評価対象論文リスト（要因：野菜・果物、アウトカム：フレイル・サルコペニア）

評価判定日：2024/3/28

（フレイル）

①既存の系統的レビュー・メタ解析・統合解析

1	Feng Z, Lugtenberg M, Franse C, et al. Risk factors and protective factors associated with incident or increase of frailty among community-dwelling older adults: A systematic review of longitudinal studies. Ginsberg SD, ed. PLoS ONE. 2017;12(6):e0178383. doi:10.1371/journal.pone.0178383
2	Ghoreishy SM, Asoudeh F, Jayedi A, Mohammadi H. Fruit and vegetable intake and risk of frailty: A systematic review and dose response meta-analysis. Ageing Research Reviews. 2021;71:101460. doi:10.1016/j.arr.2021.101460
3	Kojima G, Taniguchi Y, Urano T. Fruit and vegetable consumption and incident frailty in older adults: a systematic review and meta-analysis. The Journal of Frailty & Aging.
4	Nowson CA, Service C, Appleton J, Grieger JA. The impact of dietary factors on indices of chronic disease in older people: A systematic review. The Journal of nutrition, health and aging. 2018;22(2):282-296. doi:10.1007/s12603-017-0920-5
5	Zupo R, Castellana F, De Nucci S, et al. Role of dietary carotenoids in frailty syndrome: a systematic review. Biomedicines. 2022;10(3):632. doi:10.3390/biomedicines10030632

②日本人集団の個別疫学研究

6	Shibasaki K, Kin SK, Yamada S, Akishita M, Ogawa S. Sex-related differences in the association between frailty and dietary consumption in Japanese older people: a cross-sectional study. BMC Geriatr. 2019;19(1):211. doi:10.1186/s12877-019-1229-5
7	Watanabe D, Kurotani K, Yoshida T, et al. Diet quality and physical or comprehensive frailty among older adults. Eur J Nutr. 2022;61(5):2451-2462. doi:10.1007/s00394-022-
8	Kinoshita K, Satake S, Arai H. Impact of frailty on dietary habits among community-dwelling older persons during the covid-19 pandemic in japan. The Journal of Frailty & Aging. 2022;11(1):109-114. doi:10.14283/jfa.2021.45

（サルコペニア）

①既存の系統的レビュー・メタ解析・統合解析

1	Granic A, Dismore L, Hurst C, Robinson SM, Sayer AA. Myoprotective whole foods, muscle health and sarcopenia: a systematic review of observational and intervention studies in older adults. Nutrients. 2020;12(8):2257. doi:10.3390/nu12082257

②日本人集団の個別疫学研究

2	Yokoyama Y, Kitamura A, Seino S, et al. Association of nutrient-derived dietary patterns with sarcopenia and its components in community-dwelling older Japanese: a cross-sectional study. Nutr J. 2021;20(1):7. doi:10.1186/s12937-021-00665-w
3	Kojima N, Kim M, Saito K, et al. Lifestyle-related factors contributing to decline in knee extension strength among elderly women: a cross-sectional and longitudinal cohort study. Macaluso A, ed. PLoS ONE. 2015;10(7):e0132523. doi:10.1371/journal.pone.0132523

(フレイル)

■横断研究

Reference			Study subjects					Category	Number among cases	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						
Watanabe D, Kurotani K, Yoshida T, Nanri H, Watanabe Y, Date H, Itoi A, Goto C, Ishikawa-Takata K, Kimura M, Miyachi M, Yamada Y; Kyoto-Kameoka Study Group.	Diet quality and physical or comprehensive frailty among older adults	2022	2012(cross sectional)	community-dwelling residents aged ≥ 65 years (n=7022)	frailty FP:physical frailty、KCL(Kihon Checklist):comprehensive frailty,			Vegetable dishes		OR（95%CI）		age (continuous), sex (female or male), population density,body mass index (continuous), physical activity (yes or no), denture use (yes or no), smoking status (never smoker, past smoker, and current smoker), alcohol intake status (every day, sometimes, seldom, or never), educational attainment, medication use (continuous), living alone (yes or no), socioeconomic status (high or low), green tea consumption (frequency), coffee consumption (frequency), and history of disease (hypertension, diabetes, dyslipidaemia, heart disease, and stroke; yes or no)	
								adherence score of each component on the Japanese Food Guide Spinning					
								Q1	273	Ref	trend 0.041		↓
								Q2	265	1.03 (0.85–1.25)			
								Q3	231	0.87 (0.71–1.07)			
								Q4	229	0.86 (0.70–1.06)			
								KCL(Kihon Checklist)		OR（95%CI）			
								Q1	746	Ref			
								Q2	630	0.80 (0.69-0.94)	trend		
								Q3	576	0.67(0.57-0/79)	<0.001		
								Q4	562	0.63 (0.53-0.74)			↓ ↓
								Fruits					
								FP:physical frailty		OR（95%CI）			
								Q1	300	Ref			
								Q2	246	0.87 (0.72-1.06)	trend		
								Q3	221	0.78(0.64-0/95)	<0.109		
								Q4	231	0.83 (0.68-1.02)			—
								KCL(Kihon Checklist)		OR（95%CI）			
								Q1	772	Ref			
								Q2	653	0.83 (0.71-0.97)	trend		
								Q3	557	0.62(0.53-0.72)	<0.001		
								Q4	532	0.59 (0.50-0.70)			↓ ↓
Shibasaki K, Kin SK, Yamada S, Akishita M, Ogawa S.	Sex-related differences in the association between frailty and dietary consumption in Japanese older people: a cross-sectional study	2019	2015	905 community-dwelling older adults	frailty, Prefrailty Kihon Checklist			Vegetables				age, body mass index and family arrangement.	
								Men					
								Prefraility					
								3-6 times/week		1.28 (0.62, 2,62)			
								Less than		1.32 (0.58, 3.00)			—
								Fraility					
								3-6 times/week		0.97 (0.41, 2.28)			
								Less than		1.85 (0.77, 4.42)			—
								Women					
								Prefraility					
								3-6 times/week		1.86 (0.96, 3.59)			↑ ↑ ↑
								Less than		2.14 (1.05, 4.37)			
								Fraility					
								3-6 times/week		3.88 (1.69, 8.87)			
								Less than		5.03 (2.13, 11.92)			↑ ↑ ↑
								Fruits					
								Men					
								Prefraility					
								3-6 times/week		0.82 (0.38, 1.79)			
								Less than		1.33 (0.69, 2.59)			—
								Fraility					
								3-6 times/week		1.16 (0.50, 2.68)			
								Less than		1.75 (0.81, 3.76)			↑
								Women					
								Prefraility					
								3-6 times/week		0.97 (0.54, 1.76)			
								Less than		1.44 (0.78, 2.66)			—
								Fraility					
								3-6 times/week		1.54 (0.73, 3.23)			
								Less than		1.31 (0.53, 3.21)			—

（サルコペニア）

■コホート研究（コホートのプール解析含む）

Reference			Study subjects										
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 or p)	P for trend	Confounding variables considered	**Magnitude of association**
Narumi Kojima et al	Lifestyle-Related Factors Contributing to Decline in Knee Extension Strength among Elderly Women: A Cross-Sectional and Longitudinal Cohort Study	2015	2012-2014	1606	women who participated in a comprehensive health check-up	knee extension strength(KES) decline		japanese	**Green and yellow vegetables**		ANCOVAmean(SD)		baseline age, baseline knee extensor strength, and baseline status of all the diseases (hypertension, stroke, heart disease, diabetes mellitus, hyperlipidemia, osteoporosis, anemia, asthma, chronic obstructive pulmonary disease, hip osteoarthritis, and gonarthrosis)	
									Once per 2 days or less	64	-31.46(4.85)	p<0.015		
									Almost every day	469	-18.82(1.78)			
									Fruits		mean(SD)			
									Once per 2 days or less	70	N/A(4.68)			
									Almost every day	464	-19.18(1.80)	p=0.068		

■横断研究

Reference			Study subjects					Category	Number among cases	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						
Yokoyama Y et al	Association of nutrient-derived dietary patterns with sarcopenia and its components in community-dwelling older Japanese: a cross-sectional study	2021	2012-2014(cross sectional)	community-dwelling adults aged 65 years or older n=1606	sarcopenia (the algorithm of the Asian Working Group for Sarcopenia 2019)			Dietary Pattern 1		Odds rations		sex, age, study site, education, living arrangement, smoking habit,drinking habit , self-perceived chewing ability , frequencyof going outdoors, self-reported medical history , body mass index, energy intake	↓ ↓
								Tertile 1	535	1.00 (reference)	0.022		
								Tertile 2	536	0.88 (0.56–1.37)			
								Tertile 3	535	0.57 (0.34–0.94)			