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Affiliation: Laboratory of Clinical Nutrition and Management, Graduate Division of Nutritional and Environmental Sciences, the University of Shizuoka

Education:

1995 Graduated from School of Nutrition, Faculty of Medicine, University of Tokushima.

1997 Completed Master Program of Nutrition, Graduate School of Nutrition, University of Tokushima.

2000 Completed Doctoral Program of Nutrition, Graduate School of Nutrition, University of Tokushima, under supervision of Prof. Eiji Takeda, Doctor of Nutrition (Ph.D)

Faculty Appointments:

2000: Research Assistant Professor, Department of Clinical Nutrition, University of Tokushima

2004: Research Assistant Professor, Department of Clinical Nutrition, Institute of Health Biosciences, University of Tokushima Graduate School

2007: Associate Professor, Chief, Laboratory of Clinical Nutrition and Management, Department of Nutrition, School of Food and Nutritional Sciences, and Graduate School of Nutritional and Environmental Sciences, The University of Shizuoka

2012-present: Associate Professor, Chief, Laboratory of Clinical Nutrition and Management, Graduate Division of Nutritional and Environmental Sciences, The University of Shizuoka

Membership in Academic Societies:

Japan Society of Nutrition and Food Science

Japan Society of Metabolism and Clinical Nutrition

Japanese Society for Parenteral and Enteral Nutrition

Japan Diabetes Society

Japan Atherosclerosis Society

Japanese Society of Nutrition and Dietetics

Japan Dietetic Association

Publications (articles in peer-reviewed journals)

- 40) Sakuma M, Morimoto Y, Suzuki Y, Suzuki A, Noda S, Nishino K, Ando S, Ishikawa M **Arai H**. Availability of 24-h urine collection method on dietary phosphorus intake estimation. *J Clin Biochem Nutr.* 60(2) (2017) (in press)
- 39) Ohta H, Sakuma M, Suzuki A, Morimoto Y, Ishikawa M, Umeda M, **Arai H**. Effects of gender and body weight on fibroblast growth factor 23 responsiveness to estimated dietary phosphorus. *J Med Invest.* 63(1-2) 58-62. (2016)
- 38) Sakuma M, Noda S, Morimoto Y, Suzuki A, Nishino K, Ando S, Umeda M, Ishikawa M, **Arai H**.: Nocturnal eating disturbs phosphorus excretion in young subjects: a randomized crossover trial. *Nutr J.* 14:106. (2015)
- 37) Ando S, Sakuma M, Morimoto Y, **Arai H**.: The Effect of Various Boiling Conditions on Reduction of Phosphorus and Protein in Meat. *J Ren Nutr.* 25(6) 504-509, (2015)
- 36) Morimoto Y, Sakuma M, Ohta H, Suzuki A, Matsushita A, Umeda M, Ishikawa M, Taketani Y, Takeda E, **Arai H**. Estimate of dietary phosphorus intake using 24 hour urine collection. *J Clin Biochem Nutr.*, 55(1) 62-66. (2014)
- 35) Ohnishi T, Hisaoka F, Morishima M, Takahashi A, Harada N, Mawatari K, **Arai H**, Yoshioka E, Toda S, Izumi K, and Nakaya Y. Establishment of a Model of Spontaneously-Running-Tokushima-Shikoku Rats with Left Atrial Thrombosis. *J Toxicol Pathol.*, 27: 51-56. (2014)
- 34) Ohminami H, Amo K, Taketani Y, Sato K, Fukaya M, Uebanso T, **Arai H**, Koganei M, Sasaki H, Yamanaka-Okumura H, Yamamoto H, Takeda E. Dietary combination of sucrose and linoleic acid causes skeletal muscle metabolic abnormalities in Zucker fatty rats through specific modification of fatty acid composition. *J Clin Biochem Nutr.*, 55(1), 15-25 (2014).
- 33) Sakuma M, Sasaki M, Katsuda S, Kobayashi K, Takaya C, Umeda M, **Arai H**. Assessment of metabolic status in young Japanese females using postprandial glucose and insulin levels. *J Clin Biochem Nutr.*, 54(3): 204-209. (2014)
- 32) Uebanso T, Taketani Y, Yamamoto H, Amo K, Tanaka S, **Arai H**, Takei Y, Masuda M, Yamanaka-Okumura H, Takeda E. Liver X receptor negatively regulates fibroblast growth factor 21 in the fatty liver induced by cholesterol-enriched diet. *J Nutr Biochem.*, 23(7):785-90. (2012)
- 31) Uebanso T, Taketani Y, Yamamoto H, Amo K, Ominami H, **Arai H**, Takei Y, Masuda M, Tanimura A, Harada N, Yamanaka-Okumura H, Takeda E. Paradoxical Regulation of Human FGF21 by Both Fasting and Feeding Signals: Is FGF21 a Nutritional Adaptation Factor? *PLoS One.*, 6(8):e22976. (2011)
- 30) Amo K, **Arai H**, Uebanso T, Fukaya M, Koganei M, Sasaki H, Yamamoto H, Taketani Y, Takeda E. Effects of xylitol on metabolic parameters and visceral fat accumulation. *J Clin Biochem Nutr.*, 49(1):1-7. (2011)
- 29) Ishiguro M, Yamamoto H, Masuda M, Kozai M, Takei Y, Sato T, Segawa H, Taketani Y,

- Arai H**, Miyamoto KI, Takeda E. Thyroid hormones regulate phosphate homeostasis through transcriptional control of the renal type IIa sodium-dependent phosphate co-transporter (Npt2a) gene. *Biochem J.*, 427(1):161-169. (2010)
- 28) **Arai H**, Awane N, Mizuno A, Fukaya M, Sakuma M, Harada N, Kawaura A, Yamamoto H, Okumura H, Taketani Y, Doi T and Takeda E. Increasing early insulin secretion compensate adequately for hepatic insulin resistance in CCl4-induced cirrhosis rats. *J Med Invest.*, 57(1-2):54-61. (2010)
- 27) Egi M, Toda Y, Katayama H, Yokoyama M, Morita K, **Arai H**, Yamatsuji T, Bailey M, Naomoto Y. Safer glycemic control using isomaltulose-based enteral formula: A pilot randomized crossover trial. *J Crit Care.*, 25(1):90-96. (2010)
- 26) Sakuma M, **Arai H**, Mizuno A, Fukaya M, Matsuura M, Sasaki H, Yamanaka-Okumura H, Yamamoto H, Taketani Y, Doi T, Takeda E. Improvement of glucose metabolism in patients with impaired glucose tolerance or diabetes by long-term administration of a palatinose-based liquid formula as a part of breakfast. *J Clin Biochem Nutr.*, 45(2):155-162. (2009)
- 25) Uebanso T, Taketani Y, Fukaya M, Sato K, Takei Y, Sato T, Sawada N, Amo K, Harada N, **Arai H**, Yamamoto H, Takeda E. Hypocaloric high protein diet improves fatty liver and hypertriglyceridemia in sucrose-fed obese rats via two pathways. *Am J Physiol Endocrinol Metab.*; 297(1):E76-84. (2009)
- 24) Yoshida M, Harada N, Yamamoto H, Taketani Y, Nakagawa T, Yin Y, Hattori A, Zenitani T, Hara S, Yonemoto H, Nakamura A, Nakano M, Mawatari K, Teshigawara K, **Arai H**, Hosaka T, Takahashi A, Yoshimoto K, Nakaya Y. Identification of cis-acting promoter sequences required for expression of the glycerol-3-phosphate acyltransferase 1 gene in mice. *Biochim Biophys Acta.*, 1791(1):39-52. (2009)
- 23) Sato K, **Arai H**, Miyazawa Y, Fukaya M, Uebanso T, Koganei M, Sasaki H, Sato T, Yamamoto H, Taketani Y, Takeda E. Palatinose and oleic acid act together to prevent pancreatic islet disruption in nondiabetic obese Zucker rats. *J Med Invest.*, 55(3-4):183-95. (2008)
- 22) Uebanso T, **Arai H**, Taketani Y, Fukaya M, Yamamoto H, Mizuno A, Uryu K, Hada T, Takeda E. Extracts of momordica charantia suppress postprandial hyperglycemia in rats. *J Nutr Sci Vitaminol.*, 53(12):482-488. (2007)
- 21) Sato K, **Arai H**, Mizuno A, Fukaya M, Sato T, Koganei M, Sasaki H, Yamamoto H, Taketani Y, Doi T, Takeda E. Dietary Palatinose and Oleic Acid Ameliorate Disorders of Glucose and Lipid Metabolism in Zucker Fatty Rats. *J Nutr.*, 137(8):1908-1915. (2007)
- 20) Fukaya M, Mizuno A, **Arai H**, Muto K, Uebanso T, Matsuo K, Yamamoto H, Taketani Y, Doi T, Takeda E. Mechanism of rapid-phase insulin response to elevation of portal glucose concentration. *Am J Physiol Endocrinol Metab.*, 293(2):E515-522. (2007)
- 19) Sawada N, Taketani Y, Amizuka N, Ichikawa M, Ogawa C, Nomoto K, Nashiki K, Sato T, **Arai H**, Isshiki M, Segawa H, Yamamoto H, Miyamoto K, Takeda E. Caveolin-1 in

- extracellular matrix vesicles secreted from osteoblasts. *Bone*, 41(1):52-58. (2007)
- 18) Mizuno A, **Arai H**, Fukaya M, Sato M, Yamanaka-Okumura H, Takeda E, Doi T. Early-phase insulin secretion is disturbed in obese subjects with glucose intolerance. *Metabolism*, 56(6):856-862. (2007)
- 17) Tani Y, Sato T, Yamanaka-Okumura H, Yamamoto H, **Arai H**, Sawada N, Genjida K, Taketani Y, Takeda E. Effects of Prolonged High Phosphorus Diet on Phosphorus and Calcium Balance in Rats. *J Clin Biochem Nutr.*, 40(3):221-228. (2007)
- 16) Matsuo K, **Arai H**, Muto K, Fukaya M, Sato T, Mizuno A, Sakuma M, Yamanaka-Okumura H, Sasaki H, Yamamoto H, Taketani Y, Doi T, Takeda E. The anti-obesity effect of the palatinose-based formula Inslow is likely due to an increase in the hepatic PPAR- α and adipocyte PPAR- γ gene expressions. *J Clin Biochem Nutr.*, 40(3):234-241. (2007)
- 15) **Arai H**, Mizuno A, Sakuma M, Fukaya M, Matsuo K, Muto K, Sasaki H, Matsuura M, Okumura H, Yamamoto H, Taketani Y, Doi T, Takeda E. Effects of a palatinose-based liquid diet (Inslow) on glycemic control and the second meal effect in healthy men. *Metabolism*, 56(1):115-121. (2007)
- 14) Nishida Y, Taketani Y, Yamanaka-Okumura H, Imamura F, Taniguchi A, Sato T, Shuto E, Nashiki K, **Arai H**, Yamamoto H, Takeda E. Acute effect of oral phosphate loading on serum fibroblast growth factor 23 levels in healthy men. *Kidney Int.*, 70(12):2141-2147. (2006)
- 13) Sato T, Yamamoto H, Sawada N, Nashiki K, Tsuji M, Muto K, Kume H, Sasaki H, **Arai H**, Nikawa T, Taketani Y, Takeda E. Restraint stress alters the duodenal expression of genes important for lipid metabolism in rat. *Toxicology*. 2006;227(3):248-261. [Oct] IF 2.605
- 12) Sato T, Yamamoto H, Sawada N, Nashiki K, Tsuji M, Nikawa T, **Arai H**, Morita K, Taketani Y, Takeda E. Immobilization decreases duodenal calcium absorption through a 1,25-dihydroxyvitamin D-dependent pathway. *J Bone Miner Metab.*, 24(4):291-299. (2006)
- 11) Yamanaka-Okumura H, Nakamura T, Takeuchi H, Miyake H, Katayama T, **Arai H**, Taketani Y, Fujii M, Shimada M, Takeda E. Effect of late evening snack with rice ball on energy metabolism in liver cirrhosis. *Eur J Clin Nutr.*, 60(9):1067-1072. (2006)
- 10) Yamamoto H, Tani Y, Kobayashi K, Taketani Y, Sato T, **Arai H**, Morita K, Miyamoto K, Pike JW, Kato S, Takeda E. Alternative promoters and renal cell-specific regulation of the mouse type IIa sodium-dependent phosphate cotransporter gene. *Biochim Biophys Acta.*, 1732(1-3):43-52. (2005)
- 9) Nashiki K, Taketani Y, Takeichi T, Sawada N, Yamamoto H, Ichikawa M, **Arai H**, Miyamoto K, Takeda E. Role of membrane microdomains in PTH-mediated down-regulation of NaPi-IIa in opossum kidney cells. *Kidney Int.*, 68(3):1137-1147. (2005)
- 8) **Arai H**, Mizuno A, Matsuo K, Fukaya M, Sasaki H, Arima H, Matsuura M, Taketani Y, Doi T, Takeda E. Effect of a novel palatinose-based liquid balanced formula (MHN-01) on glucose and lipid metabolism in male Sprague-Dawley rats after short- and long-term

ingestion. *Metabolism*, 53(8):977-983. (2004)

- 7) Takeda E, Yamamoto H, Nashiki K, Sato T, **Arai H**, Taketani Y. Inorganic phosphate homeostasis and the role of dietary phosphorus. *J Cell Mol Med.*, 8(2):191-200. (2004)
- 6) Taketani Y, Nomoto M, Yamamoto H, Isshiki M, Morita K, **Arai H**, Miyamoto K, Kato S, Takeda E. Increase in IP₃ and intracellular Ca²⁺ induced by phosphate depletion in LLC-PK 1 cells. *Biochem Biophys Res Commun.*, 305(2):287-291. (2003)
- 5) Kubota M, Yoshida S, Ikeda M, Okada Y, **Arai H**, Miyamoto K, Takeda E. Association between two types of vitamin D receptor gene polymorphism and bone status in premenopausal Japanese women. *Calcif Tissue Int.*, 68(1):16-22. (2001)
- 4) **Arai H**, Miyamoto KI, Yoshida M, Yamamoto H, Taketani Y, Morita K, Kubota M, Yoshida S, Ikeda M, Watabe F, Kanemasa Y, Takeda E. The polymorphism in the caudal-related homeodomain protein Cdx-2 binding element in the human vitamin D receptor gene. *J Bone Miner Res.*, 16(7):1256-1264. (2001)
- 3) Katai K, Miyamoto K, Kishida S, Segawa H, Nii T, Tanaka H, Tani Y, **Arai H**, Tatsumi S, Morita K, Taketani Y, Takeda E. Regulation of intestinal Na⁺-dependent phosphate co-transporters by a low-phosphate diet and 1,25-dihydroxyvitamin D₃. *Biochem J.*, 343 Pt 3:705-712. (1999)
- 2) **Arai H**, Miyamoto K, Taketani Y, Yamamoto H, Iemori Y, Morita K, Tonai T, Nishisho T, Mori S, Takeda E. A vitamin D receptor gene polymorphism in the translation initiation codon: effect on protein activity and relation to bone mineral density in Japanese women. *J Bone Miner Res.*, 12(6):915-921. (1997)
- 1) Katai K, Segawa H, Haga H, Morita K, **Arai H**, Tatsumi S, Taketani Y, Miyamoto K, Hisano S, Fukui Y, Takeda E. Acute regulation by dietary phosphate of the sodium-dependent phosphate transporter (NaP(i)-2) in rat kidney. *J Biochem (Tokyo)*, 121(1):50-55. (1997)