty acids and incident type 2 diabetes: a systematic review and meta-analysis.	2012	USA, Australia, Sweden, UK, Netherlands, Singapore, Germany,	Fish and/or seafood (per 100g/day)	1.12 (0.94, 1.34)	−
					Asian; Fish and/or seafood (per 100g/day)	0.89 (0.81, 0.98)	↓
					North America/European; Fish and/or seafood (per 100g/day)	1.38 (1.13, 1.70)	↑
4	Zhang, M., et al	Fish and marine omega-3 polyunsatured Fatty Acid consumption and incidence of type 2 diabetes: a systematic review and meta-analysis.	2013	China, Japan, England, Europe, Finland, USA, Dutch	**Total fish/seafood intake** highest vs lowest	1.04 (0.90, 1.20)	−
					Oily fish intake highest vs lowest	0.89 (0.82, 0.96)	↓
					Lean fish intake highest vs lowest	1.02 (0.93, 1.12)	−
					Fish intake highest vs lowest	1.01 (0.90, 1.12)	−
5	Namazi, N., et al	The association between types of seafood intake and the risk of type 2 diabetes: a systematic review and meta-analysis of prospective cohort studies.	2019	France, Italy, Spain, UK, the Netherlands, Sweden, Norway, Denmark, Germany, Japan, China	Fatty fish consumption highest vs lowest	0.89 (0.82, 0.98)	↓
					Lean fish highest vs lowest	1.03 (0.87, 1.22)	−
					Seafood other than fish highest vs lowest	0.95 (0.83, 1.10)	−
					Fish products highest vs lowest	0.96 (0.82, 1.13)	−
					Fried fish highest vs lowest	1.02 (0.83, 1.26)	−

#	Author	Title	Year	Countries	Exposure	Result (95% CI)	Trend
6	Yang, X., et al	Meat and fish intake and type 2 diabetes: Dose-response meta-analysis of prospective cohort studies.	2020	US, Finland, China, Germany, Netherlands, Japan, Norway, Sweden, Singapore, Korea, Iran	Fish intake high vs low	1.01 (0.93, 1.10)	–
7	Pastorino, S., et al	Heterogeneity of Associations between Total and Types of Fish Intake and the Incidence of Type 2 Diabetes: Federated Meta-Analysis of 28 Prospective Studies Including 956,122 Participants.	2021	USA, Brazil, Puerto Rico, Iran, Denmark, France, Germany, Italy, Netherlands, Spain, Sweden, UK, Finland, Norway, UK, Australia, China, Japan	**Men;** Total Fish (per 100 g/day)	1.00 (1.00, 1.01)	↑
					Fatty fish (per 100 g/week)	0.99 (0.98, 1.01)	–
					Lean fish (per 100 g/week)	1.01 (0.99, 1.04)	–
					Seafood (per 100 g/week)	1.02 (0.97, 1.08)	–
					Fried fish (per 100 g/week)	1.01 (0.97, 1.06)	–
					Salted, dried smoked fish (per 100 g/week)	1.02 (0.98, 1.06)	–
					Saltwater fish (per 100 g/week)	1.00 (0.98, 1.01)	–
					Freshwater fish (per 100 g/week)	0.99 (0.97, 1.01)	–
					Women; Total Fish (per 100 g/day)	1.02 (1.00, 1.03)	↑
					Fatty fish (per 100 g/week)	1.04 (1.01, 1.07)	↑
					Lean fish (per 100 g/week)	1.02 (1.00, 1.04)	↑
					Seafood (per 100 g/week)	1.04 (0.98, 1.11)	–
					Fried fish (per 100 g/week)	1.04 (0.98, 1.10)	–
					Salted, dried smoked fish (per 100 g/week)	1.03 (0.97, 1.10)	–
					Saltwater fish (per 100 g/week)	1.00 (0.98, 1.02)	–
					Freshwater fish (per 100 g/week)	1.04 (1.00, 1.08)	↑
8	Schwingshackl, L., et al	Food groups and risk of type 2 diabetes mellitus: a systematic review and meta-analysis of prospective studies.	2017	USA, Sweden, Denmark, Finland, Japan, Europe, Norway, Netherland, China	Highest v. lowest fish intake	1.04 (0.95, 1.13)	–
9	Neuenschwander, M., et al	Role of diet in type 2 diabetes incidence: umbrella review of meta-analyses of prospective observational studies.	2019		Total fish/ seafood (per 100g/day)	1.11 (0.94, 1.31)	–
					Fish intake (high vs low)	1.01 (0.92, 1.22)	–
					Lean fish (high vs low)	1.03 (0.89, 1.20)	–
					Shellfish (high vs low)	1.03 (0.83, 1.28)	–
					Oily fish (high vs low)	0.89 (0.82, 0.96)	↓
10	Xun, P., et al	Fish Consumption and Incidence of Diabetes: meta-analysis of data from 438,000 individuals in 12 independent prospective cohorts with an average 11-year follow-up.	2012	USA, UK, Finland, China, Netherlands, Japan	< 1/month	Ref.	
					1–3/month	0.97 (0.90–1.04)	–
					1/week	0.99 (0.89–1.10)	–
					2–4/week	1.00 (0.85–1.18)	↑
					≥5/week	0.99 (0.85–1.16)	–

No	Author	Title	Year	Study period	Number of subjects for analysis	Source of subjects	Event followed	Definitions	Number of incident cases or deaths	Participant's race	Category	Number among cases	Relative risk (95%CI)	P for trend	Confounding variable considered	Magnitude of association
11	Nanri, A., et al	Fish intake and type 2 diabetes in Japanese men and women: the Japan Public Health Center-based Prospective Study.	2011	cohort I 1990-2000 Cohort II 1993-2003	22,921 men and 29,759 women	JPHC study	Incident of type-2 diabetes	Type 2 diabetes was determined by a self-administered questionnaire at the third survey.	971 participants (572 men and 399 women)	Japanese	Men: Total fish/seafood Q1 (low) Q2 Q3 Q4 (high) Women: Total fish/seafood Q1 (low) Q2 Q3 Q4 (high)	164/5730 143/5731 137/5729 128/5731 99/7438 98/7440 101/7441 101/7440	Ref. 0.84 (0.67, 1.07) 0.80 (0.62, 1.03) 0.73 (0.54, 1.00) Ref. 1.06 (0.79, 1.42) 1.04 (0.75, 1.43) 1.01 (0.69, 1.49)	0.04 0.62	age, study area, BMI , smoking status, alcohol consumption, family history of diabetes mellitus, total physical activity , history of hypertension , total energy intake , coffee consumption, and intakes of calcium, magnesium, dietary fiber, vegetables, fruit, meat, and rice	– – – ↓ – – – –