

評価対象論文リスト(要因:乳製品、アウトカム:認知症・認知機能低下)

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

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| 1 | Cuesta-Triana F, Verdejo-Bravo C, Fernández-Pérez C, Martín-Sánchez FJ. Effect of milk and other dairy products on the risk of frailty, sarcopenia, and cognitive performance decline in the elderly: a systematic review. <i>Advances in Nutrition</i> . 2019;10:S105-S119. doi:10.1093/advances/nmy105 |
| 2 | Villoz F, Filippini T, Ortega N, et al. Dairy intake and risk of cognitive decline and dementia: a systematic review and dose-response meta-analysis of prospective studies. <i>Advances in Nutrition</i> . 2024;15(1):100160. doi:10.1016/j.advnut.2023.100160 |
| 3 | Zhang M, Dong X, Huang Z, et al. Cheese consumption and multiple health outcomes: an umbrella review and updated meta-analysis of prospective studies. <i>Advances in Nutrition</i> . 2023;14(5):1170-1186. doi:10.1016/j.advnut.2023.06.007 |
| 4 | Talebi S, Asoudeh F, Naeini F, Sadeghi E, Travica N, Mohammadi H. Association between animal protein sources and risk of neurodegenerative diseases: a systematic review and dose-response meta-analysis. <i>Nutrition Reviews</i> . 2023;81(9):1131-1143. doi:10.1093/nutrit/nuac114 |
| 5 | Yuan S, Sun J, Lu Y, et al. Health effects of milk consumption: phenome-wide Mendelian randomization study. <i>BMC Med</i> . 2022;20(1):455. |
| 6 | Bermejo-Pareja F, Ciudad-Cabañas MJ, Llamas-Velasco S, et al. Is milk and dairy intake a preventive factor for elderly cognition (Dementia and alzheimer's)? A quality review of cohort surveys. <i>Nutrition Reviews</i> . 2021;79(7):743-757. doi:10.1093/nutrit/nuaa045 |
| 7 | Lee J, Fu Z, Chung M, Jang DJ, Lee HJ. Role of milk and dairy intake in cognitive function in older adults: a systematic review and meta-analysis. <i>Nutr J</i> . 2018;17(1):82. doi:10.1186/s12937-018-0387-1 |
| 8 | Wu L, Sun D. Meta-analysis of milk consumption and the risk of cognitive disorders. <i>Nutrients</i> . 2016;8(12):824. doi:10.3390/nu8120824 |
| 9 | Crichton GE, Bryan J, Murphy KJ, Buckley J. Review of dairy consumption and cognitive performance in adults: findings and methodological issues. <i>Dement Geriatr Cogn Disord</i> . 2010;30(4):352-361. doi:10.1159/000320987 |

②日本人集団の個別疫学研究

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|----|---|
| 10 | Lu Y, Sugawara Y, Tsuji I. Association between dairy intake and risk of incident dementia: the Ohsaki Cohort 2006 Study. <i>Eur J Nutr</i> . 2023;62(7):2751-2761. doi:10.1007/s00394-023-03189-7 |
| 11 | Ichinose T, Matsuzaki K, Kato M, et al. Intake of docosahexaenoic acid-enriched milk beverage prevents age-related cognitive decline and decreases serum bone resorption marker levels. <i>J Oleo Sci</i> . 2021;70(12):1829-1838. doi:10.5650/jos.ess21195 |
| 12 | Tomata Y, Sugiyama K, Kaiho Y, et al. Dietary patterns and incident dementia in elderly Japanese: the Ohsaki Cohort 2006 Study. <i>GERONA</i> . 2016;71(10):1322-1328. doi:10.1093/gerona/glw117 |
| 13 | Ozawa M, Ohara T, Ninomiya T, et al. Milk and Dairy Consumption and Risk of Dementia in an Elderly Japanese Population: The Hisayama Study. <i>J American Geriatrics Society</i> . 2014;62(7):1224-1230. doi:10.1111/jgs.12887 |
| 14 | Otsuka R, Kato Y, Nishita Y, et al. Cereal intake increases and dairy products decrease risk of cognitive decline among elderly female Japanese. <i>J Prev Alz Dis</i> . 2014;1-7. doi:10.14283/jpad.2014.29 |
| 15 | Ozawa M, Ninomiya T, Ohara T, et al. Dietary patterns and risk of dementia in an elderly Japanese population: the Hisayama Study. <i>The American Journal of Clinical Nutrition</i> . 2013;97(5):1076-1082. doi:10.3945/ajcn.112.045575 |

■ 系統的レビューとメタ解析

| Reference | | | Include study | | | | | | Design | Category | Relative risk (95% CI or p) | Weight | Magnitude of association | | | | | | | | | | | | | | | | | | | | | |
|-----------------|--|------|---------------|--------------|------|--------------|----------------|--|--------------------|--------------|---|--------|--------------------------|--------|------|--------------------------------------|--|---------------------------|--------------------|---------------------------|------------------|-----|-----|----|---------|------|----------|-----------|--|--------------------|---------------------------|-------------------|-----|-----|
| Author | Title | Year | Ref No. | First author | Year | Study period | Study location | Event (*Definition) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cuesta-Triana F | Effect of Milk and Other Dairy Products on the Risk of Frailty, Sarcopenia, and Cognitive Performance Decline in the Elderly: A Systematic Review. | 2019 | 28 | Ozawa M | 2014 | 17 years | community | DSM-III-R to define the diagnosis of dementia Criteria | Prospective cohort | Q1 | 1.00 (reference) | N/A | - | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | Q2 | 0.85 (0.62, 1.18) | N/A | ↓ | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | Q3 | 0.69 (0.50, 0.96) | N/A | ↓ | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | Q4 | 0.80 (0.57, 1.11) | N/A | - | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | NINCDS-ADRDA | | | | | | | | | Q2 | 0.64 (0.41, 0.99) | N/A | ↓↓ | | | | | | | | | | | | |
| | | | | | | | | | | NINCDS-ADRDA | | | | | | | | | Q3 | 0.57 (0.37, 0.87) | N/A | ↓↓ | | | | | | | | | | | | |
| | | | | | | | | | | NINCDS-ADRDA | | | | | | | | | Q4 | 0.63 (0.41, 0.98) | N/A | ↓↓ | | | | | | | | | | | | |
| | | | | | | | | | | NINDS | | | | | | | | | Q2 | 1.02 (0.59, 1.77) | N/A | - | | | | | | | | | | | | |
| | | | | | | | | | | NINDS | | | | | | | | | Q3 | 0.74 (0.42, 1.33) | N/A | - | | | | | | | | | | | | |
| | | | | | | | | | | NINDS | | | | | | | | | Q4 | 0.69 (0.37, 1.29) | N/A | - | | | | | | | | | | | | |
| | | | | | | | | | | Villoz F | Dairy Intake and Risk of Cognitive Decline and Dementia: A Systematic Review and Dose-Response Meta-Analysis of Prospective Studies | 2024 | 24 | Otsuka | 2014 | Male: 8.0 years Female: 8.2 years | | Cognitive function (MMSE) | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 43 | Ozawa M | 2014 | 17 years | community | DSM-III-R to define the diagnosis of dementia Criteria | Prospective cohort | Q2 | 0.85 (0.62, 1.18) | N/A | - |
| Q3 | 0.69 (0.50, 0.96) | N/A | ↓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Q4 | 0.80 (0.57, 1.11) | N/A | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NINCDS-ADRDA | | | | | | | | | Q2 | | | | | | | | | | | | | | | | | | | | | | 0.64 (0.41, 0.99) | N/A | ↓↓ | |
| NINCDS-ADRDA | | | | | | | | | Q3 | | | | | | | | | | | | | | | | | | | | | | 0.57 (0.37, 0.87) | N/A | ↓↓ | |
| NINCDS-ADRDA | | | | | | | | | Q4 | | | | | | | | | | | | | | | | | | | | | | 0.63 (0.41, 0.98) | N/A | ↓↓ | |
| NINDS | | | | | | | | | Q2 | | | | | | | | | | | | | | | | | | | | | | 1.02 (0.59, 1.77) | N/A | - | |
| NINDS | | | | | | | | | Q3 | | | | | | | | | | | | | | | | | | | | | | 0.74 (0.42, 1.33) | N/A | - | |
| NINDS | | | | | | | | | Q4 | | | | | | | | | | | | | | | | | | | | | | 0.69 (0.37, 1.29) | N/A | - | |
| DSM-IV | | | | | | | | | Prospective cohort | | | | | | | | | | | | | | | | | | | | | | Milk intake, Milk intake, | 0.35 (0.14-0.77) | N/A | ↓↓↓ |
| Talebi S | Association between animal protein sources and risk of neurodegenerative diseases: a systematic review and dose-response meta-analysis. | 2023 | 51 | Ozawa M | 2014 | 17 years | community | DSM-III-R to define the diagnosis of dementia Criteria | Prospective cohort | | | | | | | | | | | | | | | | | | | | | | Q2 | 0.85 (0.62, 1.18) | N/A | - |
| | | | | | | | | | | Q3 | 0.69 (0.50, 0.96) | N/A | ↓ | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | Q4 | 0.80 (0.57, 1.11) | N/A | - | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | NINCDS-ADRDA | | | | | | | | | Q2 | 0.64 (0.41, 0.99) | N/A | ↓↓ | | | | | | | | | | | | |
| | | | | | | | | | | NINCDS-ADRDA | | | | | | | | | Q3 | 0.57 (0.37, 0.87) | N/A | ↓↓ | | | | | | | | | | | | |
| | | | | | | | | | | NINCDS-ADRDA | | | | | | | | | Q4 | 0.63 (0.41, 0.98) | N/A | ↓↓ | | | | | | | | | | | | |
| | | | | | | | | | | NINDS | | | | | | | | | Q2 | 1.02 (0.59, 1.77) | N/A | - | | | | | | | | | | | | |
| | | | | | | | | | | NINDS | | | | | | | | | Q3 | 0.74 (0.42, 1.33) | N/A | - | | | | | | | | | | | | |
| | | | | | | | | | | NINDS | | | | | | | | | Q4 | 0.69 (0.37, 1.29) | N/A | - | | | | | | | | | | | | |
| | | | | | | | | | | DSM-IV | | | | | | | | | Prospective cohort | Milk intake, Milk intake, | 0.35 (0.14-0.77) | N/A | ↓↓↓ | | | | | | | | | | | |

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|-------------|---|------|----|----------|------|-------------|-----------|--------|--------------------|------------------------------|------------------|-----|-------|--|
| Crichton GE | Review of dairy consumption and cognitive performance in adults: findings and methodological issues | 2010 | 15 | Yamada M | 2003 | 25-30 years | community | DSM-IV | Prospective cohort | Milk intake, <4 times a week | | | | |
| | | | | | | | | | | Milk intake, almost daily | 0.35 (0.14-0.77) | N/A | ↓ ↓ ↓ | |

■コホート研究およびRCT

| Reference | | | Study subjects | | | | | Blinding 1:Single 2:Double 3:Triple | Category | Relative risk (95% CI or p) | P for trend | Confounding variables considered | Magnitude of association | | | |
|------------|--|-----------|-----------------|-----------------------------------|---|--------------------|-----------------------|--|----------------------------|--------------------------------|------------------|----------------------------------|---|-----------------------|-------|------|
| Author | Title | Year | Study Period | Type and source | Definition | Number of cases | Number of controls | | | | | | | Baseline imbalance | | |
| Ichinose T | Intake of Docosahexaenoic Acid-Enriched Milk Beverage Prevents Age-Related Cognitive Decline and Decreases Serum Bone Resorption Marker Levels | 2021 | 12 months | healthy elderly people in Shimane | consumed 200 mL of a milk beverage containing 297 mg DHA (C22:6, n-3) and 137 mg EPA (C20:5, n-3) | 46 | 41 | none | 2 control | -0.6 ± 1.4 | p < 0.05 | none | N/A | | | |
| | | | | | | | | | DHA-enriched milk beverage | 0.2 ± 1.2 | | | | | | |
| | | | | | | | | | control | -0.6 ± 1.7 | | | | | | |
| | | | | | | | | | DHA-enriched milk beverage | -0.2 ± 1.2 | | | | | | |
| | control | 1.0 ± 2.1 | n.s. | none | N/A | | | | | | | | | | | |
| | DHA-enriched milk beverage | 1.2 ± 1.7 | | | N/A | | | | | | | | | | | |
| Lu Y | Association between dairy intake and risk of incident dementia: the Ohsaki Cohort 2006 Study | 2023 | 2006 - 2012 | 11636 | residents living in Ohsaki city (aged ≥ 65) | incident dementia | 946 | Japanese | Q1 | 221 | 1.00 (reference) | 0.937 | history of disease (age, sex, stroke, myocardial infarction, hypertension, diabetes), education level, smoking, alcohol drinking, body massindex, psychological distress, time spent walking, energy-adjusted vegetable and fruit intake, and energy-adjusted fish intake | | | |
| | | | | | | | | | Q2 | 167 | 0.90 (0.73–1.10) | | | | | |
| | | | | | | | | | Q3 | 172 | 1.01 (0.82–1.25) | | | | | |
| | | | | | | | | | Q4 | 189 | 1.02 (0.83–1.25) | | | | | |
| | | | | | | | | | Q5 | 197 | 0.94 (0.77–1.14) | | | | | |
| | | | | | | | | | Almost never | 202 | 1.00 (reference) | | | 0.989 | | |
| | | | | | | | | | 1–2 times/month | 58 | 0.76 (0.57–1.02) | | | | | |
| | | | | | | | | | 1–2 times/week | 106 | 0.96 (0.76–1.22) | | | | | |
| | | | | | | | | | 3–4 times/week | 106 | 0.86 (0.68–1.09) | | | | | |
| | | | | | | | | | Almost daily | 474 | 0.96 (0.81–1.14) | | | | | |
| | | | | | | | | | Almost never | 270 | 1.00 (reference) | | | | 0.216 | |
| | | | | | | | | | 1–2 times/month | 159 | 0.98 (0.81–1.20) | | | | | |
| | | | | | | | | | 1–2 times/week | 187 | 0.99 (0.82–1.20) | | | | | |
| | | | | | | | | | 3–4 times/week | 130 | 0.91 (0.73–1.13) | | | | | |
| | | | | | | | | | Almost daily | 200 | 0.89 (0.74–1.09) | | | | | |
| | | | | | | | | | Almost never | 494 | 1.00 (reference) | | | | | 0.49 |
| | | | | | | | | | 1–2 times/month | 231 | 0.90 (0.77–1.06) | | | | | |
| | | | | | | | | | 1–2 times/week | 128 | 1.02 (0.83–1.25) | | | | | |
| | | | | | | | | | 3–4 times/week | 55 | 0.98 (0.74–1.30) | | | | | |
| | | | | | | | | | Almost daily | 38 | 1.28 (0.91–1.79) | | | | | |
| Tomata Y | Dietary Patterns and Incident Dementia in Elderly Japanese: The Ohsaki Cohort 2006 Study | 2016 | 2006 - 2012 | 14402 | Ohsaki City, Miyagi Prefecture | incident dementia | 1289 | Japanese | Q1 | 344 | 1.00 (reference) | 0.896 | history of disease (age, sex, stroke, myocardial infarction, hypertension, arthritis, osteoporosis, fracture), education level, smoking, alcohol drinking, body massindex, psychological distress score, time spent walking, motor function score, cognitive function score, number of remaining teeth, | | | |
| | | | | | | | | | Q2 | 328 | 0.88 (0.76–1.03) | | | | | |
| | | | | | | | | | Q3 | 329 | 0.99 (0.84–1.16) | | | | | |
| | | | | | | | | | Q4 | 288 | 0.97 (0.83–1.15) | | | | | |

energy intake and protein intake

| Author | Study Title | Year | Population | Outcome | Sample Size | Quintile | HR | 95% CI | P-value | Adjustment | Significance | |
|---------|---|-------------|------------|----------------------|-------------|----------|----|------------------|---------|------------|--|-----|
| Ozawa M | Milk and dairy consumption and risk of dementia in an elderly Japanese population: the Hisayama Study | 1988 - 2001 | 1081 | n of Hisayama, a sul | Japanese | Q1 | 82 | 1.00 (reference) | | 0.09 | age; sex; low education; history of stroke; hypertension; diabetes mellitus; total cholesterol; body mass index; smoking habits; regular exercise; and energy, vegetable, fruit, fish, and meat intake | - |
| | | | | | | Q2 | 77 | 0.85 (0.62-1.18) | | | - | |
| | | | | | | Q3 | 67 | 0.69 (0.50-0.96) | | | ↓ | |
| | | | | | | Q4 | 77 | 0.80 (0.57-1.11) | | | - | |
| | | | | | | Q1 | 49 | 1.00 (reference) | | 0.03 | age; sex; low education; history of stroke; hypertension; diabetes mellitus; total cholesterol; body mass index; smoking habits; regular exercise; and energy, vegetable, fruit, fish, and meat intake | ↓ ↓ |
| | | | | | | Q2 | 38 | 0.64 (0.41-0.99) | | | ↓ ↓ | |
| | | | | | | Q3 | 37 | 0.57 (0.37-0.87) | | | ↓ ↓ | |
| | | | | | | Q4 | 42 | 0.63 (0.41-0.98) | | | ↓ ↓ | |
| | | | | | | Q1 | 28 | 1.00 (reference) | | 0.14 | age; sex; low education; history of stroke; hypertension; diabetes mellitus; total cholesterol; body mass index; smoking habits; regular exercise; and energy, vegetable, fruit, fish, and meat intake | - |
| | | | | | | Q2 | 30 | 1.02 (0.59-1.77) | | | - | |
| | | | | | | Q3 | 21 | 0.74 (0.42-1.33) | | | - | |
| | | | | | | Q4 | 19 | 0.69 (0.37-1.29) | | | - | |