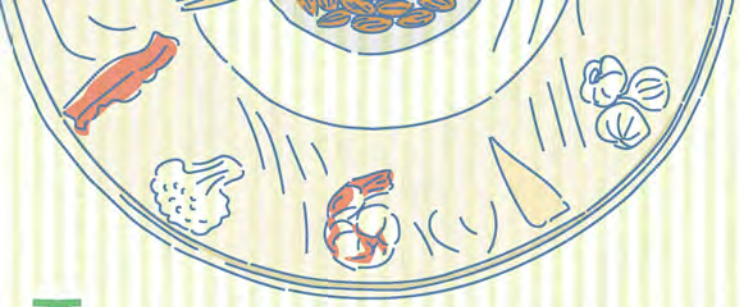
Importance of Nutritional Management in Geriatric Healthcare

高齢者医療における栄養管理の重要性



LSGG 20th

The 20th International Symposium on Geriatrics and Gerontology

January 12th 2026
10:30-16:40
Annex Hall in Nagoya International Center

日 時 | 2026年1月12日(祝)
10:30～16:40

Food and Health

第 20 回長寿医療研究センター国際シンポジウム開催報告

1. 長寿医療研究センター国際シンポジウム

長寿医療研究センター国際シンポジウム（International Symposium on Geriatrics and Gerontology, ISGG）は、2004 年に我が国における 6 番目のナショナルセンターとしてあらたな活動を開始した国立長寿医療研究センター(National Center for Geriatrics and Gerontology, NCGG)において、長寿医療の発展と普及を促進し、老化のメカニズムならびに老化関係疾患の病態解明と治療薬開発に関する新しい情報を発信することを目的に開催されている。毎年 NCGG が主催し、公益財団法人長寿科学振興財団（Japan Foundation for Aging and Health）が共催、多くの企業、団体のご後援を得て、センター内からの発表に加え、当該領域を代表する国内外の著名な研究者ならびに医療関係者を招聘し、広く参加者を求め、定例開催を継続している。2026 年 1 月 12 日に開催した今回のシンポジウムで、開催は 20 回を重ね、その評価も定着しつつあるが、今後ますます国際的にも関心の高まる超高齢社会における健康長寿の延伸に向けたさらなる発展をめざすものである。

2. 第 20 回開催のねらい

本国際シンポジウムは、急速に進行する世界的な高齢化を背景に、高齢者の健康維持、自立支援および生活の質（QOL）向上において、栄養管理が果たす役割を多角的かつ包括的に検討することを目的として企画された。高齢者医療の現場では、認知症、サルコペニア、糖尿病をはじめとする慢性疾患や老年症候群が相互に関連し合いながら進行することが多く、これらに横断的に関与する栄養管理の重要性がますます高まっている。

本シンポジウムでは、基礎研究から臨床研究、さらに医療・介護現場における実践的取り組みまでを視野に入れ、最新の科学的エビデンスと現場で直面する課題を結びつけることを重視した。これにより、栄養管理が疾患予防、機能維持、QOL 向上において果たす中心的役割を明確にするとともに、国内外の研究者、臨床医、医療専門職が一堂に会する国際的な議論の場を通じて、知見の共有と相互理解を促進し、今後の高齢者医療における栄養管理の質的向上および国際的・学際的連携の深化を図ることをねらいとした。

3. 第 20 回シンポジウムの概要

今回のシンポジウムの開催に当たって、主催者である国立長寿医療研究センターの荒井 秀典 理事長、共催者である公益財団法人長寿科学振興財団の大島 伸一 理事長、第 20 回国際シンポジウム実行委員会 ・ 委員長である松浦病院長から、次の挨拶が寄せられた。

※国立長寿医療研究センター　荒井 秀典 理事長の挨拶

Ladies and Gentlemen, esteemed colleagues, and distinguished guests,

It is my honour and privilege to welcome you to the 20th International Symposium on Geriatrics and Gerontology, hosted by the National Center for Geriatrics and Gerontology (NCGG). This year's theme, **"Importance of Nutritional Management in Geriatric Healthcare,"** underscores one of the most pivotal and transformative areas in aging - care: how optimal nutrition can fundamentally reshape the quality of life and care outcomes for older adults.

We are gathered here with leading experts, clinicians, researchers, policymakers, and practitioners from around the globe. During this symposium, we will examine how nutrition intersects with all facets of geriatric healthcare — from prevention of frailty and sarcopenia, to rehabilitation, brain health, multimorbidity management, and integration with lifestyle, medical, social, and digital frameworks. We will explore how precision nutrition and interdisciplinary strategies can be woven into health systems to support healthy longevity.

I extend my heartfelt thanks to all of our speakers, panelists, and delegates. Your expertise, dedication, and passion are what make this symposium possible. I am confident that our discussions will inspire new ideas, foster meaningful partnerships, and catalyze actions that lead to tangible improvements in older-adult care.

Let us seize this opportunity to reflect, innovate, and collaborate — to bridge gaps in nutritional care for older persons, to design inclusive, effective, and sustainable systems of care, and to ensure a future in which every older adult, regardless of context or country, can enjoy the benefits of quality, accessible, and nutrition-sensitive healthcare.

Finally, I would like to express my sincere appreciation to the Japan Foundation for Aging and Health for its steadfast support of this symposium from its inception.

Thank you all, and I look forward to our stimulating conversations ahead.

Warmest regards,

Hidenori Arai
President
National Center for Geriatrics and Gerontology

※公益財団法人長寿科学振興財団　大島 伸一 理事長の挨拶

Dear researchers,

It is a great pleasure for me to have this opportunity to address the 20th International Symposium on Geriatrics and Gerontology on behalf of the Japan Foundation for Aging and Health.

Japan has now become what is referred to as a super-aging society, ranking among the top countries in the world in terms of average life expectancy. Accordingly, living a long and healthy life, not only physically but also mentally, is one of the greatest concerns of most people in the country.

What kind of society is a “longevity society where people are happy to live a long life,” where more and more people can say, as they near the end of their lives, “I’m glad that I lived long,” including all the ups and downs? At the Japan Foundation for Aging and Health, we have been pursuing our vision of a “longevity society where people are happy to live a long life” through our projects.

The theme of the 20th International Symposium is "Importance of Nutritional Management in Geriatric Healthcare" an issue that we must tackle together. I hope your knowledge exchange and new ideas obtained through the discussion in the symposium will greatly contribute to solving the issue.

The Japan Foundation for Aging and Health is very happy to support the International Symposium on Geriatrics and Gerontology. And thank you very much for all participated in the symposium. Now let's create a society that enjoy longevity together!

Yours sincerely,

Shinichi Ohshima
President
The Japan Foundation for Aging and Health

※第 20 回長寿医療研究センター国際シンポジウム　実行委員会委員長
松浦俊博 病院長の挨拶

Greetings

The 20th International Symposium on Geriatrics and Gerontology organized by National Center for Geriatrics and Gerontology (NCGG) will be held on January 12, 2026, under the title *"Importance of Nutritional Management in Geriatric Healthcare"*. In the context of rapidly progressing global aging, proper nutritional management has become a crucial factor in maintaining the health, independence, and overall quality of life of older adults. Malnutrition, sarcopenia, and frailty are closely interconnected, affecting both physical and cognitive function. Consequently, nutritional management is essential not only for disease prevention but also for promoting recovery, maintaining functional capacity, and supporting social participation among older individuals.

This symposium will feature three sessions focusing on major themes in geriatric nutrition. In Session 1, which covers *"The Role of Nutrition in Dementia Care,"* the relationship between dietary factors and cognitive decline will be discussed, including the role of the gut microbiota. Session 2, on *"The Role of Nutrition in Sarcopenia Management,"* will explore on nutritional strategies and lifestyle factors important for preventing muscle loss. Finally, during Session 3, focused on *"The Role of Nutrition for Older Patients with Diabetes or at Risk of Diabetes,"* four speakers will address the challenges of balancing glycemic control with adequate nutrition, taking into account individual variability in dietary needs.

Through these sessions, we aim to bring together clinicians, researchers, and healthcare professionals to share the latest scientific evidence and practical experiences. By fostering interdisciplinary discussions and international collaboration, we hope this symposium will enhance our understanding of the role of nutrition in geriatric healthcare and inspire innovative approaches to promote healthy longevity worldwide.

Sincerely,

Toshihiro Matsuura, MD, PhD
Director of Hospital
National Center for Geriatrics and Gerontology

〈シンポジウムの開催風景〉

今回のシンポジウムの開催概要ならびにプログラムは表 1 及び表 2 に示すとおりである。

（表 1）
開催概要

催 事 名：第 20 回長寿医療研究センター国際シンポジウム
The 20th International Symposium on Geriatrics and Gerontology

テ ー マ：高齢者医療における栄養管理の重要性
Importance of Nutritional Management in Geriatric Healthcare

開催日時：2026 年 1 月 12 日（月・祝） 10:30～16:40

開催場所：名古屋国際センター別棟ホール
（愛知県名古屋市中村区那古野一丁目 47-1）

主 催：国立研究開発法人国立長寿医療研究センター

共 催：公益財団法人長寿科学振興財団

ランチョンセミナー共催：エーザイ株式会社

後 援：日本老年学会、一般社団法人日本老年医学会、一般社団法人日本認知症学会、一般社団法人日本神経学会、一般社団法人日本神経科学学会、一般社団法人日本サルコペニア・フレイル学会、一般社団法人日本糖尿病学会、一般社団法人日本病態栄養学会、一般社団法人日本肥満学会、国立大学法人東海国立大学機構 名古屋大学、公立大学法人名古屋市立大学、学校法人藤田学園藤田医科大学病院、愛知医科大学、国立大学法人三重大学、国立大学法人浜松医科大学、国立大学法人東海国立大学機構 岐阜大学、国立大学法人京都大学、国立健康危機管理研究機構、地方独立行政法人 東京都健康長寿医療センター、厚生労働省、愛知県、名古屋市、大府市、東浦町、株式会社朝日新聞社、株式会社毎日新聞社 中部本社、株式会社読売新聞 中部支社、東海テレビ放送株式会社、中京テレビ放送株式会社、株式会社ＣＢＣテレビ、名古屋テレビ放送株式会社、テレビ愛知株式会社、株式会社中日新聞社、知多メディアスネットワーク株式会社（計 34 団体）

使用言語：英語（ランチョンセミナーは日本語）

座長・講演者：海外 3 名、国内は NCGG の 8 名を含めた 15 名、合計 18 名
※ランチョンセミナーも含む

参加人数：会場 73 人

（表 2）
プログラム

10:30〜10:40　開会の辞

国立長寿医療研究センター　理事長　荒井　秀典 先生

Session I：The Role of Nutrition in Dementia Care

座長：国立長寿医療研究センター　櫻井 孝 先生

国立長寿医療研究センター　大塚 礼 先生

1. Dietary Approaches for the Prevention or Delay of Progression in Mild Cognitive Impairment

   国立長寿医療研究センター　大塚 礼 先生

2. The Role of the Microbiome–Brain Axis in Cognitive Declinet

   国立長寿医療研究センター　佐治 直樹 先生

3. Dietary patterns in supporting healthy cognitive aging

   University of Eastern Finland　Jenni Lehtisalo 先生（フィンランド）

Luncheon Seminar

座長：東京都健康長寿医療センター／国立長寿医療研究センター

鳥羽　研二 先生

1. Beyond Medication: Evidence-Based Nutrition and Home-Delivered Meals for Dementia Prevention

   国立長寿医療研究センター　櫻井 孝 先生

2. The Importance of Vitamins in Older Adults: Implications for Healthy Aging

   大阪公立大学　栗原 晶子 先生

Session II：The Role of Nutrition in Sarcopenia Management

座長：National Yang Ming Chiao Tung University　Liang-Kung Chen 先生（台湾）

東京都健康長寿医療センター　秋下 雅弘 先生

1. At Risk of Cachexia: Clinical Utility of the AWGC Framework
   愛知医科大学／国立長寿医療研究センター　前田 圭介 先生

2.Quality Nutrition and Muscle Health: Evidence for Practice and Strategies
   National Yang Ming Chiao Tung University　Liang-Kung Chen 先生（台湾）

3. Management of Sarcopenia from the Perspective of Dietary Acid Load and Meal Timing
   国立長寿医療研究センター　木下 かほり 先生

4. Association between Nutritional Care and Oral Function in Older Adults
   東京都健康長寿医療センター　本川 佳子 先生

Session III：The Role of Nutrition for Older Patients with Diabetes or at Risk of Diabetes

座長：国立健康危機管理研究機構 国立国際医療研究所　植木 浩二郎 先生
　　京都大学　矢部 大介 先生

1. Personalized Nutritional Strategies for Older Adults With Diabetes
   国立長寿医療研究センター　浅原 哲子 先生

2. Elucidation of Aging Mechanisms Using Multi-Omics Data obtained from Patients with Diabetes
   国立健康危機管理研究機構 国立国際医療センター　坊内 良太郎 先生

3. Preventing Sarcopenia in Older Adults with Diabetes: Medical Nutrition Therapy and Anti-Diabetes Therapeutics with Cardio-Renal Benefits
   京都大学　矢部 大介 先生

4. Mediterranean diet in the prevention and management of type 2 diabetes Role of Mediterranean Diet in the prevention and management of obesity and diabetes mellitus
   Universitat Rovira i Virgili　Jordi Salas-Salvadó 先生（スペイン）

16:30〜16:40　閉会の挨拶
国立長寿医療研究センター　松浦 俊博　先生

講演抄録

Dietary Approaches for the Prevention or Delay of Progression in Mild Cognitive Impairment

Rei Otsuka, PhD

National Center for Geriatrics and Gerontology, Japan
Nagoya University Graduate School of Medicine, Japan

Summary

In rapidly aging societies, the number of older adults living with dementia continues to increase. Nutrition is widely recognized as a key modifiable factor in the prevention of age-related functional decline and cognitive impairment. In later life, the focus of nutritional management shifts from the prevention of overnutrition—traditionally aimed at reducing lifestyle-related diseases such as obesity and diabetes mellitus—to the prevention of undernutrition, with increasing emphasis on frailty and sarcopenia, both of which are closely associated with cognitive decline.

Among older adults with dementia, changes in food preferences and eating behaviors may lead to excessive energy intake and an increased risk of overnutrition. Conversely, declines in physical function, appetite, and activity levels may result in insufficient dietary intake and a higher risk of undernutrition. Consequently, individuals with cognitive impairment are particularly vulnerable to nutritional imbalance, encompassing both overnutrition and undernutrition, compared with cognitively healthy older adults. This dual vulnerability highlights the importance of individualized and well-balanced nutritional strategies for the prevention of cognitive and functional decline.

In this presentation, we review current evidence and refer to Keeping the Mind and Body Healthy: the MCI Handbook, a publicly available guide developed for the general population with the aim of preventing progression from mild cognitive impairment (MCI). With a particular focus on dietary habits, we provide evidence-based perspectives addressing the following four questions presented in the handbook:

Q1: Is dietary management effective in preventing or delaying the progression of MCI?
Q2: What dietary patterns are supported by current evidence for preventing or delaying the progression of MCI?
Q3: Do dietary supplements or nutritional products contribute to the prevention or delay of progression in MCI?
Q4: Are there specific nutritional points that individuals with MCI or dementia and their families should pay attention to?

Reference)

Keeping the Mind and Body Healthy: the MCI Handbook
Ministry of Health, Labour and Welfare, Japan
https://www.mhlw.go.jp/content/001272358.pdf

MCI Handbook Committee (Chair: Takashi Sakurai)
「あたまとからだを元気にする MCI ハンドブック」(in Japanese)

Education

M.Sc. (Medical Science) in Public Health, Nagoya University Graduate School of Medicine, Aichi, Japan. 2004
Ph.D. (Medical Science) in Public Health, Nagoya University Graduate School of Medicine, Aichi, Japan. 2007

Professional Experiences

2009 – 2013	Senior researcher, Preventive Nutrition, Department for Development of Preventive Medicine, National Center for Geriatrics and Gerontology (NCGG), Japan
2013 – 2022	Senior researcher, Section of NILS-LSA (National Institute for Longevity Sciences, Longitudinal Study of Aging), Center for Gerontology and Social Science, NCGG, Japan
2022 – Present	Professor, Department of Epidemiology of Aging, Center for Gerontology and Social Science, NCGG, Japan
2024 – Present	Adjunct Professor, Epidemiology of Aging, Aging Research, Nagoya University Graduate School of Medicine, Japan

Honors and Awards

2009	Encouragement Award, The Japanese Society of Cardiovascular Disease Prevention
2019	Young Investigator Award, Japan Epidemiological Association

Major Research Interest

- ❏ Epidemiology of Aging
- ❏ Public Health Nutrition
- ❏ Longitudinal Cohort Study

Recent Publications (Selected)

1. **Otsuka R**, Nishita Y, Makizako H, Kinoshita K, Tange C, Tateishi M, Zhang S, Kubota S, Fujikawa K, Ando F, Shimokata H, Mizokami F, Ogayu T, Kabayama M,

Kamide K, Satake S, Arai H. A frailty-intrinsic capacity index to predict disability in community-dwelling older Japanese adults. JAR Life. (in press)

2. **Otsuka R**, Zhang S, Nishita Y, Kubota S, Tange C, Shimokata H, Yatsuya H. Age-related changes in anthropometric measurements, body composition, and physical function among middle-aged and older Japanese community-dwellers: A longitudinal study. Arch Gerontol Geriatr. 2025;137:105943. doi:10.1016/j.archger.2025.105943.
3. Nakamoto M, Nishita Y, Tange C, Zhang S, Shimokata H, Sakai T, **Otsuka R**. Isoflavone intake is associated with longitudinal changes in hippocampal volume, but not total grey matter volume, in Japanese middle-aged and older community dwellers. Eur J Nutr. 2025;64(4):151. doi:10.1007/s00394-025-03664-3.
4. Lee YS, Nishita Y, Tange C, Zhang S, Shimokata H, Lin SY, Chu WM, **Otsuka R**. Association between objective physical activity and frailty transition in community-dwelling prefrail Japanese older adults. J Nutr Health Aging. 2025;29(4):100519. doi:10.1016/j.jnha.2025.100519.
5. Sampaio RAC, Nishita Y, Tange C, Zhang S, Shinohara M, Tateishi M, Furuya K, Kubota S, Sewo Sampaio PY, Sato N, Shimokata H, Arai H, **Otsuka R**. Interactive Associations of Age, Apolipoprotein E ε4 Gene, Physical Activity, and Physical Functioning on Processing Speed. J Am Med Dir Assoc. 2025:105489. doi:10.1016/j.jamda.2025.105489.
6. Uchida Y, Sugiura S, Shimono M, Suzuki H, Ando F, Shimokata H, Tange C, Nishita Y, **Otsuka R**. Can hearing screening criteria at general health checkups be an indirect indicator of frailty and cognitive deficit in the older population? - with prevalence estimates based on updated World Health Organization hearing loss classification. Geriatr Gerontol Int. 2025;25(4):504-510. doi:10.1111/ggi.14992.
7. **Otsuka R**, Zhang S, Kozakai R, Tange C, Kubota S, Furuya K, Ando F, Shimokata H, Nishita Y, Arai H. Skin tactile perception is associated with longitudinal gait performance in middle-aged and older Japanese community dwellers. J Frailty Aging. 2025;14(1):100006. doi:10.1016/j.tjfa.2024.100006.
8. Huang ST, **Otsuka R**, Nishita Y, Meng LC, Hsiao FY, Shimokata H, Chen LK, Arai H. Risk of Sarcopenia Following Long-Term Statin Use in Community-Dwelling Middle-Aged and Older Adults in Japan. J Cachexia Sarcopenia Muscle. 2025;16(1):e13660. doi:10.1002/jcsm.13660.
9. Zhang S, Tange C, Huang ST, Kubota S, Shimokata H, Nishita Y, **Otsuka R**. Multi-trajectories of intrinsic capacity and their effect on higher-level functional capacity, life satisfaction, and self-esteem in community-dwelling older adults: the NILS-LSA. J Nutr Health Aging. 2025;29(1):100432. doi:10.1016/j.jnha.2024.100432.
10. Yuki A, Nishita Y, Nakamura A, Kato T, Tange C, Zhang S, Ando F, Shimokata H, **Otsuka R**. Longitudinal relationships between daily activity and hippocampal atrophy in Japanese dwellers. J Gerontol A Biol Sci Med Sci. 2025;80(8):glaf155. doi:10.1093/gerona/glaf155.

Contact Information

National Center for Geriatrics and Gerontology
Research Institute, Center for Gerontology and Social Science
Department of Epidemiology of Aging

Name: Rei Otsuka
Address: 7-430 Morioka-cho, Obu, Aichi 474-8511, Japan
Phone: +81-562-46-2311
e-mail: otsuka@ncgg.go.jp

The Role of the Microbiome–Brain Axis in Cognitive Decline

Naoki Saji

Center for Comprehensive Care and Research on Memory Disorders,
National Center for Geriatrics and Gerontology.

Summary

Recent research has highlighted the microbiome as a novel risk factor for cognitive dysfunction. The gut microbiome has been implicated in dementia, including Alzheimer's disease and dementia with Lewy bodies. Periodontal disease has also been associated with increased dementia risk. Bacterial metabolites are thought to influence the central nervous system, and growing attention has been directed toward the bacteria–brain interaction. In this presentation, I summarize our clinical studies investigating the association between the microbiome and cognitive decline.

We began our clinical research on the gut microbiome in 2016 and have since identified several notable associations with cognitive function, diet, blood biomarkers, and brain MRI findings. Numerous studies now support these links, and causal relationships are beginning to be clarified. The importance of the gut microbiome–brain axis has also been emphasized in a recent Lancet Commission report.

Furthermore, we have examined the relationship between periodontal disease and cognitive impairment. Older adults with cognitive decline are at increased risk of periodontal disease, and evidence suggests a bidirectional relationship. Our findings indicate that visuospatial function, attention, memory, and language may be particularly affected in individuals with periodontal disease, possibly due to reduced ability to perform adequate oral hygiene.

Growing evidence underscores the significance of the microbiome–brain axis, highlighting the need for continued research to reduce the risk of dementia and improve the quality of life in older adults.

Education

1993–1999: Medical School, Gifu University, M.D., Medicine
2007–2011: Kobe University Graduate School of Medicine, Ph.D., Geriatric Medicine

Professional Experiences

1999–2003: Trainee and Clinical fellow, Internal Medicine, Hospitals in Gifu area, Japan
2003–2011: Clinical fellow and Head, Neurology, Hyogo Brain and Heart Centre, Japan
2011–2015: Lecturer and Associate Professor, Department of Stroke Medicine, Kawasaki Medical School, Japan
2015–2023: Head and Vice Director, Center for Comprehensive Care and Research on Memory Disorders, National Center for Geriatrics and Gerontology, Japan

2023–2025: Deputy Director, National Healthcare Policy Secretariat, Cabinet Office, Government of Japan

2025–present: Vice Director, Center for Comprehensive Care and Research on Memory Disorders, National Center for Geriatrics and Gerontology, Japan

Honors and Awards

2019: Young Investigator Award, The 10th annual meeting of the Japanese Society for Vascular Cognitive Impairment.

2020: Award, the Japan Society for Dementia Research.

2021: Presidential Award, the Japan Society for Dementia Prevention.

Major Research Interest

- ❏ Interrelationship between cerebrovascular diseases and cognitive dysfunction.
- ❏ Risk factors for cognitive decline

Recent Publications (Selected)

1. Saji N, et al. Association between periodontal disease and age-related cognitive impairment: a narrative review. BMC Oral Health. 2025 Mar 14;25(1):373.
2. Saji N, et al. High pulse wave velocity is associated with enlarged perivascular spaces in dementia with Lewy bodies. Sci Rep. 2024 Jun 17;14(1):13911.
3. Saji N, Ishihara Y, Murotani K, Uchiyama A, Takeda A, Sakurai T, Matsushita K. Cross-sectional analysis of periodontal disease and cognitive impairment conducted in a memory clinic: the Pearl study. J Alzheimers Dis. 2023;96(1):369-380.
4. Saji N, et al. Relationship between plasma lipopolysaccharides, gut microbiota, and dementia: a cross-sectional study. J Alzheimers Dis. 2022;86(4):1947-1957.
5. Saji N, et al. Relationship between plasma neurofilament light chain, gut Microbiota, and dementia: a cross-sectional study. J Alzheimers Dis. 2022;86(3):1323-1335.
6. Saji N, et al. Relationships between the Japanese-style diet, gut microbiota, and dementia: a cross-sectional study. Nutrition. 2022 Feb;94:111524.
7. Saji N, et al. The association between cerebral small vessel disease and the gut microbiome: a cross-sectional analysis. J Stroke Cerebrovasc Dis. 2021.Mar;30(3):105568.
8. Saji N, et al. The relationship between dementia and metabolites attribute to gut microbiome: a cross-sectional sub-analysis study conducted in Japan. Sci Rep. 2020 May 18;10(1):8088.
9. Saji N, et al. The relationship between the gut microbiome and mild cognitive impairment in patients without dementia: a cross-sectional study conducted in Japan. Sci Rep. 2019 Dec 18;9(1):19227.
10. Saji N, et al. Analysis of the relationship between the gut microbiome and dementia: a cross-sectional study conducted in Japan. Sci Rep. 2019 Jan 30;9(1):1008.

Contact Information

National Center for Geriatrics and Gerontology
Center for Comprehensive Care and Research on Memory Disorders,

Name: Naoki Saji, MD, Ph.D.
Address: 7-430, Morioka, Obu, Aichi 474-8511 Japan
Phone: 81 562 46 2311 (7940)
e-mail: sajink@ncgg.go.jp, naoki.saji@gmail.com

Dietary patterns in supporting healthy cognitive aging

Jenni Lehtisalo

Finnish Institute for Health and Welfare, University of Eastern Finland

Summary

A healthy diet supports independent aging and brain health throughout the lifespan and becomes even more important in higher age. There is a well-established link between healthy dietary patterns and better cognitive performance, and studies often show a protective association of diet for cognitive impairment. Diet is also linked to other key geriatric conditions like cardiovascular disease and frailty, and better focus on diet could improve the health of older adults through multiple mechanisms simultaneously.

Most of the current evidence has been gathered for Mediterranean diet (MeDi) but also for the Mediterranean-DASH Intervention for neurodegenerative delay (MIND) dietary pattern, which has been developed particularly with the focus of prevention of cognitive decline. Because also the MIND diet builds on the Mediterranean pattern, suitability of these food patterns more common in other countries have been less investigated. The healthy Nordic diet pattern has been suggested to be a Nordic counterpart to Mediterranean diet, but research into it's potential in dementia prevention is yet limited. Even less is known about diets typical in other parts of the world like Asia. Globally better understanding on diet most suitable in different food cultures and settings are lacking, although similar principles can be adopted in various settings; brain healthy foods acknowledged in all patterns include e.g. higher consumption of fruit, vegetables and fish; decreasing consumption of saturated fat and processed meat; and favoring whole grain options in cereal products.

Diet intervention studies are still scarce and show potentially beneficial but inconsistent benefit of diet interventions for brain health. Potential reasons for inconsistent results include differences varying follow-up times and poorly defined target groups. Similar dietary approaches have shown promise among both at-risk older adults and those with MCI or prodromal AD, but better defining these groups in dietary epidemiology and trials will help to personalize the dietary advise in the future also in clinical practice. Along with dietary interventions as such, multidomain interventions have gained attention recently, and diet is often a key part in them. Multidomain studies can inform on the role of diet in prevention of cognitive impairment, although adherence and interactions with other lifestyles need to be considered.

The talk will discuss different dietary approaches for supporting brain health, suitable target groups for prevention considering also other age-related conditions, and potential future directions for role of diet in healthier brain aging.

Jenni Lehtisalo, PhD

Education

University of Helsinki, PhD (Public Health), 2019
University of Helsinki, MSc (Nutrition), 2007

Professional Experiences

2009-2014	Field coordinator and nutritionist, National Institute for Health and Welfare (THL), Finland (2010-2014 part time as grant researcher preparing PhD)
2016-2018	Doctoral Candidate, Doctoral Programme in Population Health/ Department of Public Health, University of Helsinki, Finland
2018-2019	Research fellow, THL, Finland
2020-2022	Post-doctoral researcher, University of Eastern Finland (UEF), Finland
2023 –	(ongoing) Senior researcher, THL, Finland
2026 –	(ongoing) Senior researcher, UEF, Finland (part-time)

Major Research Interest

- ❏ Diet in prevention of dementia and cognitive decline
- ❏ Multidomain lifestyle interventions in older adults for supporting healthy aging combining brain health, cardiovascular health, and physical functioning
- ❏ Adherence to diet and other domains of healthy lifestyle in intervention studies
- ❏ Adaptation of healthy dietary patterns in different countries and settings

Recent Publications (Selected)

Total of **63** international peer-reviewed publications; 3 book chapters; 8 publications for professional communities

1. **Lehtisalo J**, Ngandu T, Valve P, et al. Nutrient intake and dietary changes during a 2-year multi-domain lifestyle intervention among older adults: secondary analysis of the Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER) randomised controlled trial. Br J Nutr, 2017.
2. **Lehtisalo J**, Levälahti E, Lindström J, et al. Dietary changes and cognition over 2 years within a multidomain intervention trial-The Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER). Alzheimers Dement, 2019.
3. Ngandu T, **Lehtisalo J**, Solomon A, et al. A 2 year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in at-risk elderly people (FINGER): a randomised controlled trial.

Lancet, 2015.
4. Coley N, Ngandu T, **Lehtisalo J**, et al. Adherence to multidomain interventions for dementia prevention: Data from the FINGER and MAPT trials. Alzheimers Dement, 2019
5. Ngandu T, **Lehtisalo J**, Korkki S, et al. The effect of adherence on cognition in a multidomain lifestyle intervention (FINGER). Alzheimers Dement, 2022.
6. **Lehtisalo J**, Palmer K, Mangialasche F, et al. Changes in Lifestyle, Behaviors, and Risk Factors for Cognitive Impairment in Older Persons During the First Wave of the Coronavirus Disease 2019 Pandemic in Finland: Results From the FINGER Study. Front Psychiatry, 2021.
7. **Lehtisalo J**, Rusanen M, Solomon A, et al. Effect of a multi-domain lifestyle intervention on cardiovascular risk in older people: the FINGER trial. Eur Heart J, 2022.
8. Levak N, **Lehtisalo J**, Thunborg C, Westman E, Andersen P, et al. Nutrition guidance within a multimodal intervention improves diet quality in prodromal Alzheimer's disease: Multimodal Preventive Trial for Alzheimer's Disease (MIND-ADmini). Alzheimers Res Ther. 2024;16(1):147. doi: 10.1186/s13195-024-01522-8. (original article)
9. **Lehtisalo J**, Sääskilahti M, Härkänen T, Kulmala J, Hemiö K, et al. Changes in older persons' lifestyle and perceived health over time and during the COVID-19 pandemic: findings from the extended follow-up of the FINGER randomized controlled trial from 2009 to 2020. BMC Geriatr. 2025 May 3;25(1):308
10. Pöyhönen J, Roitto HM, **Lehtisalo J**, Levälahti E, Strandberg T, Kivipelto M, Kulmala J, Antikainen R, Soininen H, Tuomilehto J, Laatikainen T, Ngandu T. Short- and Long-Term Effect of Multidomain Lifestyle Intervention on Frailty: Post Hoc Analysis of an RCT. J Am Geriatr Soc. 2025 Aug;73(8):2457-2465.

Contact Information

Finnish Institute for Health and Welfare
Department of Public Health
Unit of Lifestyles and Living environments
P.O.Box 30 00271 Helsinki, Finland Phone: +358 29 524 8573 e-mail:
jenni.lehtisalo@thl.fi

Beyond Medication: Evidence-Based Nutrition and Home-Delivered Meals for Dementia Prevention

Takashi Sakurai

Director, General of Research Institute, NCGG

Summary

In recent years, the clinical use of anti-amyloid monoclonal antibody therapies has begun, marking a significant milestone in that mild cognitive impairment (MCI) has become a direct target of medical intervention. However, these therapies are indicated only for early Alzheimer's disease, and unresolved issues remain regarding the management of adverse events and cost-effectiveness. Moreover, there are many cases in which patients who wish to receive these new pharmacological treatments are not eligible. Additionally, there is a growing need for patient-centered approaches to care after treatment discontinuation. Against this background, the development of new non-pharmacological services related to dementia prevention is increasingly expected.

In response, Eisai Co., Ltd., under the supervision of the National Center for Geriatrics and Gerontology, has been promoting the development of home-delivered meals designed to reduce the risk of cognitive decline. More than 8,000 scientific articles were reviewed, and evidence-based materials aligned with the Dietary Reference Intakes for Japanese and the Standard Tables of Food Composition in Japan were compiled. Based on this work, a new guidance and manual focusing on cognitive function was developed and supervised.

Using this guidance and manual as a reference, food-related companies are developing new products and services grounded in this evidence base. In addition, to balance business development with disease awareness, more than 40 types of educational leaflets have been created, and information is consistently provided at the time of meal delivery. Through disease awareness leaflets, email newsletters, and other initiatives, these efforts are expected to generate broader spillover effects for dementia prevention beyond food alone. As of December 2025, collaborations with four home-delivered meal and meal-kit companies are underway, and product sales have already begun from two of these companies.

Today's bento was developed and prepared by Wellness Dining Co., Ltd., which has been developing home-delivered meals based on the guidance and manual described above. This special menu has been prepared exclusively for the luncheon seminar of this international symposium. Key features of this bento include the fulfillment of the required types and amounts of nutrients and calories based on guidance and a manual, careful attention to color and presentation to stimulate appetite through visual appeal, and the inclusion of two main dishes—one fish and one meat—to accommodate diverse preferences. Please relax and enjoy your meal.

Education

M.D. Kobe University School of Medicine, Japan. 1979-1985

Ph.D. Kobe University Graduate School of Medicine, Japan. 1988-1992

Professional Experiences

1992 – 1993	Research Fellow, Okazaki National Institute for Physiological Science, Japan
1993 – 1995	Research Associate, Department of Pharmacology, Washington University, Seattle, USA
2001-2007	Assistant Professor, Department of Geriatric Medicine, Kobe University Graduate School of Medicine, Japan
2007– 2010	Lecturer, Department of Geriatric Medicine, Kobe University Graduate School of Medicine, Japan
2010 –2021	Head, Memory Clinic, Center for Comprehensive Care and Research, NCGG
2014	General Manager for G8 Dementia Summit Legacy Event Japan
2014 – 2021	Director, Center for Comprehensive Care and Research, NCGG
2016 – 2024	Professor, Department of Cognitive and Behavioral Science, Nagoya University Graduate School of Medicine, Japan
2021 – present	Director, Center for Development of Advanced Medicine for Dementia, NCGG
2022 – present	Director, Research Institute, NCGG
2023 – 2025	Director, NCGG

Honors and Awards

2021	Development of guidelines and an intervention study for the prevention of progression and provision of psychosocial support in individuals with mild cognitive impairment (Ministry of Health, Labor and Welfare's Science Research Grant, PI)
2019	Japan-multimodal intervention Trial for prevention of dementia (J-MINT) (AMED)
2017	Japan-Multidomain Intervention Trial for Prevention of Dementia in Older Adults with Diabetes (J-MIND-Diabetes) (AMED, PI)
2016	Prospective study for wandering of the older adults with cognitive decline (Ministry of Health, Labor and Welfare's Science Research Grant, PI)
2002	Novartis Research Fund for Aging and Geriatric Medicine
1993	Grant for study abroad, Sankyo Foundation for Life Science Research Promotion
1993	Post-doctoral Fellowship for Study Abroad, Uehara Memorial Life Science Foundation

Major Research Interest

- ❑ Dementia prevention and care
- ❑ Compehensive management of older adults with diabetes
- ❑ Social implementation and international contributions to geriatric medicine and agingresearch

Recent Publications (Selected)

1. Sugimoto T, Uchida K, Yokoyama Y, Onoyama A, Noma H, Arai H, Sakurai T. J‐MINT study group. Efficacy of a multidomain intervention in older adults with vascular risks: The Japan-Multimodal Intervention Trial for the Prevention of Dementia (J-MINT). Alzheimers Dement. 2025 Nov;21(11):e70822. doi: 10.1002/alz.70822.
2. Sugimoto T, Omura T, Araki A, Haneda C, Honda K, Kishi M, Takahashi T, Toyoshima K, Tsuume S, Uchida K, Matsumoto N, Noma H, Fujita K, Onoyama A, Yokoyama Y, Kuroda Y, Crane PK, Sakurai T. J-MIND-Diabetes Study Group. Differential effects of a multidomain intervention on cognitive decline in older adults with type 2 diabetes according to white matter hyperintensity status: A secondary analysis of the J-MIND-Diabetes. Diabetes Obes Metab. 2025 Jul 14. doi: 10.1111/dom.16605.
3. Sakurai T, Sugimoto T, Arai H; Multidomain Interventions for Prevention of Dementia: Achievements, Challenges, and Future Perspectives. Geriatr Gerontol Int. 2025 Aug;25(8):1015-1034. doi: 10.1111/ggi.70088.
4. Fujita K, Sugimoto T, Noma H, Kuroda Y, Matsumoto N, Uchida K, Yokoyama Y, Kishino Y, Sakurai T. Postural sway characteristics distinguish types of dementia. J Am Med Dir Assoc. 2025 Feb 13:105497. doi: 10.1016/j.jamda.2025.105497.
5. Uchida K, Sugimoto T, Murotani K, Tsujimoto M, Kishino Y, Kuroda Y, Matsumoto N, Fujita K, Suzuki K, Ono R, Akisue T, Arai H, Toba K, Sakurai T. A Combined Index Using the Mini-Mental State Examination and Lawton Index to Discriminate Between Clinical Dementia Rating Scores of 0.5 and 1: A Development and Validation Study. J Clin Psychiatry. 2024 May 20;85(2):23m15101. doi: 10.4088/JCP.23m15101.
6. Sugimoto T, Araki A, Fujita H, Fujita K, Honda K, Inagaki N, Ishida T, Kato J, Kishi M, Kishino Y, Kobayashi K, Kouyama K, Kuroda Y, Kuwahata S, Matsumoto N, Murakami T, Noma H, Ogino J, Ogura M, Ohishi M, Shimada H, Sugimoto K, Takenaka T, Tamura Y, Tokuda H, Uchida K, Umegaki H, Sakurai T.J-MIND-Diabetes study group Multidomain intervention trial for preventing cognitive decline among older adults with type 2 diabetes: J-MIND-Diabetes. J Prev Alz Dis 2024;6(11):1604-1614 DOI: 10.14283/jpad.2024.117
7. Sakurai T, Sugimoto T, Akatsu H, Doi T, Fujiwara Y, Hirakawa A, Kinoshita F,

Kuzuya M, Lee S, Matsumoto N, Matsuo K, Michikawa M, Nakamura A, Ogawa S, Otsuka R, Sato K, Shimada H, Suzuki H, Suzuki H, Takechi H, Takeda S, Uchida K, Umegaki H, Wakayama S, Arai H: J-MINT study group. Japan-Multimodal Intervention Trial for the Prevention of Dementia: A randomized controlled trial. Alzheimers Dement. 2024 Jun;20(6):3918-3930.

8. Sugimoto T, Sakurai T, Uchida K, Kuroda Y, Tokuda H, Omura T, Noguchi T, Komatsu A, Nakagawa T, Fujita K, Matsumoto N, Ono R, Crane PK, Saito T. Impact of type 2 diabetes and glycated hemoglobin levels within the recommended target range on mortality in older adults with cognitive impairment receiving care at a memory clinic: NCGG-STORIES. Diabetes Care. 2024 May 1;47(5):864-872. doi: 10.2337/dc23-2324.
9. Uchida K, Sugimoto T, Tange C, Nishita Y, Shimokata H, Saji N, Kuroda Y, Matsumoto N, Kishino Y, Ono R, Akisue T, Otsuka R, Sakurai T. Association between abdominal adiposity and cognitive decline in older adults: a 10-year community-based study. J Nutr Health Aging. 2024 Feb 2;28(3):100175. doi: 10.1016/j.jnha.2024.100175.
10. Yasuno F, Kimura Y, Ogata A, Ikenuma H, Abe J, Minamia M, Nihashi T, Yokoi K, Hattori S, Shimoda N, Watanabe A, Kasuga K, Ikeuchi T, Takeda A, Sakurai T, Ito K, Kato T. Neuroimaging biomarkers of glial activation for predicting the annual cognitive function decline in patients with Alzheimer's disease. Brain Behav Immun. 2023 Nov;114:214-220. doi: 10.1016/j.bbi.2023.08.027.

Contact Information

Director General of the Research Institute
National Center for Geriatrics and Gerontology

Name: Takashi Sakurai
Address: 7-430 Morioka, Obu, Aichi,474-8511, Japan
Phone: ＋81-562-46-2311
Fax: ＋81-562-46-8394
e-mail: tsakurai@ncgg.go.jp

The Importance of Vitamins in Older Adults: Implications for Healthy Aging

Akiko Kuwabara

Department of Nutrition Graduate School of Human Life and Ecology,
Osaka Metropolitan University

Summary

In the nutritional management of older adults, attention is often focused on energy and protein, whereas vitamin and mineral status are frequently overlooked. Community-based data indicate that even older individuals without overt malnutrition often show low serum concentrations of 25-hydroxyvitamin D [25(OH)D], vitamin B12, folate, and other micronutrients. These observations suggest that, beyond energy and protein, vitamin status is also essential in geriatric care. This lecture first focuses on vitamin D. Beyond its established role in bone health, vitamin D has been linked to several age-related outcomes. Observational studies have reported associations between lower 25(OH)D levels and a higher risk of fractures, falls, respiratory infections, frailty, sarcopenia, and cognitive decline. In contrast, randomized controlled trials and meta-analyses of vitamin D supplementation have yielded heterogeneous or null findings for fracture and fall prevention, physical function, and acute respiratory infections, particularly in well-nourished community-dwelling older adults. Potential explanations include baseline vitamin D status, characteristics of the target population (community-dwelling vs. institutionalized, robust vs. frail), calcium co-administration, and dosing regimens used. Concerns are greatest for high-dose intermittent ("bolus") supplementation in older adults.

In addition to vitamin D, observational data link B-group vitamins and vitamin E to frailty and Alzheimer's disease (AD). Meta-analyses in patients with AD show that, even when body mass index and serum albumin do not differ from cognitively healthy controls, circulating concentrations of folate and vitamins A, B12, C and E are consistently lower in the AD group. These results suggest that vitamin insufficiency in later life is often invisible to conventional indicators; however, maintaining an adequate status is important for healthy aging and should be supported primarily through habitual diet.

Higher dietary diversity and greater adherence to traditional Japanese dietary patterns have been associated with higher micronutrient intake and a lower risk of cognitive impairment. However, for nutrients such as vitamin D, which is present in a limited range of foods, and vitamin B12, for which food-bound absorption may decline with age, adequate dietary intake may be difficult for some older adults. Within a "food first" framework, supplements or fortified foods containing vitamin D and vitamin B12 may be considered for selected high-risk groups, such as those with limited sun exposure, institutionalized older adults, and individuals with reduced intake or malabsorption. This lecture integrates these findings and discusses their implications for clinical practice and public health.

Education

Kyoto Women's University, Faculty of Home Economics, Department of Food Science and Nutrition (B.S.). 2005

Kyoto Women's University, Graduate School of Home Economics, M.S. in Food Science. 2007

Kyoto Women's University, Graduate School of Home Economics, Ph.D. in Home Economics. 2010

Professional Experiences

2010-2013	Specially Appointed Lecturer, Department of Health and Nutrition, Faculty of Liberal Arts, Osaka Shoin Women's University
2013-2015	Lecturer, Department of Health and Nutrition, Faculty of Liberal Arts, Osaka Shoin Women's University
2015-2018	Associate Professor, Department of Health and Nutrition, Faculty of Health and Nutrition, Osaka Shoin Women's University
2016-2018	Associate Professor, Graduate School of Human Sciences, Osaka Shoin Women's University
2018-2022	Associate Professor, Graduate School of Comprehensive Rehabilitation, Osaka Prefecture University
2022–present	Professor, Graduate School of Human Life and Ecology, Osaka Metropolitan University

Honors and Awards

2009	Student Excellent Presentation Award, 61st Annual Meeting of the Vitamin Society of Japan (VSJ)
2009	2009 Research Encouragement Award, Japan Osteoporosis Society
2009	2009 Academic Encouragement Award, Japan Osteoporosis Society
2015	President's Award, 18th Annual Meeting of the Japan Society of Metabolism and Clinical Nutrition (JSMCN)
2017	Encouragement Award, Japan Society of Nutrition and Food Science (JSNFS) (FY2017)
2019–present	National Registered Dietitian Examination Committee Member (Japan)
2022	Encouragement Award, The Vitamin Society of Japan (VSJ) (2022)
2022	Encouragement Award, The Japanese Society of Nutrition and Dietetics (JSND) (2022)
2023–2024	Working Group Member, Council for the Development of the Dietary Reference Intakes for Japanese (2025)
2024	Human Nutrition Award (dsm-firmenich Award), the Vitamin Society of Japan (VSJ)

Major Research Interest

- ❏ Human studies of fat-soluble vitamins (D, K, and E): disease risk associations and optimal exposure (intake and circulating status)
- ❏ Biomarker discovery and validation for fat-soluble vitamin status and biological function
- ❏ Development of public health nutrition tools to maintain and improve micronutrient status (e.g., a vitamin D deficiency risk screening tool)
- ❏ Methodological research and evidence translation for Dietary Reference Intakes (DRIs): evidence synthesis, framework development, and implementation

Recent Publications (Selected)

1. Kuwabara A, Uenishi K, Tanaka K. Vitamin K intake and health, consideration from the epidemiological studies. J Clin Biochem Nutr. 2021;69(2):111–121.
2. Tsugawa N, Nishino M, Kuwabara A, Ogasawara H, Kamao M, Kobayashi S, Yamamura J, Higurashi S. Comparison of vitamin D and 25-hydroxyvitamin D concentrations in human breast milk between 1989 and 2016–2017. Nutrients. 2021;13(2):573.
3. Kuwabara A, Nakatani E, Tsugawa N, Nakajima H, Sasaki S, Kohno K, Uenishi K, Takenaka M, Takahashi K, Maeta A, Sera N, Kaimoto K, Iwamoto M, Kawate H, Yoshida M, Tanaka K. Development of a predictive model for vitamin D deficiency based on the vitamin D status in young Japanese women: a study protocol. PLoS One. 2022;17(3):e0264943.
4. Tsugawa N, Kuwabara A, Ogasawara H, Nishino M, Nakagawa K, Kamao M, Hasegawa H, Tanaka K. Vitamin D status in Japanese young women in 2016–2017 and 2020: seasonal variation and the effect of lifestyle including changes caused by the COVID-19 pandemic. J Nutr Sci Vitaminol (Tokyo). 2022;68(3):172–180.
5. Yasuoka A, Tsugawa N, Ura C, Ogasawara H, Tanaka K, Mizuno K, Watanabe Y, Kuwabara A. The association between atherosclerotic disease risk factors and serum 25-hydroxyvitamin D concentration in Japanese subjects. J Nutr Sci Vitaminol (Tokyo). 2023;69(3):176–183.
6. Yamada C, Kuwabara A, Sakai Y, Okuno C, Mine A, Misaki S, Nishikawa T, Inoue N, Kishimoto N, Nishizaki Y. Usefulness of Vitamin D Deficiency Questionnaire for Japanese (VDDQ-J) for screening of vitamin D deficiency and low muscle mass in relatively healthy Japanese anti-aging health checkup examinees. J Nutr Sci Vitaminol (Tokyo). 2023;69(6):435–443.
7. Tanaka K, Ao M, Tamaru J, Kuwabara A. Vitamin D insufficiency and disease risk in the elderly. J Clin Biochem Nutr. 2024;74(1):9–16.
8. Kuwabara A, Matsumoto M, Hatamoto Y, Fujita S. Vitamin D and muscle health: insights from recent studies. Curr Opin Clin Nutr Metab Care. 2024;27(6):499–506.

9. Kuwabara A, Nakatani E, Nakajima H, Sasaki S, Kohno K, Uenishi K, Takenaka M, Takahashi K, Maeta A, Sera N, Kaimoto K, Iwamoto M, Kawate H, Yoshida M, Tanaka K, Tsugawa N. Development of a predictive scoring system for vitamin D deficiency (“Vitamin D Deficiency Predicting Scoring”; ViDDPreS) based on the vitamin D status in young Japanese women: a nationwide cross-sectional study. Public Health Nutr. 2024;27(1):e185.
10. Yu C, Ide M, Sugimoto T, Otsuka R, Takahashi K, Takiwaki M, Tanaka K, Kanouchi H, Takenaka S, Sakurai T, Niida S, Kuwabara A. Association between serum vitamin D metabolite levels and cognitive function in community-dwelling older adults: a cross-sectional study. Clin Nutr ESPEN. 2025;69:785–793.

Contact Information

Osaka Metropolitan University
Department of Nutrition
Graduate School of Human Life and Ecology

Name: Akiko Kuwabara
Address: 2-1-132, Morinomiya, Joto-ku, Osaka-shi, Osaka 536-8525, JAPAN
Phone: +81-6-6167-1363
e-mail: kuwabara.akiko@omu.ac.jp

At Risk of Cachexia: Clinical Utility of the AWGC Framework

Keisuke MAEDA, MD, PhD

Professor, Nutrition Therapy Support Center, Aichi Medical University Hospital
Dept. of Geriatric Medicine, Hospital, National Center for Geriatrics and Gerontology

Summary

Cachexia represents a complex metabolic syndrome defined by skeletal muscle wasting, systemic inflammation, and anorexia, significantly compromising survival and treatment efficacy across various chronic conditions. While international frameworks such as the 2021 ESMO Clinical Practice Guidelines and the 2020 ASCO guidelines provide robust criteria for diagnosing established cachexia by integrating the GLIM criteria and inflammatory markers, they often lack the granularity required to identify patients in the latent, pre-cachectic phase. Consequently, there remains a critical "diagnostic gap" where therapeutic opportunities for early prevention are missed.

To address this limitation and enhance sensitivity within Asian phenotypes, the Asian Working Group for Cachexia (AWGC) established consensus criteria applicable beyond oncology. Distinct from Western models, the AWGC framework integrates underlying pathology, anthropometric indices (low BMI or weight loss), and at least one functional or metabolic marker (decreased handgrip strength, anorexia, or elevated C-reactive protein). This structure prioritizes feasibility and the detection of early physiological deterioration.

Recent investigations in Japan have leveraged the AWGC criteria to operationalize and validate the concept of "at risk of cachexia." In these analyses, patients who exhibited partial diagnostic features, such as isolated anorexia or low-grade inflammation without meeting the full threshold for cachexia, were categorized as "at risk." Crucially, these studies demonstrated a clear, stepwise prognostic stratification: patients classified as "at risk" showed survival outcomes significantly inferior to non-cachectic patients but superior to those with overt cachexia. This linear association underscores that even minimal deviations in appetite, muscle function, or inflammatory status carry significant prognostic weight.

The "at risk" category, derived from the AWGC framework, demonstrates high clinical utility by identifying vulnerable populations before the onset of irreversible refractory cachexia. Although this pre-cachectic state is not yet universally standardized in global consensus definitions, the accumulating evidence suggests that adopting this stratification can refine prognostication. Recognizing these early warning signs allows clinicians to initiate multimodal supportive care sooner, potentially altering the clinical trajectory. Future research should focus on interventional trials specifically targeting this "at risk" cohort to establish evidence-based protocols for early cachexia management.

Education

2002-2006 PhD (Medicine)
Graduate School of Medical Science, Kumamoto University, Japan
1992-1998 MD School of Medicine, Kumamoto University, Japan

Professional Experiences

1998-2011 Resident and Fellow, Kumamoto University, etc., Japan
2011-2017 Chairman of Nutrition Support Team, Tamana Regional Health Medical Center, Japan
2017-2018 Senior Lecturer, Dept. of Palliative and Supportive Medicine, Graduate School of Medicine, Aichi Medical University, Japan
2019-2020 Associate Professor, Dept. of Palliative and Supportive Medicine, Graduate School of Medicine, Aichi Medical University, Japan
2020-present Medical Chief, Dept. of Geriatric Medicine, Hospital, National Center for Geriatrics and Gerontology, Japan
2023-present Professor, Nutrition Therapy Support Center, Aichi Medical University Hospital, Japan

Honors and Awards

-Outstanding Poster at The 47th, 45th, 38th, 37th, European Society for Clinical Nutritionand Metabolism (ESPEN)
-Award for excellence at The 26/27th Japanese Society of Dysphagia Rehabilitation(JSDR), Aug 2021
-Outstanding Abstract Award at The 6th Asian Conference for Frailty & Sarcopenia(ACFS), Oct 2020
-Geriatrics & Gerontology International Best Reviewer Award 2019, 2020
-Best Nutrition Support Team at The 23rd Japan Society of Metabolism and ClinicalNutrition (JSMCN), Jan 2019
-Best Poster Presentation Award at The 19th Parenteral and Enteral Nutrition Society ofAsia (PENSA), Jun 2018
-Fellowship Award at Japanese Society for Parenteral and Enteral Nutrition (JSPEN),Feb 2017
-Grand Prize for community care and network at Japan Primary Care Association (JPCA),Jun 2016

Major Research Interest

Geriatric Nutrition; Malnutrition; Swallowing difficulties; Sarcopenia; Cachexia Aspiration pneumonia; Chronic diseases; Comorbidities; Polypharmacy

Recent Publications (Selected)

1. Intra- and inter-rater reliability of swallowing-related muscle assessments using ultrasound devices. J Ultrasound. 2025.
2. Takagi S, Maeda K, Satake S, Miyahara S, Ishida Y, Akatsu H, et al. Fat-free mass index cutoff values for reduced muscle mass in older community-dwelling adults in Japan: A descriptive cohort study. JPEN J Parenter Enteral Nutr. 2025.
3. Ishida Y, Maeda K, Kawamura K, Sakaguchi T, Nonogaki T, Murotani K, et al. Determination of cutoff values for severe low muscle mass using calf circumference in the global leadership initiative on malnutrition (GLIM) criteria. Clin Nutr. 2025;50:210-8.
4. Ueshima J, Maeda K, Miyoshi F, Takeuchi N, Morita Y, Kaneda H, et al. Nutrition-Fortified Texture-Modified Diet Enhances Recovery in Older Adult Patients With Dysphagia. J Am Geriatr Soc. 2025.
5. Nagano F, Yoshimura Y, Wakabayashi H, Matsumoto A, Shimazu S, Shiraishi A, et al. Gut microbiome diversity and nutrition intake in post-stroke patients. Geriatr Gerontol Int. 2025;25(4):535-42.
6. Yoshimura Y, Wakabayashi H, Nagano F, Matsumoto A, Shimazu S, Shiraishi A, et al. Systemic inflammation is associated with gut microbiota diversity in post-stroke patients. Eur Geriatr Med. 2025;16(2):689-99.
7. Suzuki M, Saino Y, Nagami S, Ueshima J, Inoue T, Nagano A, et al. Dysphagia development in heart failure patients: A scoping review. Arch Gerontol Geriatr. 2025;130:105728.
8. Miyahara S, Maeda K, Yasuda A, Satake S, Arai H. The potential of body mass index-adjusted calf circumference as a proxy for low muscle mass in the global leadership initiative on malnutrition criteria. Clin Nutr. 2024;43(12):225-30.
9. Inoue T, Wakabayashi H, Kawase F, Kokura Y, Takamasu T, Fujiwara D, et al. Diagnostic criteria, prevalence, and clinical outcomes of pediatric sarcopenia: A scoping review. Clin Nutr. 2024;43(8):1825-43.
10. Sakaguchi T, Maeda K, Takeuchi T, Mizuno A, Kato R, Ishida Y, et al. Validity of the diagnostic criteria from the Asian Working Group for Cachexia in advanced cancer. J Cachexia Sarcopenia Muscle. 2024;15(1):370-9.

Contact Information

E-mail: kskmaeda1701@gmail.com
ORCID ID: 0000-0001-7132-7818
https://x.com/Picard_KSK

Quality Nutrition and Muscle Health: Evidence for Practice and Strategies

Liang-Kung Chen

Professor and Director, Center for Healthy Longevity and Aging Sciences,
National Yang Ming Chiao Tung University
Superintendent, Taipei Municipal Gan-Dau Hospital (Managed by Taipei Veterans General Hospital)

Summary

Muscle health declines progressively with age, with sarcopenia affecting significant proportions of older Asian populations. The Asian Working Group for Sarcopenia (AWGS) has evolved from focusing solely on sarcopenia diagnosis to embracing a comprehensive muscle health framework. This presentation examines the relationship between quality nutrition and muscle health in older adults, synthesizing evidence from the AWGS 2025 Consensus Update and recent clinical research to provide practical strategies for maintaining muscle health across the lifespan.

Population studies demonstrate that sarcopenia prevalence reaches 16.5%, with an additional 28.7% experiencing possible sarcopenia. Muscle metrics, including appendicular skeletal muscle index and grip strength, begin declining from middle age, with acceleration after age 55-60. Importantly, individuals with higher baseline muscle strength experience slower rates of decline. Asian populations exhibit distinct body composition patterns compared to Western populations, with higher fat mass percentages at equivalent BMI levels and minimal age-related changes in body fat distribution.

The AWGS 2025 Consensus emphasizes multimodal approaches including systematic malnutrition screening with protein intake targets of ≥1.0 g/kg for healthy older adults and ≥1.2 g/kg for those with sarcopenia, nutritional supplementation with high-quality protein, leucine, L-carnitine, beta-hydroxy-beta-methylbutyrate (HMB), and vitamin D when dietary intake is insufficient, combined exercise and nutrition interventions showing superior efficacy, and structured resistance training programs 2-3 times weekly. A 12-week randomized controlled trial demonstrated that protein-enriched soup (24-30g protein per serving) combined with weekly exercise significantly improved physical function, lipid metabolism, and DHEA levels.

Muscle aging involves complex mechanisms including anabolic resistance, chronic inflammation, myosteatosis, and impaired protein synthesis. The shift toward precision nutrition acknowledges individual variability in nutritional needs and responses. Early intervention, beginning in middle age, appears crucial for optimizing long-term muscle health outcomes. Maintaining muscle health requires integrated approaches combining adequate protein nutrition, targeted supplementation when appropriate, and regular

resistance exercise. The AWGS framework provides actionable guidance for clinicians and public health practitioners to address muscle health across Asian populations, with recognition of ethnic differences in body composition and metabolic profiles that necessitate region-specific recommendations.

Education

1989-1996	M.D. School of Medicine, National Yang-Ming University
2007-2013	Ph.D.Institute of Health Policy and Welfare, National Yang-Ming University

Professional Experiences

2014-present	Distinguished Professor, National Yang Ming Chiao Tung University School of Medicine Distinguished Professor
2017-present	President, Asian Association for Frailty and Sarcopenia

Honors and Awards

1. 2021 Future Technology Award (Ministry of Science and Technology)
2. 2022 Ding- Ge Award by《Harvard Business Review》Digital Transformation - Service Industry
3. 2020-2025 Top 2% Scientist in the World
4. 2025 Outstanding Research Award, National Science and Technology Council

Major Research Interest

- ❑ Geriatric Medicine
- ❑ Frailty and Sarcopenia…
- ❑ Age-Friendly Health Care
- ❑ Dementia Care

Recent Publications (Selected)

1. Kim S, Kim S, Woo S, Oh J, Son Y, Jacob L, Park J, **Chen LK***, Yon DK. Temporal trends and patterns in fall mortality across 59 high-income and upper-middle-income countries, 1990 to 2021, with projections up to 2040: a comprehensive analysis from the WHO Mortality Database. Lancet Health Longev 2025;6:100672
2. **Chen LK***, Meng LC, Peng LN, Lee WJ, Zhang S, Nishita Y, Otsuka R, Yamada M, Pan WH, Kamaruzzaman SB, Woo J, Hsiao FY, Arai H. Mapping normative values of muscle health metrics in Asian populations: Beyond sarcopenia diagnosis and treatment. J Cachexia Sarcopenia Muscle 2025;16:e13731
3. Huang YL, Lee WJ, Chang WJ, Huang CH, Lin CH, Peng LN, Chung CP, **Chen LK**. Proteo-metabolomic insights for early dual physical and cognitive

impairments: A search for biomarkers of healthy ageing based on muscle-to-brain axis. Aging Cell 2025;24:e14407
4. Peng LN, Lee PL, Chou KH, Lee WJ, Lin CP, Chang CW, Liang CK, Chung CP, Hsiao FY, **Chen LK**. Enhancing Neurocognitive Health via Activity, Nutrition and Cognitive Exercise (ENHANCE): A brain structure and function trial. J Cachexia Sarcopenia Muscle 2025;16:e13830
5. Meng LC, Chuang HM, Lai HY, Chen HM, Yang KY, **Chen LK***, Hsiao FY. Frailty-stratified effectiveness of SGLT2 inhibitors versus DPP-4 inhibitors and GLP-1 receptor agonists on pulmonary outcomes in type 2 diabetes: a nationwide cohort study. EClinicalMedicine 2025;85:103332
6. Kim S, Hwang J, Yon DY, Sang H, Woo S, Woo HG, Lim HJ, Hsiao FY, **Chen LK***, Rhee SY. Dual roles of HbA1c variability and body composition for cardiovascular risk: A cohort study of 8,224 adults with type 2 diabetes mellitus. J Cachexia Sarcopenia Muscle 2025;16:e70028
7. Huang YL, Chang WJ, Lin CH, Zhang S, Nishita Y, Otsuka R, Tian Q, Liang CK, Chou MY, Peng LN, Arai H, Ferrucci L, **Chen LK**. Dysregulated metabolic pathways in physio-cognitive decline: Evidence from multi-national aging cohorts. Commun Med 2025;5:351
8. Nicholls A, Harris MB, Dewi L, Huang CY, Peng LN, Kung HJ, **Chen LK***, Kuo CH. Exercise-induced MyoD mRNA expression in young and old human skeletal muscle: a systematic review and meta-analysis. Sports Med 2025;55:1625-1649
9. Chien WK, Lee WJ, Liang CK, Yen KH, Peng LN, Lin MH, Loh CH, Hsiao FY, **Chen LK***. Muscle-specific strength outperforms conventional metrics in predicting declined physical performance in middle-aged and older adults: Evidence from the I-Lan Longitudinal Aging Study. J Cachexia Sarcopenia Muscle 2025;16:e70078
10. **Chen LK***, Hsiao FY, Akishita M, Assantachai P, Lee WJ, Lim WS, Muangpaisan W, Kim M, Merchant RA, Peng LN, Tan MP, Won CW, Yamada M, Woo J, Arai H. Asian Working Group for Sarcopenia 2025 consensus update: From sarcopenia to muscle health. Nat Aging 2025;5:2164-2175

Contact Information

Center for Healthy Longevity and Aging Sciences, National Yang Ming Chiao Tung University, Taipei, Taiwan
Address Rm.102, 1 F., Medical Building, No.155, Sec. 2, Linong St., Beitou District, Taipei City 112, Taiwan (R.O.C.)
Phone: +886 02-28217173 Fax: N/A
e-mail: chlas.nycu@gmail.com

Management of Sarcopenia from the Perspective of Dietary Acid Load and Meal Timing

Kaori Kinoshita

National Center for Geriatrics and Gerontology

Summary

As people grow older, they become less active and their energy requirements decrease. However, their requirements for micronutrients does not decrease as much. Furthermore, food intake tends to decrease with age, making a nutrient-dense diet essential. Nevertheless, the optimal nutrient balance for maintaining health in older adults remains unclear. Given the decrease in food intake, examining metabolically efficient eating is also important.

Adequate protein intake is important for managing sarcopenia nutritionally. However, the metabolism of proteins results in the production of sulphate and phosphate, which increases the excretion of acid by the kidneys. In older people with declining kidney function due to aging, the capacity to excrete acid also declines. It has been suggested that amino acids are mobilized from skeletal muscles in order to maintain acid-base balance, thereby leading to the progression of catabolism. Therefore, micronutrients that reduce the acid load should be taken alongside protein.

An understanding of chrono-nutrition is important for knowing how older people can efficiently absorb nutrients when their food intake decreases with age. Chrono-nutrition is a branch of nutritional science that considers circadian rhythms to maximize the effects of food. Sunlight and diet are well-known factors that regulate biological rhythms. The master circadian clock is entrained by sunlight, while peripheral clocks are entrained by diet and feeding schedules. In recent years, research into the timing of protein intake has increased due to the discovery that peripheral clocks also exist in skeletal muscles. Furthermore, disruption to biological rhythms has recently been suggested to accelerate aging.

Here, we discuss the role of nutrition in the management of sarcopenia, focusing on dietary acid load and meal timing.

Education

Sugiyama Jogakuen University, Japan. 2003–2007 (BS, RD)

Graduate School of Life Sciences, Sugiyama Jogakuen University, Japan. 2016–2018 (MS)

Nagoya University Graduate School of Medicine, Japan. 2018–2021 (PhD)

Professional Experiences

2007.4-2014.3 Registered Dietitian, Nagara Medical Center, Gifu, Japan

2014.4-2017.9 Chief, Hospital, National Center for Geriatrics and Gerontology, Obu, Japan

2017.10-present Researcher, Research Institute, National Center for Geriatrics and Gerontology, Obu, Japan

Honors and Awards

2017 National Hospital Registered Dietitian Council Tatsuyoshi Yamamoto Academic Promotion Fund, Excellence Award

2020 6th Asian Conference for Frailty & Sarcopenia, Outstanding Abstract Award

2021 8th Japanese Association on Sarcopenia and Frailty, Outstanding Presentation Award

2022 29th The Japan Geriatrics Society, Excellent Paper Award

2022 64th Annual Meeting of the Japan Geriatrics Society, President's Encouragement Presentation Award

2022 Japanese Association on Sarcopenia and Frailty, Best Reviewer Award 2021

Major Research Interest

- ❏ Nutritional epidemiological research on preventive measures for frailty and sarcopenia in older people
- ❏ Chrono-nutritional studies in older people

Recent Publications

1. **Kinoshita K**, Otsuka R. Chapter 9 "Protein Quality Features, Measurements, and Uses in Evaluating Diets". Protein Intake in Health and Disease (1st Edition). Edited By Victor R. Preedy. CRC Press. eBook ISBN 9781003383116. 2025
2. **Kinoshita K**, Matsui Y, Hirano Y, Satake S, Osuka Y, Li J, Yoshiura K, Hori N, Arai H: Association between the presence or absence of muscle mass assessment in sarcopenia diagnosis and poor health outcomes: A follow-up study of older outpatients at a frailty clinic. Geriatr Gerontol Int. 25: 553–559, 2025
3. **Kinoshita K**, Osuka Y, Yoshiura K, Hori N, Georg VF, Satake S, Arai H: High dietary acid load increases the risk of disability in women aged 75 years and older: A community-based cohort study. J Frailty Aging. 14 (1): 100004, 2025
4. **Kinoshita K**, Otsuka R, Takada M, Nishita Y, Tange C, Jinzu H, Suzuki K, Shimokata H, Imaizumi A, Arai H. Dietary amino acid intake and sleep duration are additively involved in future cognitive decline in Japanese adults aged 60 years or over: A community-based longitudinal study. BMC Geriatrics. 23(1):653, 2023.
5. **Kinoshita K**, Satake S, Murotani K, Li J, Yasuoka M, Arai H: Breakfast skipping and frailty: A cross-sectional study in community-dwellers aged 75 years or over. Geriatr Gerontol Int. 23(1):60-62, 2022.

6. **Kinoshita K**, Satake S, Murotani K, Takemura M, Matsui Y, Arai H: Physical Frailty and Hemoglobin-to-Red Cell Distribution Width Ratio in Japanese Older Outpatients. J Frailty Aging. 11(4):393-397, 2022.
7. **Kinoshita K**, Otsuka R, Nishita Y, Tange C, Tomida M, Zhang S, Ando F, Shimokata H, Arai H: Breakfast Protein Quality and Muscle Strength in Japanese Older Adults: A Community-Based Longitudinal Study. J Am Med Dir Assoc, 23(5): 729-735, 2022.
8. **Kinoshita K**, Satake S, Arai H: Impact of Frailty on Dietary Habits among the Community-Dwelling Older Persons during the COVID-19 Pandemic. J Frailty Aging, 11(1):109-114, 2022.
9. **Kinoshita K**, Otsuka R, Takada M, Tsukamoto-Yasui M, Nishita Y, Tange C, Tomida M, Jinzu H, Shimokata H, Kuzuya M, Imaizumi A, Arai H: Low Amino Acid Score at Breakfast is Associated with Cognitive Decline in Older Japanese Adults in a Community-Based Longitudinal Study. J Prev Alz Dis, 1(9):151-157, 2022.
10. **Kinoshita K**, Satake S, Matsui M, Arai H: Association between sarcopenia and fall risk according to the muscle mass adjustment method in Japanese older outpatients. J Nutr Health Aging 25(6): 762-766, 2021
11. **Kinoshita K**, Otsuka R, Tange C, Nishita Y, Tomida M, Ando F, Shimokata S, Arai H: Relationship between Serum Fatty Acids and Physical Frailty in Community-Dwelling Older Japanese Adults. J Frailty Aging 10(3): 237-240, 2021
12. **Kinoshita K**, Satake S, Matsui Y, Arai H: Quantifying muscle mass by adjusting for body mass index is the best for discriminating low strength and function in Japanese older outpatients. J Nutr Health Aging 25(4): 501-506, 2021
13. **Kinoshita K**, Otsuka R, Takada M, Tsukamoto-Yasui M, Nishita Y, Tange C, Tomida M, Shimokata H, Kuzuya M, Imaizumi A, Arai H: The association between dietary amino acid intake and cognitive decline 8 years later in Japanese community-dwelling older adults. J Nutr Health Aging 25(2):165-171, 2021

Contact Information

National Center for Geriatrics and Gerontology
Research Institute, Center for Gerontology and Social Science
Department of Frailty Research

Kaori Kinoshita
7-430 Morioka-cho, Obu, Aichi 474-8511, Japan
Phone: +81-562-46-2311
e-mail: kino4ta@ncgg.go.jp

Association between Nutritional Care and Oral Function in Older Adults

Keiko Motokawa

Tokyo Metropolitan Institute for Geriatrics and Gerontology
Research Team for Promotion of Independence and Mental Health

Summary

Japan is experiencing rapid population aging, and as a result, the importance of health promotion, disease prevention, and prevention of disease progression for each individual has increased substantially. Under these circumstances, maintaining and improving nutritional status, as well as providing appropriate nutritional care from an early stage, are essential strategies for frailty prevention among older adults.

In our previous research, we demonstrated a clear association between dietary variety and frailty in community-dwelling older adults. Furthermore, our findings indicate that oral function plays a critical role in maintaining dietary variety. Previous studies have reported that tooth loss is associated with decreased intake of protein, calcium, vitamins, vegetables, and meat. In addition, as tooth loss progresses, older adults tend to avoid foods that are difficult to chew and instead prefer foods rich in starch, which may further compromise nutritional balance. Consistent with these findings, our studies have shown significant associations between chewing ability and the intake of nutrients, including protein and vitamins, as well as the intake of specific food groups such as meat and green and yellow vegetables. Moreover, chewing ability was found to be significantly related to overall nutritional status.

These results suggest that declines in oral function may lead to inadequate nutrient intake and poor nutritional status, thereby increasing the risk of frailty. Taken together, these findings highlight the critical importance of incorporating oral function assessment into nutritional care for frailty prevention in community settings. Effective frailty prevention cannot be achieved through nutritional interventions alone; rather, it requires an integrated approach that includes oral health assessment and management, as well as close collaboration among multiple healthcare professionals, including dietitians, dentists, dental hygienists, and other allied health professionals. In this symposium, we aim to deepen the discussion on nutritional care for frailty prevention in community settings from the perspective of multidisciplinary collaboration.

Education

2006: Obtained Registered Dietitian License
2011: Completed Ph.D. program in Food and Nutrition Science at Tokyo University of Agriculture

Professional Experiences

2012–: Registered Dietitian, Tokyo Adventist Hospital, Tokyo, Japan

2013–: Research Fellow, National Cancer Center, Japan

2014–: Freelance Home Care Nutrition Services

2015–: Tokyo Metropolitan Institute for Geriatrics and Gerontology, Tokyo, Japan

Honors and Awards

2017: Young Investigator Award, Japanese Society for Parenteral and Enteral Nutrition (JSPEN)

2022: Best Poster Award, The 8th Asian Congress of Dietetics

Major Research Interest

- ❏ Nutritional care based on frailty prevention
- ❏ Collaboration between oral health and nutrition
- ❏ Community-based nutrition interventions for older adults

Recent Publications (Selected)

1. Mikami Y, Motokawa K, et al. Association between poor appetite and nutrient intake in community-dwelling older adults: the Otassha Study. JMA J. In press.
2. Motokawa K, et al. Serum albumin redox state as an indicator of dietary protein intake among community-dwelling older adults. Clin Nutr ESPEN. 2024.
3. Motokawa K, et al. Is urinary taurine associated with protein intake? The Itabashi Longitudinal Study on Aging. Geriatr Gerontol Int. 2024.
4. Motokawa K, et al. Relationship between chewing ability and nutritional status in Japanese older adults: a cross-sectional study. Int J Environ Res Public Health. 2021.
5. Motokawa K, et al. The Mini Nutritional Assessment–Short Form as a predictor of nursing home mortality in Japan: a 30-month longitudinal study. Arch Gerontol Geriatr. 2019.

Contact Information

Tokyo Metropolitan Institute for Geriatrics and Gerontology
Research Team for Promotion of Independence and Mental Health

Name: Keiko Motokawa
Address: 35-2 Sakae-cho, Itabashi-ku, Tokyo 173-0015, Japan
Phone: +81-3-3964-3241
e-mail: kmoto@tmig.or.jp

Personalized Nutritional Strategies for Older Adults With Diabetes

Noriko Satoh-Asahara, M.D., Ph.D.

National Center for Geriatrics and Gerontology
Vice President (Director, Department of Diabetes and Endocrinology)
Director, Geroscience Research Center (Professor, Department of Metabolic Research)
Collaborative Professor, Graduate School of Nagoya University

Summary

Older adults with diabetes exhibit substantial heterogeneity in their metabolic profiles, comorbidities, functional capacity, and psychosocial backgrounds. To effectively address this diversity, nutritional care must incorporate individualized strategies informed by metabolic risk, functional status, and aging biology. My research has focused on clarifying nutritional components that modulate cardiometabolic health and can be leveraged for personalized interventions.

We previously demonstrated the anti-atherosclerotic effects of the ω-3 fatty acid eicosapentaenoic acid (EPA), highlighting its potential to improve metabolic parameters and vascular inflammation. In addition, our work on equol—a gut microbiota–dependent metabolite of soy isoflavones—revealed its protective roles in ameliorating metabolic abnormalities and suppressing the progression of atherogenesis. These findings highlight that the efficacy of nutritional interventions varies according to biological traits such as lipid metabolism, microbiota composition, and individual responsiveness, thereby providing a scientific basis for precision nutrition.

Currently, through an AMED-funded observational and interventional project, we are investigating effective nutritional therapies tailored to older adults with diabetes. This research integrates detailed assessments of diet quality, eating behavior, body composition, frailty status, and glycemic patterns to construct individualized care pathways. As incretin-based pharmacotherapies, including GLP-1 receptor agonists, become increasingly used in elderly populations, we are also examining how these agents influence appetite regulation and eating behavior, and how nutritional guidance should adapt to maintain muscle mass, prevent undernutrition, and optimize metabolic outcomes.

Taken together, these lines of research reinforce that personalized nutritional strategies must account not only for metabolic phenotypes but also for modifiable factors such as gut microbiota, eating behavior, and pharmacotherapy-related changes. Future directions in geriatric diabetes nutrition will require integrating multi-omics profiling, behavioral assessment, and longitudinal monitoring to identify responders to specific dietary components and to tailor interventions with greater precision.

In conclusion, individualized nutrition—grounded in scientific evidence from EPA,

equol, and emerging geroscience-focused research—offers a promising pathway to improve metabolic control, vascular health, functional capacity, and healthy longevity in older adults with diabetes.

Education

1991 M.D. Department of Medicine, Kyushu University School of Medicine

1995-1999 Ph.D. Department of Endocrine and Metabolic Medicine, Graduate School of Medicine, Kyoto University, Doctor of Medicine

Professional Experiences

1991 – 1992 Junior Resident, Kyoto University Hospital

1992 – 1993 Junior Resident, Kyushu University Hospital

1993 – 1994 Clinical Fellow, National Kyoto Hospital

1994 – 1995 Staff, Department of Internal Medicine of Endocrinology & Metabolism, Kyoto University Hospital

1999 – 2001 Staff, Department of Internal Medicine, Osaka Prefecture, Saiseikai, Noe Hospital

2001 – 2003 Staff, Diabetic Center, Kyoto Medical Center, National Hospital Organization

2003 – 2016 Chief of the Section of Clinical Metabolism and Nutrition, Division of Diabetic Research, Clinical Research Institute, Kyoto Medical Center National Hospital Organization

2016 – Chief Director, Department of Endocrinology, Metabolism and Hypertension Research, Clinical Research Institute, National Hospital Organization Kyoto Medical Center (–present, cross-appointment)

2025 – National Center for Geriatrics and Gerontology Vice President (Director, Department of Diabetes and Endocrinology) Professor, Geroscience Research Center; (Director, Department of Metabolic Endocrinology Research)

Concurrent appointment

2019 Research Professor, Clinical Medicine, Teikyo University School of Medicine (–2021.3） Visiting Professor, Faculty of Sports Science, Doshisha University(–present) Visiting Professor, Department of Social Medicine, Shiga University of Medical Science (–present)

2021 Visiting Professor, Department of Internal Medicine, Division of Cardio-Vascular Medicine, Kurume University（–present） Research Professor, Department of Metabolic Syndrome and Nutritional Science, Research Institute of Environmental Medicine, Nagoya University (–2024.3)

2025 Collaborative Professor, Graduate School of Nagoya University

Honors and Awards

1998 Travel Grant Award, 58th American Diabetes Association Scientific Sessions

2009 President's Poster Award, 52nd Annual Meeting of the Japan Diabetes Society

2011 The 32nd Academic Encouragement Award Japan Society for the Study of Obesity

2011 8th Imura Clinical Research Encouragement Award, Foundation for the Promotion of Adult Vascular Disease Research

2013 5th Anti-Aging Research Encouragement Award (Clinical Division), Japan Society of Anti-Aging Medicine

2019 1st Female Researcher Award of the Japan Diabetes Society, among others.

Major Research Interest

Diabetes, Obesity, Metabolic Syndrome, Sarcopenia, and Geriatric Medicine

Recent Publications (Selected)

1. Kato S, Ozu N, Yamakage H, Kato H, Iuchi T, Suzuki R, Noto H, Tanaka M, Fukui M, Noda M, Satoh-Asahara N. Antidiabetic agents and dementia risk in type 2 diabetes: A systematic review and network meta-analysis. ***Diabetes Obes Metab*** 28(1):256-264, 2026
2. Iwasa M, Ozu N, Yamakage H, Kato H, Ishikawa M, Kanasaki M, Masuda I, Tanaka M, Satoh-Asahara N. Self-reported weight gain after the age of 20 and risk of steatotic liver disease. ***Nutrients***, 17:2566, 2025
3. Wada E, Hosono H, Tanaka M, Miyakawa F, Ochi K, Kohda H, Tanno S, Shimano R, Ito A, Kitaura Y, Ichihara K, Matsumoto A, Ogi T, Satoh-Asahara N, Murohara T, Suganami T. Transient dietary intervention induces healthy adipose tissue expansion and metabolically healthy obesity in mice. ***FASEB J***, 39(14):e70847, 2025
4. Ikeue K, Kato H, Tanaka M, Yamakage H, Kato S, Iwasa M, Oishi K, Yamamoto Y, Kanasaki M, Masuda I, Ishii K, Satoh-Asahara N. Phase angle is a potential novel early marker for sarcopenia and cognitive impairment in the general population. ***J Cachexia Sarcopenia Muscle***, 16(3):e13820, 2025
5. Shimizu H, Miyamoto J, Hisa K, Ohue-Kitano R, Takada H, Yamano M, Nishida A, Sasahara D, Masujima Y, Watanabe K, Nishikawa S, Takahashi S, Ikeda T, Nakajima Y, Yoshida N, Matsuzaki C, Kageyama T, Hayashi I, Matsuki A, Akashi R, Kitahama S, Ueyama M, Murakami T, Inuki S, Irie J, Satoh-Asahara N, Toju H, Mori H, Nakaoka S, Yamashita T, Toyoda A, Yamamoto K, Ohno H, Katayama T, Itoh H, Kimura I. Sucrose-preferring gut microbes prevent host obesity by producing exopolysaccharides. ***Nat Commun***, 16(1):1145, 2025
6. Inui T, Kawamura N, Kubo K, Yamakage H, Satoh-Asahara N, Ogawa Y, Katsuura G. Oral intake of degalactosylated whey protein increases peripheral

blood telomere length in young and aged mice. ***Sci Rep***, 14(1):30859, 2024
7. Yamamoto Y, Ikeue K, Kanasaki M, Yamakage H, Oishi K, Mori T, Satoh-Asahara N, Masuda I, Ishii K. Association between subjective walking speed and metabolic diseases in individuals with obesity: a cross-sectional analysis. ***Sci Rep***, 14(1):28228. 2024
8. Ishii K, Ogawa W, Kimura Y, Kusakabe T, Miyazaki R, Sanada K, Satoh-Asahara N, Someya Y, Tamura Y, Ueki K, Wakabayashi H, Watanabe Y, Yamada M, Arai H. Diagnosis of Sarcopenic Obesity in Japan: Consensus Statement of the Japanese Working Group on Sarcopenic Obesity. ***Geriatr Gerontol Int***, 24(10):997-1000, 2024
9. Yamakage H, Jo T, Tanaka M, Kato S, Hasegawa K Masuda I, Matsuhisa M, Kotani K, Noda M, Satoh-Asahara N. Five percent weight loss is a significant 1-year predictor and an optimal 5-year cut-off for reducing the number of obesity-related cardiovascular disease risk components: the Japan Obesity and Metabolic Syndrome Study. ***Front Endocrinol***, 15:1343153, 2024
10. Inoue T, Fu B, Nishio M, Tanaka M, Kato H, Tanaka M, Itoh M, Yamakage H, Ochi K, Ito A, Shiraki Y, Saito S, Ihara M, Nishimura H, Kawamoto A, Inoue S, Saeki K, Enomoto A, Suganami T, Satoh-Asahara N. Novel Therapeutic Potentials of Taxifolin for Obesity-Induced Hepatic Steatosis, Fibrogenesis, and Tumorigenesis. ***Nutrients***, 15: 350, 2023

Contact Information

National Center for Geriatrics and Gerontology
Vice President (Director, Department of Diabetes and Endocrinology)
Director, Geroscience Research Center (Professor, Department of Metabolic Research)
Name: Noriko Satoh-Asahara
Address：7-430 Morioka-cho, Obu, Aichi 474-8511, Japan
Phone: +81-562-46-2311
e-mail: asahara@ncgg.go.jp
nsatoh@kuhp.kyoto-u.ac.jp

Elucidation of Aging Mechanisms Using Multi-Omics Data obtained from Patients with Diabetes

Ryotaro Bouchi

Japan Institute for Health and Security

Summary

Since 2016, we have been collecting blood and fecal samples from hospitalized patients with diabetes at the bioresource research project, MDE and conducting genomic and omics analyses. Using multi-omics data obtained from the MDE, we aimed to 1) develop a predictive discrimination model for the aging-related events in patients with diabetes, 2) clarify the nutritional characteristics of diabetes patients with geriatric syndromes and attempt to predict the occurrence of geriatric syndromes from nutritional perspectives, and 3) elucidate mechanisms of diabetes-related aging focusing on the gut microbiota. First, we extracted the top 20 feature importances from three-layer omics data (blood and fecal metabolome and fecal metagenome) and created a predictive model incorporating them into the clinical risk factors. Addition of the 4, 7, or 9 feature importances from the three-layer omics data significantly improved the prediction of geriatric syndrome. It was also demonstrated that the four metabolites available commercially with clinical risk factors could possess sufficient predictive capability for geriatric syndrome. Analysis of dietary behavior questionnaires revealed that intake of specific nutrients correlates with the development of geriatric syndrome, and we attempted to construct a predictive model for incident geriatric syndrome incorporating these nutrients. Finally, we identified *Blautia hansenii (B.han)* as a bacterial species associated with diabetic aging and found that it induces muscle atrophy and weakness in germ-free mice with STZ-induced diabetes. We also found that persistent transplantation of *B.han* into STZ-induced middle-aged diabetes SPF mice also induces skeletal muscle atrophy and muscle weakness. However, gene expression analyses in skeletal muscle and ileum yielded inconsistent results. We are going to perform analyses, focusing on gut microbiota other than *B.han* that was increased in patients with geriatric syndrome.

Education

2002 Graduated from Wakayama Medical University School of Medicine. 1970

2008 Graduated from the Graduate School of Medicine, Tokyo Women's Medical University

Professional Experiences

2002-2008 Intern/Resident, Department of Internal Medicine, Tokyo Women's Medical University Hospital

2008-2009	Department of Internal Medicine, Shinjuku Ishikawa Hospital
2009-2012	Assistant Professor, Department of Diabetes and Metabolism, Tokyo Women's Medical University Hospital
2012-2014	Postdoctoral Research Scientist, Department of Medicine, Columbia University
2017-2024	Attending Physician, Department of Diabetes, Endocrinology and Metabolism, National Center for Global Health and Medicine (Japan Institute for Health and Security from April 2025) Hospita
2023-2025	Deputy Director, Diabetes Comprehensive Care Center, National Center for Global Health and Medicine Hospital
2024-present	Chief Physician, First Diabetes Division, Department of Diabetes, Endocrinology and Metabolism, National Center for Global Health and Medicine Hospital
2025-present	Director, Diabetes Comprehensive Care Center, National Center for Global Health and Medicine, Japan Institute for Health and Security

Honors and Awards

2020	Young Investigator Award, the Japan Society of Diabetic Complications
2021	Excellent Paper Award, Endocrine Journal

Major Research Interest

- ❏ Basic and Clinical Research on Intestinal Environment and Diabetic Complications and Comorbidities
- ❏ Pharmacotherapy in people with diabetes

Recent Publications (Selected)

1. Umamoto K, Bouchi R†, Soeda K, et al. Association of biomarkers and Barthel index with occurrence of age-related adverse health outcomes in individuals with diabetes. J Diabetes investing. 2024;15:1675-1683.
2. Bouchi R†, Kondo T, Ohta Y, et al. A consensus statement from the Japan Diabetes Society (JDS): a proposed algorithm for pharmacotherapy in people with type 2 diabetes -2nd Edition- (English version). Diabetol Int. 2024;15:327-345.
3. Soeda K, Bouchi R, Ueki K, et al. Gut insulin action protects from hepatocarcinogenesis in diabetic mice comorbid with nonalcoholic steatohepatitis. Nat Commun. 2023;14:6584
4. Bouchi R†, Sugiyama T, Goto A, et al. A retrospective nationwide study on the trends in first-line antidiabetic medication for patients with type 2 diabetes in Japan. J Diabetes Investig. 2022;13:280-291.
5. Fukuda T, Bouchi R†, Takeuchi T, et al. Importance of Intestinal Environment

and Cellular-Plasticity of Islets in the Development of Post-Pancreatectomy Diabetes. Diabetes Care. 2021;44:1002-1011.
6. Fukuda T, Bouchi R†, Asakawa M, et al. Sarcopenic obesity is associated with a faster decline in renal function in people with Type 2 diabetes. Diabet Med. 2020;37:105-113.
7. Fukuda T, Bouchi R†, Takeuchi T, et al. Sarcopenic obesity assessed using dual energy X-ray absorptiometry (DXA) can predict cardiovascular disease in patients with type 2 diabetes: a retrospective observational study. Cardiovasc Diabetol. 2018;17:55.
8. Cinti F, Bouchi R, Kim-Muller JY, et al. Evidence of β-cell Dedifferentiation in Human Type 2 Diabetes. J Clin Endocrinol Metab. 2016；101：1044-1054.
9. Bouchi R, Foo KS, Hua H, et al. FOXO1 inhibition yields functional insulin-producing cells in human gut organoid cultures. Nat Commun. 2014;5:e4242
10. Bouchi R, Babazono T, Mugishima M, et al. Arterial Stiffness Is Associated With Incident Albuminuria and Decreased Glomerular Filtration Rate in Type 2 Diabetic Patients. Diabetes Care. 2011;34:2570-2575.

Contact Information

Japan Institute for Health and Security
National Center for Global Health and Medicine
Department of Diabetes, Endocrinology, and Metabolism

Name: Ryotaro Bouchi
Address: 〒162-8655 Toyama 1-21-1, Shinjuku-ku, Tokyo, Japan
Phone: +81-3-3202-7181
Fax: +81-3-3207-1038
e-mail: bouchi.r@jihs.go.jp

Preventing Sarcopenia in Older Adults with Diabetes: Medical Nutrition Therapy and Anti-Diabetes Therapeutics with Cardio-Renal Benefits

Daisuke Yabe, MD, PhD

Department of Diabetes, Endocrinology and Nutrition, Kyoto University Graduate School of Medicine
Yutaka Seino Distinguished Center for Diabetes Research, Kansai Electric Power Medical Research Institute

Summary

Older adults with diabetes are particularly vulnerable to sarcopenia, a progressive loss of skeletal muscle mass and function that substantially increases the risks of frailty, disability, and mortality. In this population, nutritional management is not merely supportive care but a cornerstone of healthy aging and functional preservation. Among nutritional factors, adequate protein intake plays a central role in maintaining muscle mass, strength, and metabolic resilience. Evidence indicates that insufficient protein consumption is common in older adults with diabetes and is closely associated with accelerated sarcopenia and poor clinical outcomes. Beyond total daily protein intake, the distribution of protein across meals has emerged as a critical yet often overlooked determinant of muscle protein synthesis. Ideally, protein should be consumed evenly at breakfast, lunch, and dinner to stimulate muscle anabolism throughout the day. However, dietary patterns in Japan are characterized by a marked skew toward protein intake at dinner, with relatively low protein consumption at breakfast and lunch. This imbalance is particularly concerning because many older adults engage in physical activity earlier in the day, when protein availability is insufficient to support muscle repair and adaptation. Such a mismatch between exercise and protein intake may paradoxically accelerate sarcopenia despite good intentions toward physical activity. At the same time, the pharmacological landscape of diabetes care in older adults is rapidly evolving. Glucose-lowering agents with proven cardiovascular and renal benefits, including sodium–glucose cotransporter 2 (SGLT2) inhibitors and glucagon-like peptide-1 (GLP-1) receptor agonists, are increasingly prescribed in this population. While these agents offer substantial benefits, their effects on muscle mass, physical function, and sarcopenia remain insufficiently studied, especially in older adults who are already at risk of malnutrition and muscle loss. Our research group has addressed this gap through both interventional and real-world studies. We conducted a randomized controlled trial evaluating the effects of SGLT2 inhibitors on body composition and physical function in older adults with type 2 diabetes (Diabetes, Obesity and Metabolism, 2023). In addition, we have performed real-world observational

studies examining the impact of GLP-1 receptor agonists on weight change, metabolic control, and muscle-related outcomes (Journal of Diabetes Investigation, 2025). These studies highlight the importance of integrating nutritional strategies — particularly adequate and well-distributed protein intake — when initiating modern glucose-lowering therapies in older adults. In this lecture, I aim to discuss practical and evidence-based approaches to preventing sarcopenia in older adults with diabetes, focusing on the interplay between nutrition therapy and pharmacological treatment. By revisiting traditional principles of balanced nutrition while embracing advances in diabetes therapeutics, I hope to stimulate constructive discussion on optimizing care for this growing and vulnerable population.

Education

1992-1998	M.D. Kyoto University Faculty of Medicine, Kyoto, Japan
1998-2003	Ph.D. The University of Texas Southwestern Graduate School of Biomedical Sciences, Dallas, Texas, USA

Professional Experiences

2003-2004	Research Fellow of the Japan Society for the Promotion of Science, Kyoto University Faculty of Medicine, Kyoto, Japan
2004-2007	Assistant Professor, Kyoto University Faculty of Medicine, Kyoto, Japan
2007-2009	Fellow, Division of Diabetes, Clinical Nutrition and Endocrinology, Kansai Electric Power Hospital, Osaka, Japan
2009-2013	Assistant Director, Division of Diabetes, Clinical Nutrition and Endocrinology, Kansai Electric Power Hospital, Osaka, Japan
2011-2019	Visiting Associate Professor, Kobe University Graduate School of Medicine, Kobe, Japan
2013-2016	Director, Center for Diabetes, Endocrinology and Metabolism, Kansai Electric Power Hospital, Osaka, Japan
2015-Present	Deputy Director General, Kansai Electric Power Medical Research Institute, Osaka, Japan
2016-2018	Program-Specific Associate Professor, Department of Diabetes, Endocrinology and Nutrition, Kyoto University Graduate School of Medicine, Kyoto, Japan
2018-2024	Professor and Chairperson, Department of Diabetes, Endocrinology and Metabolism, Gifu University Graduate School of Medicine, Gifu, Japan
2019-2021	Visiting Professor, Kobe University Graduate School of Medicine, Kobe, Japan
2022-2024	Deputy President, Gifu University Hospital, Gifu, Japan
2022-Present	Visiting Professor, Fujita Medical University, Toyoake, Japan

2023-2024	Professor and Director, Center for One Medicine Innovative Translational Research Gifu University Institute for Advanced Study, Gifu, Japan
2024-Present	Professor and Chairperson, Department of Diabetes, Endocrinology and Nutrition, Kyoto University Graduate School of Medicine, Japan
2024-Present	Specially appointed Professor, Center for One Medicine Innovative Translational Research, Gifu University Institute for Advanced Study, Gifu, Japan
2025-Present	Vice President, Kyoto University Hospital, Japan

Honors and Awards

2012 Young Investigator Award (The 25th Anniversary of the Discovery of GLP-1 Symposium)
2013 The William Cullen Award (Japanese Association for Diabetes Education and Care)
2016 The Albireo Award (Japanese Society of Metabolism and Clinical Nutrition)
2017 The Masato Kasuga Award for Outstanding Scientific Achievement (Asian Association for the Study of Diabetes)
2017 The Outstanding Research Award (The Japan Society of Constitutional Medicine)

Major Research Interest

1. B-cell biology and b-cell replacement therapy
2. Incretin biology
3. Clinical research on novel anti-diabetic therapeutics and medical nutrition therapies

Recent Publications (Selected)

1. Ushiroda C, et al. Insulin Deficiency Exacerbates Muscle Atrophy and Osteopenia in Chrebp Knockout Mice. ***International Journal of Molecular Science***. 26(23):11672, 2025.
2. Deguchi K, et al. Chrebp deletion and mild protein restriction additively decrease muscle and bone mass and function. Nutrients. 17(3):488, 2025.
3. Yabe D et al. A multicenter, prospective, real-world study of oral semaglutide in adults with type 2 diabetes in Japanese clinical practice (PIONEER REAL Japan): Subgroup analyses. ***Journal of Diabetes Investigation***. 16(10):1794-1807, 2025.
4. Yabe D et al., PIONEER REAL Japan: Primary results from a multicenter, prospective, real-world study of oral semaglutide in adults with type 2 diabetes in Japanese clinical practice. ***Journal of Diabetes Investigation***. 15(11):1566-1577, 2024

5. Yamada Y, et al. Safety and effectiveness of tofogliflozin in Japanese with type 2 diabetes: A multicenter prospective observational study in routine clinical practice. ***Journal of Diabetes Investigation***. 15(11):1585-1595, 2024.
6. Ueno S, et al. Blockade of glucagon increases muscle mass and alters fiber type composition in mice deficient in proglucagon-derived peptides. ***Journal of Diabetes Investigation***. 14(9):1045-1055, 2023.
7. Moyama S, et al. Efficacy and Safety of 6-Month High Dietary Protein Intake in Hospitalized Adults Aged 75 or Older at Nutritional Risk: An Exploratory, Randomized, Controlled Study. ***Nutrients***. 15(9):2024, 2023.
8. Yabe D, et al. EMPA-ELDERLY Investigators. Efficacy and Safety of the SGLT2 Inhibitor Empagliflozin in Elderly Japanese Adults (≥65 Years) With Type 2 Diabetes: A Randomized, Double-Blind, Placebo-Controlled, 52-Week Clinical Trial (EMPA-ELDERLY). ***Diabetes Obesity and Metabolism***. 25(12):3538-3548, 2023.
9. Takahashi Y, et al. Gastric inhibitory polypeptide receptor antagonism suppresses intramuscular adipose tissue accumulation and ameliorates sarcopenia. ***Journal of Cachexia, Sarcopenia and Muscle***. 14(6):2703-2718, 2023.
10. Ueno S, et al. Glucagon is essential for the homeostasis of amino acid metabolism in response to increased protein intake. ***Nutrients***. 14(5):975, 2022.

Contact Information

Daisuke Yabe, MD, PhD
Professor and Chairperson of Department of Diabetes, Endocrinology and Nutrition, Kyoto University Graduate School of Medicine
Vice President, Chair of Department of Diabetes, Endocrinology and Nutrition, and Chair of Division of Clinical Nutrition and Metabolism, Kyoto University Hospital 54 Shogoin-kawahara-cho, Sakyo-ku, Kyoto 606-8507, Japan
Tel. +81-75-751-3562 Fax +81-75-771-6601 E-mail. ydaisuke@kuhp.kyoto-u.ac.jp

Mediterranean diet in the prevention and management of type 2 diabetes

Role of Mediterranean Diet in the prevention and management of obesity and diabetes mellitus

Jordi Salas-Salvadó

CIBER Fisiopatología de la Obesidad y Nutrición (CIBERobn), Instituto de Salud Carlos III (ISCIII), Madrid; and Human Nutrition Unit, Hospital Universitari Sant Joan, Institut d'Investigació Sanitaria Pere Virgili (IISPV), Universitat Rovira i Virgili, Reus.

Summary

A considerable body of evidence from prospective studies supports the importance of individual nutrients, foods, and dietary patterns in the prevention and management of obesity, metabolic syndrome (MetS) and type 2 diabetes (T2D). The Mediterranean diet (MedDiet) is characterized by high intake of fruits, vegetables, legumes, fish, whole grains, nuts and olive oil; moderate consumption of dairy products (such as yogurt) and wine, and low intake of red and processed meat, foods with added sugars and sugar drinks.

We summarise the current scientific evidence from epidemiological studies and clinical trials on regarding the relationship between the MedDiet, obesity, metabolic syndrome and T2D, as well the possible mechanisms underlying the reported associations. A meta-analysis of prospective studies showed that greater adherence to the MedDiet was associated with a significant reduction in the risk of T2D and gestational diabetes. Several studies have also demonstrated and inverse association between adherence to the MedDiet and weigh gain or the risk of obesity. Furthermore, the MedDiet appears to be effective in reducing improving insulin sensitivity. However, few randomized controlled trials (RCTs) have evaluated the effect of the MedDiet on T2D and MetS management.

Results from the landmark PREvención con DIeta MEDiterránea (PREDIMED) intervention trial showed that participants assigned to the MedDiet had a significant reduction in the risk of T2D and promoted the reversion of MetS and its components, hyperglycemia and central obesity. In addition, some RCTs showed the beneficial effects of the MedDiet compared with other dietary patterns on glycemic control in patients with T2D. Few studies have also evaluated in diabetic individuals the effect of MedDiet on diabetic complications.

The bioactive components of the MedDiet act synergizstically on multiple metabolic pathways, leading to a reduction in cardiometabolic risk. The abundance of healthy, nutrient-dense foods that characterize the MedDiet predicts its bioactivity and its potential

to beneficially influence metabolic mechanisms involved in the development of MetS and T2D, and other chronic conditions.

Given that no clinical trials have yet demonstrated that sustained weight loss over >2years with diet and changes in lifestyle reduce the risk of cardiovascular disease (CVD), we have also designed the PREDIMED-PLUS Study, a parallel group, multi-centre, randomised, primary prevention trial on men and women aged between 55 and 75 years, with overweight/obesity and MetS. The objective of the present research is to compare the cardiovascular effect of two interventions: a) intensive weight-loss intervention on lifestyle program with hypocaloric MedDiet, physical activity and behavioural therapy, b) non intensive care with recommendations on MedDiet following the usual care of medical physicians. The principal end-points are a composite of major hard clinical cardiovascular events, and weight loss and weight maintenance at long term. 6,874 participants have been randomized to this trial. The final results on the primary endpoint are expected to be available in 2026. We will present the results of this trial on diabetes incidence.

Education

- **Bachelor's degree in Medicine and Surgery**
  Universitat de Barcelona, Spain (1982)
- **Doctor in Medicine and Surgery**
  Universitat Autònoma de Barcelona, Spain (1985)
- **Certificat d'Etudes Supérieures en Nutrition Humaine et Diététique**
  Université de Nancy I, France (1984).
- **Diplôme de Nutrition et Santé Publique: Approche Epidemiologique et Politiques de Prevention.**
  Conservatoire National des Arts et Métiers, Institut Scientifique et Technique de l'Alimentation, France (1986).
- **Diplôme d'Etudes Aprofondis: Biologie et Technologie de la Nutrition Artificielle**
  Université de Paris V France (1988).

Professional Experiences

- **Professor of Nutrition.** Department of Biochemistry and Biotechnology. Faculty of Medicine and Health Sciences of Reus. Rovira i Virgili University. Appointment date: November 27, 2007 (In this University, hold teaching and research positions since 1985)
- **Director** of the Unit and Clinical Head of the Nutrition and Dietetics Unit, Internal Medicine Service, Sant Joan de Reus University Hospital (May 1993-January 2022).

Other relevant current positions currently held:

- Chairman of the INC-World Forum for Nutrition Research and Dissemination (2014–present).
- Corresponding Member of the Royal Academy of Medicine of Catalonia (July 2014–present).
- Member of the Network of Experts of the Public Health Agency of the Generalitat de Catalunya (ACASA) (October 2012–present).
- Full Member of the Biological Sciences Section of the Institute of Catalan Studies (February 2013–present).
- Director of the Catalan Nutrition Center of the Institute of Catalan Studies (CCNIEC) (October 2009–present).
- Member of the Spanish Academy of Nutrition (2012–present).
- Member of the Steering Committee and the Scientific Committee of the Pere Virgili Health Research Institute (IISPV) (2009–present).
- Member of the Steering Committee of CIBERobn of the Carlos III Health Institute and Director of the "CIBERobn Nutrition" program (2016–present).
- Member of the Scientific Committee of the International Carbohydrate Quality Consortium (ICQC) (2015–present).
- Member of the Expert Panel of the Diabetes and Nutrition Study Group (DSNG) (2018–present) and Member (Communication Manager) of the DNSG Scientific Committee. He is currently Vice-Chairperson (since 2025) of the Diabetes and Nutrition Study Group (DSNG).
- Honorary Member of the Academia Europaea (Honoris Causa) in the field of Biochemistry and Molecular Biology (2022–present).
- Representative-Tutor Member of the Catalan Association of Food Sciences (ACCA) in the Biological Sciences Section of the Institute of Catalan Studies - IEC (2024–present).
- Member of the New York Academy of Sciences. (2025–present).
- Corresponding Member of the Royal National Academy of Medicine of Spain - RANME (2025–present).
- Member of the Advisory Committee of the Board of Directors of the Spanish Society of Clinical Nutrition and Metabolism (SENPE) (2025–present).

1.3. Other relevant positions previously held:

- Member of the Scientific Committee of the Spanish Food Safety Agency (AESAN) of the Ministry of Health, Social Policy and Equality (2011-2014).
- President of the Spanish Federation of Nutrition, Food and Dietetics Societies (FESNAD) (2010-2015).
- Head of Studies for the Bachelor's Degree in Human Nutrition and Dietetics, Rovira

i Virgili University (2002).

- Vice Dean and Head of Studies for the Bachelor's Degree in Human Nutrition and Dietetics, Reus School of Medicine, Rovira i Virgili University (2014-2016).
- Deputy Director of the Pere Virgili Health Research Institute (IISPV) (2016-2021).
- Member of the Executive Committee and and of the Scientific Committee of the Danone Institute of Spain (2017-2024).
- 2017-2024. Member of the Executive Committee and subsequently of the Scientific Committee of the Danone Institute of Spain.

Honors and Awards

History of honors and awards received in his Scientific Career:
https://www.nutricio.urv.cat/ca/divulgacio/premis/

Most important honors and awards received (2020 to present)

- **2020. Medalla Narcís Monturiol Award to scientific and technological merits.**
  This award distinguishes people who, due to their merits, have significantly contributed to the development of Science and Technology in Catalonia. Awarded by the Departament d'Empresa i Coneixement de la Generalitat de Catalunya [Department of Business and Knowledge of the Generalitat of Catalonia] Decree 72/2000, of July 21, 2020 (Official Gazette of the Generalitat of Catalonia).

- **2020. Highly Cited Researchers 2019**
  Award. Awarded by Clarivate Analytics.

- **2021. Català Il·lustre Award.**
  Gaudí Gresol Foundation Award for Notoriety and Excelence.

- **2021. Servir Award to the scientific career.**
  Awarded by the Rotary International Club (Tarragona)

- **2021. Agricultural Excellence Award "Rec Major" for Scientific Career.**
  Awarded Farmers Guild of Sant Llorenç and Sant Isidre de Tarragona • 2021. Highly Cited Researchers 2020 Award. Awarded by Clarivate Analytics.

- **2022. International Award for Excellence in Research.**
  Awarded by the International Nut & Dried Fruit Foundation (INC). This award recognizes the scientific research career of excellence in the field of nutrition, specifically the study of the beneficial effects of nuts on Health (Dubai, May 2022).

- **2022. Highly Cited Researchers 2021 Award.**
  Awarded by Clarivate Analytics.

- **2022. IMDEA Honour Lecture Award**
  in recognition of significant contributions in the field of Diabetes and Nutrition. Awarded by Dr. Mohan's Diabetes Education Academy (India).

- **2023. XIX International Hip・crates Award for Medical Research on Human Nutrition.**
  Awarded by the Real Academia de Medicina y Cirugía del Principado de Asturias (España) [Royal Academy of Medicine and Surgery of the Principality of Asturias (Spain).

- **2024. Cultura de l'Oli 2024 Award.**
  Awarded by Ajuntament de les Borges Blanques (Spain) [Les Borges Blanques City Council]

Major Research Interest

- Mediterranean Diet and cardiovascular disease.
- Epidemiology and public health in relation to nutrition or nutritional illnesses.
- Intervention studies to determine the effect of the diet or the constituents of the diet on health or illness and the mechanisms involved
- Relationship between obesity, inflammation and different comorbidities associated with obesity. • Effect of the disease on the circulating metabolome.
- Effect of genetic, epigenetic and nutritional interactions on health in the population.
- Biochemical and metabolic biomarkers of diabetes and cardiovascular disease.
- Identification of new biomarkers to identify primary and secondary prevention strategies for chronic illnesses (obesity, diabetes, cardiovascular malaria).
- Impact of metagenomics and nutritional regulation on cognitive status and dementia.

Recent Publications (Selected)

Complete list of indexed (SCI) publications: https://www.nutricio.urv.cat/ca/publicacions/indexades/

Selected publications (2024-2025)

1. Khoury N, Ángeles Martínez M, Nishi SK, Ángel Martínez-González M, Corella D, Castañer O, Alfredo Martínez J, Alonso-Gómez ÁM, Wärnberg J, Vioque J, Romaguera D, López-Miranda J, Estruch R, Tinahones FJ, Manuel Santos-Lozano J, Serra-Majem L, Bueno-Cavanillas A, Tur JA, Cinza Sanjurjo S, Pintó X, Juan Gaforio J, Matía-Martín P, Vidal J, Vázquez C, Daimiel L, Ros E, Sayon-Orea C, V Sorli J, Pérez-Vega KA, Garcia-Rios A, Ortiz-Díaz F, Gómez-Gracia E, Zulet MA, Chaplin A, Casas R, Salcedo-Bellido I, Tojal-Sierra L, Bernal-Lopez MR, Vazquez-Ruiz Z, Asensio EM, Goday A, Peña-Orihuela PJ, Signes-Pastor AJ, Garcia-Arellano A, Fitó M, Babio N, Salas-Salvadó J. Dietary intake of Perfluorooctanesulfonic acid (PFOS) and glucose homeostasis parameters in a non-diabetic senior population. **Environ Int.** 2024 Apr;186: 108565. PMID: 38574403. doi: 10.1016/j.envint.2024.108565. ISSN: 0160-4120. **Salas-Salvadó J: Co-senior & co-corresponding author.**
   IF (2024) = 9.7 D1 (25/374). SC: ENVIRONMENTAL SCIENCES - SCIE

2. Khoury N, Martínez MÁ, Garcidueñas-Fimbres TE, Pastor-Villaescusa B, Leis R, de Las Heras-Delgado S, Miguel-Berges ML, Navas-Carretero S, Portoles O, Pérez-Vega KA, Jurado-Castro JM, Vázquez-Cobela R, Mimbrero G, Andía

Horno R, Martínez JA, Flores-Rojas K, Picáns-Leis R, Luque V, Moreno LA, Castro-Collado C, Gil- Campos M, Salas-Salvadó J, Babio N. Ultraprocessed Food Consumption and Cardiometabolic Risk Factors in Children. **JAMA Netw Open. 2024** May 1;7(5):e2411852.
PMID: 38758555. doi: 10.1001/jamanetworkopen.2024.11852. ISSN: 2574-3805.
Salas-Salvadó J: Co-senior author.
IF (2024) =9.7 D1 (14/332). SC: MEDICINE, GENERAL & INTERNAL- SCIE

3. Martínez MÁ, Salas-Huetos A, Fernández de la Puente M, Valle-Hita C, Marquès M, Del Egido-González C, Davila-Cordova E, Mestres C, Petersen MS, Babio N, Salas-Salvadó J. Exploring the association between urinary bisphenol A, S, and F levels and semen quality parameters: Findings from Led-Fertyl cross-sectional study. **Environ Res.** 2024 Dec 15;263(Pt 2):120086. ***Salas-Salvadó J: co-senior author.***
PMID: 39353529. doi: 10.1016/j.envres.2024.120086. ISSN: 0013-9351.
IF (2024) = 7.7 D1 (18/374). SC: PUBLIC, ENVIRONMENTAL & OCCUPATIONAL HEALTH – SCI

4. Martínez MÁ, Salas-Huetos A, de la Puente MF, Valle-Hita C, Khoury N, Sánchez-Resino E, Ramos-Rodríguez C, Davila-Cordova E, Salas-Salvadó J, Babio N. Association between dietary intake estimated levels of PCDD/Fs and human sperm quality. **Reprod Toxicol.** 2025 Mar;132:108831.
PMID: 39798724.d oi: 10.1016/j.reprotox.2025.108831. ISSN: 0890-6238. ***Salas-Salvadó J: co-senior author.***
IF (2024) = 2.8 Q2 (17/42). SC: REPRODUCTIVE BIOLOGY – SCI

5. Vázquez-Lorente H, García-Gavilán JF, Shyam S, Konieczna J, Martínez JA, Martín-Sánchez V, Fitó M, Ruiz-Canela M, Paz-Graniel I, Curto A, Martinez-Urbistondo D, de Paz Fernández JA, Romaguera D, Babio N, Salas-Salvadó J. Mediterranean Diet, Physical Activity, and Bone Health in Older Adults: A Secondary Analysis of a Randomized Clinical Trial. **JAMA Netw Open**. 2025 Apr 1;8(4):e253710. PMID: 40198072. doi: 10.1001/jamanetworkopen.2025.3710. ISSN: 2574-3805. **Salas-Salvadó J: co-correspoing author.**
IF (2024) = 9.7 D1 (14/332). SC: MEDICINE, GENERAL & INTERNAL- SCIE.

6. Hernández-Cacho A, García-Gavilán JF, Atzeni A, Konstanti P, Belzer C, Vioque J, Corella D, Fitó M, Vidal J, Mela V, Liang L, Torres-Collado L, Coltell O, Babio N, Clish C, Hernando-Redondo J, Martínez-González MÁ, Wang F, Moreno-Indias I, Ni J, Dennis C, Ruiz-Canela M, Tinahones FJ, Hu FB, Salas-Salvadó J. Multi-omics approach identifies gut microbiota variations associated with depression. **NPJ Biofilms Microbiomes.** 2025 Apr 28;11(1):68. PMID: 40295565. doi: 10.1038/s41522-025-00707-9. ISSN: 2055-5008. **Salas-Salvadó J: ccorrespoing author.**
IF (2024) = 9.2 DI (11/177). SC: BIOTECHNOLOGY & APPLIED MICROBIOLOGY – SCIE

7. Khoury N, Babio N, Martínez MÁ, Serafeim E, Costopoulou D, Iglesias-Vazquez L, Leondiadis L, Salas-Salvadó J. Validation of dietary assessment methods for PFOS exposure using biomonitoring data in a senior population with metabolic syndrome. **Environ Int.** 2025 Jul;201:109599.
PMID: 40505268. doi: 10.1016/j.envint.2025.109599. ISSN: 0160-4120. ***Salas-***

Salvadó J: co-corresponging author.
IF (2024) = 9.7 D1 (25/374). SC: ENVIRONMENTAL SCIENCES – SCIE

8. Ni J, Nishi SK, Babio N, Belzer C, Konstati P, Vioque J, Corella D, Castañer O, Vidal J, Moreno-Indias I, Torres-Collado L, Guillem-Saiz P, Fitó M, Ruiz-Canela M, Hernández-Cacho A, Tinahones FJ, Salas-Salvadó J. Nut consumption, gut microbiota, and cognitive function: findings from a prospective study in older adults at risk of cognitive decline. **Age Ageing.** 2025 Jul 1;54(7):afaf208. PMID: 40736692. doi: 10.1093/ageing/afaf208. ISSN: 0002-0729. ***Salas-Salvadó J: Corresponging author.***
IF (2024) = 7.1 D1 (5/73). SC: GERIATRICS & GERONTOLOGY – SCIE

9. Ruiz-Canela M, Corella D, Martínez-González MÁ, Babio N, Martínez JA, Forga L, Alonso-Gómez ÁM, Wärnberg J, Vioque J, Romaguera D, López-Miranda J, Estruch R, Santos-Lozano JM, Serra-Majem L, Bueno-Cavanillas A, Tur JA, Martín-Sánchez V, Riera-Mestre A, Delgado-Rodríguez M, Matía-Martín P, Vidal J, Vázquez C, Daimiel L, Buil-Cosiales P, Shyam S, Sorlí JV, Castañer O, García-Rios A, Torres-Collado L, Gómez-Gracia E, Zulet MÁ, Konieczna J, Casas R, Cano-Ibáñez N, Tojal-Sierra L, Bernal-López RM, Toledo E, García-Gavilán J, Fernández-Carrión R, Goday A, Arenas-Larriva AP, González-Palacios S, Schröder H, Ros E, Fitó M, Hu FB, Tinahones FJ, Salas-Salvadó J. Comparison of an Energy-Reduced Mediterranean Diet and Physical Activity Versus an Ad Libitum Mediterranean Diet in the Prevention of Type 2 Diabetes : A Secondary Analysis of a Randomized Controlled Trial. **Ann Intern Med.** 2025 Aug 26. doi: 10.7326/ANNALS-25-00388. Epub ahead of print. PMID: 40854218. ISSN: 0003-4819. ***Salas-Salvadó J: Co-senior author.***
IF (2024) = 15,4.8 D1 (9/332). SC: MEDICINE, GENERAL & INTERNAL – SCIE

10. Margara-Escudero HJ, Paz-Graniel I, García-Gavilán JF, Fitó M, Bralten J, Matura S, Glennon JC, Schiweck C, Vilella E, Santos-Lozano JM, Babio N, Salas-Salvadó J. Plasma neurology-related proteins associated with cognition are modulated by lifestyle in adults. **EBioMedicine.** 2025 Oct;120:105933. PMID: 4097222. doi: 10.1016/j.ebiom.2025.105933. ISSN: 2352-3964. ***Salas-Salvadó J: Corresponging author.***
IF (2024) = 10.8 D1 (13/195). SC: MEDICINE, RESEARCH & EXPERIMENTAL– SCIE

Contact Information

Human Nutrition Unit
Faculty of Medicine and Health Sciences of Reus
Rovira i Virgili University

Name: Jordi Salas-Salvadó
Address: Human Nutrition Unit - Faculty of Medicine and Health Sciences of Reus,
Sant Llorenzo, 21, 43201 Reus (Spain)
Phone: +34 977759313
e-mail: jordi.salas@urv.cat

4. 総括

国立長寿医療研究センター（NCGG）主催による第 20 回長寿医療研究センター国際シンポジウムは、2026 年 1 月 12 日、「高齢者医療における栄養管理の重要性（Importance of Nutritional Management in Geriatric Healthcare）」をテーマとして、名古屋国際センター別棟ホールにおいて開催された。当日は、国内外の臨床医、研究者、医療・介護専門職が一堂に会し、最終的に 73 名が参加して、有意義な発表と活発な質疑応答、多角的かつ実践的な議論が行われ成功裏に終了した。
プログラムは、以下の 3 つの主要セッションおよびランチョンセミナーで構成された。
セッション 1：「認知症診療と栄養管理」では、食事因子と認知機能低下の関連、腸内細菌叢と脳機能の関係について、基礎から臨床まで幅広い視点から議論が行われた。
セッション 2：「サルコペニアと栄養管理」では、AWGC フレームワークを基盤として、質の高い栄養とサルコペニア予防、食事による酸負荷や摂取タイミング、口腔機能と栄養ケアの関連など、実践的かつ最新の知見が共有された。なお、本セッションに登壇予定であった本川佳子先生（東京都健康長寿医療センター研究所）は、やむを得ない事情によりオンラインでの講演となったが、円滑な運営のもとで重要な知見が示された。
セッション 3：「糖尿病または糖尿病リスクのある高齢患者と栄養管理」では、個別化栄養戦略、マルチオミクスによる加齢機構の解明、地中海食の有効性など、高齢者糖尿病診療の最前線が紹介された。これらの議論を通じ、栄養管理が高齢者の診療において非常に重要であることが再認識された。
また、ランチョンセミナーでは、認知症予防における栄養介入や高齢期におけるビタミンの重要性について、エビデンスに基づく実践的な講演が行われ、参加者から高い評価を得た。
海外からは、フィンランド、台湾、スペインより 3 名の著名な研究者を招聘し、国際的視点からの貴重な知見が提供された。加えて、すべての講演者および座長の協力、ならびに参加者からの活発な質問や意見、関係者による企画・運営面での尽力により、本シンポジウムは円滑に実施され学術的にも極めて充実した内容となった。

本シンポジウムを通じて共有された知識と経験は、今後の高齢者医療およびケアの質の向上、さらには世界的な健康長寿の推進に向けた重要な基盤となることが期待される。今後も国際的・学際的な連携を一層深化させ、高齢者医療における栄養管理の発展につなげていくことが重要と考えられる。

（国立長寿医療研究センター 病院長　松浦　俊博）

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