

## Shaw Watanabe, M.D., Ph.D.

President, Medical Rice Association, President Emeritus, Japan Integrative Medicine Society

#### Briefhistory

Shaw Watanabe graduated Keio University School of Medicine, and studied on hematopathology at the National Cancer Institute, U.S.A. After returning to Japan, he worked at the National Cancer Center Research Institute, Tokyo, where he specialized in hematopathology and cancer immunology. Then, he was the director of the Department of Epidemiology at the National Cancer Center and served as a consultant for the WHO smoking cessation program. At the age of 50, he developed diabetes from metabolic syndrome, which he controlled with diet and exercise without medication, and he began research on nutrition as a professor at the Tokyo University of Agriculture. He became President of the National Institute of Health and Nutrition (NIHN), conducting research on health and longevity through diet and exercise. After retiring from National Institute, he published a bimonthly magazine "Clinical & Functional Nutriology" focusing on nutritional therapy. He is a long-time member of the Japan-US Medical and IARC committees, and was involved in the Society of Anti-Aging Medicine. He was President of the 8th Asia Pacific Congress of Clinical Nutrition (APCCN) in 2013, and served as the President of the Asian Pacific Clinical Nutrition Society (APCNS) 2018-2022. At the age of 80, he concentrated on research and promotion of brown rice, and established the Medical Rice Association with the aim of "curing unwellness. He has established a consortium for low-protein processed brown rice for kidney

In response to the enormous increase in medical costs in many countries, encouraging healthy longevity through changes in dietary habits is mandatory. An excellent example of the necessity of dietary therapy is chronic kidney disease (CKD). Chronic kidney disease is one of the targets because of its non-curability and increasing worldwide. Proteinuria is a good marker for clinical progression, so solution-oriented Pro-& Post studies make it easy for clinicians and dieticians to get evidence of dietary therapy.

disease patients, organic brown rice for healthy longevity, and other products.

We have performed eight intervention studies (five in Japan, two in China, and one in Indonesia at various CKD stages) using the newly developed processed low-protein genmai (Gogyo-Genmai: JAS0027) and showed that decreasing uremic toxins through the improvement of uremic dysbiosis and leaky gut prevented the progression of chronic kidney disease (CKD). Decreased proteinuria is a good simple biomarker of response. Blautia wexerelae was a key bacterium to correct dysbiosis. Then, uremic toxins decreased.

It was effective at any stage in patients from CKD3 to CKD5 by only substituting white rice to the low protein genmai package without strict limitations for side dishes.

Gogyo-genmai shows (1) energy similar to white rice, (2) protein content of less than one-tenth, (3) almost zero potassium, and (4) phosphorus of less than one-quarter, (5) dietary fiber, (6)  $_{\rm Y}$ -oryzanol, and (7) antioxidant capacity. (5),(6), and (7) are key elements of brown rice. It could open a new era of dietary therapy for CKD with a plant-based PLADO diet.

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# Lifestyle Intervention – a Lifespan approach for Kidney Health



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Chronic kidney disease (CKD) is projected to be the 5th leading cause of death by 2040 and incurs an enormous health expenditure worldwide. CKD has resulted in 35.8 million disability adjusted life years (DALYs) in 2017, with diabetic nephropathy accounting for almost a third of DALYs. A systematic analysis from the Global Burden of Disease study showed that globally, 11 million deaths and 255 million DALYs were attributable to poor diet and dietary risk factors, the leading dietary factors were diet high in sodium, low in whole grains, fruits, vegetables and fiber, nuts and seeds, seafood omega-3 fatty acids and polyunsaturated fatty acids. These dietary factors significantly contributed to a huge global burden of non-communicable diseases including hypertension, cardiovascular disease and type 2 diabetes that are closely associated with CKD. Shifting to a healthy diet is important in preventing the huge global burden of non-communicable diseases and for sustainable planetary health. From our kidney patients' perspectives, dietary restrictions imposed to them are rated among the key issues that impact them negatively from living well with kidney disease. Many patients perceived that eat smart and eat well are key elements among others that enable them to live well with kidney disease. Poor health and nutrition literacy contribute to poor dietary adherence in people with CKD. In patients with advanced CKD and dialysis, protein-energy wasting is also a highly prevalent problem. There is recent evidence that circulating trimethylamine N-oxide and its dietary determinant are associated with an increased risk of adverse cardiovascular and kidney outcomes. Targeting gut microbiota may emerge as a novel strategy for kidney health that warrants further exploration. In this talk, I will provide data supporting lifestyle intervention, specifically implementing a healthy dietary pattern as a lifespan approach for kidney health.



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The increasing prevalence of chronic kidney disease (CKD) has become a major global health issue, leading to renal and cardiovascular morbidities and mortalities while imposing significant medical and financial burdens worldwide. Dietary therapy plays a crucial role in slowing the progression of renal failure and delaying the need for renal replacement therapy in end-stage kidney disease. Traditionally, a low-protein, low-phosphorus diet serves as the core dietary approach, not only ensuring favorable nutritional status but also preventing protein-energy wasting and other complications.

Plant-based diets, particularly those following the DASH (Dietary Approaches to Stop Hypertension) principles and emphasizing plant protein sources, have shown promising results in CKD management. Unlike animal protein sources, which are high in sulfur-containing amino acids and phosphorus—both of which contribute to metabolic acidosis and hyperphosphatemia—plant proteins are lower in these harmful compounds. Studies have shown that shifting to a predominantly plant-based protein intake can reduce proteinuria, alleviate hyperphosphatemia, and decrease acid load, thereby reducing the burden on the kidneys.

Additionally, plant-based diets are rich in fiber, antioxidants, and polyphenols, which may provide anti-inflammatory and gut-protective effects. The fiber-rich nature of plant-based diets supports a healthy gut microbiome, which has emerged as a crucial factor in CKD pathophysiology. Furthermore, probiotics offer a novel approach to modulating gut microbiota and reducing uremic toxins. Probiotics, including Lactobacillus and Bifidobacterium strains, have been shown to decrease inflammation, lower blood urea nitrogen (BUN), and improve intestinal barrier function. The combination of probiotics and prebiotic fibers, known as synbiotics, may create a synergistic effect, enhancing gut microbiota composition and potentially offering a novel therapeutic approach for CKD management

Despite the limited number of studies on dietary therapy for CKD patients in recent years—aside from a few smallscale studies on the effects of probiotics in various conditions—many patients have been using these products at their own expense. Therefore, more large-scale clinical trials with rigorous scientific design should be encouraged in Taiwan. Key words. dietary therapy, chronic kidney disease, plant-based diet, probiotics.

# Association of diet with the risk of stroke and dementia in a general Japanese population: the Hisayama Study



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In Japan, where aging is progressing, the influence of diet on the onset of neurological disorders such as stroke and dementia is of scientific and public interest. The Hisayama study is an ongoing population-based prospective cohort study for cardiovascular disease and dementia. In this study, the association of diet with the risk of developing stroke and dementia was addressed. A dietary survey was conducted using semi-quantitative food frequency questionnaire.

First, we investigated the association between dietary protein intake and the development of stroke using a 19-year follow-up data of 2,400 Hisayama residents aged 40–79 years without a history of stroke. During the follow-up period, 254 cases of stroke were identified. Higher protein intake was significantly associated with a lower risk of stroke. Participants with higher protein intake tended to have higher intakes of soy products, tofu, vegetables, seaweed, dairy products, eggs, and fish, while having lower intakes of rice and alcohol.

In addition, we addressed the dietary pattern associated with dementia risk using a 17-year follow-up data of 1,006 residents aged 60–79 years without dementia at baseline. As a result, a dietary pattern characterized by higher intakes of soy products, tofu, vegetables, seaweed, dairy products, fruits, and fish and lower intakes of rice and alcohol was associated significantly with reduced risk of developing dementia and its subtypes.

In conclusion, our findings suggest that a diverse diet, which includes a variety of food sources and is likely higher in protein intake, may contribute to reducing the risk of stroke and dementia in the Japanese population.

# Comparison of Plant-Based Low-Protein Diet and Ketoanalogues with Non-Plant-Based Low-Protein Diet and Ketoanalogues in Non-Dialytic CKD Patients



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2020

- Nephrologist Virinchi Hospitals, Hyderabad, Telangana, July 2023-Present
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# **Background and Objectives:**

This study aimed to evaluate the effect of a plant-based low-protein diet compared to a non-plant-based low-protein diet on the progression of chronic kidney disease (CKD).

## Methodology:

Patients with CKD stages 3–5 (non-dialysis requiring) attending the Nephrology OPD at Virinchi People's Hospital between August 2021 and December 2023 were included. Based on their dietary preference, patients were divided into two groups: plant-based and non-plant-based diets, with protein intake restricted to 0.6 g/kg/day supplemented with ketoanalogues (1 tablet/10 kg lean body weight). Patients aged <18 or >80 years, pregnant women, malnourished individuals, and those with active infections were excluded. Renal parameters and anthropometric measurements were assessed at baseline, 3, 6, and 12 months.

## **Results:**

Seventy-one patients participated, with 31 opting for a plant-based diet and 40 for a non-plant-based diet. Baseline characteristics of the patients in the two groups were as shown in Table 1.

Parameter	Non-plant based (n=40)	Plant based (n=31)	P value
Age	57.89±14.49	53.16±11.83	0.213
Male	64%	68%	0.978
Native kidney disease			
1. Diabetic kidney disease	68%	64%	
2. Hypertensive nephrosclerosis	16%	4%	
3. CGN	12%	16%	
4. ADPKD	0%	4%	
5. Others	4%	4%	
CKD Stage			0.202
i. 3A	14%	12%	
ii. 3B	22%	10%	
iii. 4	46%	44%	
iv. 5	18%	34%	

Table 1Baseline characteristics of the study patients

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Over 12 months, both diets showed a trend toward delayed CKD progression. The plant-based group exhibited a trend toward improvement in eGFR and 24-hour urinary creatinine clearance compared to the non-plant-based group, which was not statistically significant. However, a significant reduction in 24-hour urinary protein was observed in the plant-based diet group (p < 0.05). Nutritional parameters, including weight, waist-to-hip ratio, and skinfold thickness, remained stable across both groups.

Parameter	Diet	Baseline	3 months	6 months	12 months	P value
eGFR (ml/min/1.73m <sup>2</sup> )	Plant-based	23.16	24.40	24.70	25.50	0.593
	Non plant-based	29.60	24.70	25.90	29.10	
24hr urinary creatinine clearance (ml/min)	Plant-based	21.40	22.80	22.50	23.10	0.485
	Non plant-based	31.20	28.40	29.10	30.60	
24hr urinary protein (gm/24hrs)	Plant-based	2.90	2.30	2.0	1.6	0.044
	Non plant-based	1.90	2.10	1.80	1.7	
Serum albumin (g/dl)	Plant-based	2.9	3.1	3.0	3.2	0.547
	Non plant-based	3.1	3.0	3.2	3.4	
Mid-arm circumference (cm)	Plant-based	30.87	29.31	29.99	29.72	0.681
	Non plant-based	28.33	27.12	27.65	28.14	
BMI (kg/m <sup>2</sup> )	Plant-based	29.79	27.12	26.69	26.36	0.746
	Non plant-based	26.56	26.12	26.16	25.72	
24hr urinary nitrogen (gm/24hrs)	Plant-based	4.56	5.20	5.10	5.30	0.924
	Non plant-based	4.45	5.00	5.30	5.20	

Table 2Comparision of the two groups at the end of 12 months

# **Conclusions:**

Low-protein diets supplemented with ketoanalogues are practical for managing non-dialytic CKD patients, showing a potential delay in disease progression. Although the plant-based diet demonstrated a trend toward better renal outcomes, the differences were not statistically significant, likely due to the small sample size and limited follow-up duration. Importantly, no malnutrition was detected during the study period.

This study suggests that a plant-based low-protein diet may have the potential to slow CKD progression, particularly by reducing proteinuria. However, due to the small sample size and limited follow-up duration, further large randomized controlled studies with longer follow-up are needed to confirm these findings. If confirmed, these results could support the wider adoption of plant-based low-protein diets in the management of CKD, especially in regions like the Indian subcontinent where such diets are culturally prevalent.

# Nutritional status and dietary intake in patients with nondialysis dependent CKD: insights from a Japanese cohort study



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Area of Interest: Risk prediction models for chronic kidney disease, prognostic value of biomarkers, effectiveness of therapeutic interventions.

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Chronic kidney disease (CKD) is a major global health burden that is often associated with cardiovascular complications and has a significant impact on patients' quality of life. In recent years, nutrition has been recognized as an important determinant of disease progression and clinical outcome in patients with CKD. This presentation will focus on findings on nutrition and CKD from the FKR (Fukuoka Kidney Disease Database Study), a cohort study with extensive longitudinal data on CKD progression. In this study, we first found that worsening nutritional status, as assessed by the CONUT (Controlling Nutrition Status) score and the PNI (Prognostic Nutrition Index), is associated with history of cardiovascular disease in CKD patients (Tsuda S et al. 2022). We also found that weight loss from young age may be a risk factor for all-cause and cardiovascular mortality in CKD patients (Okamura K et al. 2024). In terms of nutritional intake, we assessed the intake of specific foods and nutrients, such as vegetable and fruit intake, beta-carotene, dietary fiber, or potassium intake (Nakano T et al. 2023). The results showed that CKD patients had inadequate intake of fruits and vegetables, beta-carotene, and dietary fiber, and a decreasing trend in intake with the progression of CKD was also observed. Furthermore, we also identified an independent association between low potassium intake and deteriorating kidney function and increased cardiovascular risk (Suenaga T et al. 2024). These results highlight the need for an individualized nutritional approach that considers differences in CKD stage, comorbidities, and individual patient characteristics.

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# The Malaysian Experience



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Dietitians are essential to chronic kidney disease (CKD) management to deliver medical nutrition therapy which is central to the prevention and management of CKD, particularly for end-stage kidney disease. Ideally, successful management by the dietitian calls for periodic assessment of the patient's nutritional status, ensuring expert nutritional guidelines guide patient management and monitoring of dietary compliance issues related to metabolic outcomes. However, the global nephrology workforce survey conducted by the International Society of Nephrology (ISN) in 2018 highlighted that alongside key shortages of nephrologists, coexisting were major shortages of dietitians, especially acute in the low-and middle-income country (LMIC) settings. Following this, a joint ISN-ISRNM survey in mapping the global availability and capacity for kidney nutrition care (KNC), overall found less than half of 182 surveyed countries could only provide access to dietitian service, becoming even lower (23%) in low-income countries. As to the nature of KNC, many countries (41%) were not performing the basic nutritional status assessment whilst nutrition supplementation to treat malnutrition in patients was limited in low-income settings. The scenario of Malaysia, among the LMICs, truly reflects these gaps in KNC despite Malaysia's National Renal Registry consistently reporting on the high incidence of poor nutritional status of dialysis patients. Although generalist dietitians were in the workforce in Malaysia, they were not involved in renal practice daily nor cognizant with best practice guidelines for optimizing KNC. This presentation shares the Malaysian experience of building the knowledge principles of KNC relevant to the patient in the local context, i.e the who, what, why and how of dietitian practice? Using an issue-based approach, experience will be shared about how screening for malnutrition and addressing nutritional repletion requires interprofessional collaboration to optimize KNC for the CKD patient.