**Rob van Dam’s GW website**

Under the ‘Bio’ heading

Dr. Rob van Dam’s research focuses on the role of diet and physical activity in preventing obesity, type 2 diabetes, and cardiovascular diseases in different ethnic groups. He is a Professor of Exercise and Nutrition Sciences and Epidemiology at the Milken Institute School of Public Health, The George Washington University, and an Adjunct Professor of Nutrition at the Harvard T.H. Chan School of Public Health. His research is mainly based on large-scale cohort studies integrating reported diet, dietary biomarkers, and biomarkers of intermediate pathways. He has led cohort studies, dietary intervention studies, meta-analyses, and qualitative and quantitative research on cultural and environmental determinants of dietary behaviors and obesity. His research has resulted in 350 peer-reviewed articles, including first or senior author publications in the *New England Journal of Medicine*, the *Lancet*, *JAMA*, *BMJ*, *Annals of Intern Medicine*, and *Circulation* (H-index 121).

He has an MSc in Nutrition Science from Wageningen University and a Ph.D. from the Faculty of Medicine, VU University Amsterdam. He previously was a faculty member at the VU University Amsterdam, the Harvard T.H. Chan School of Public Health, and the National University of Singapore (NUS). He has taught undergraduate and graduate students for 20 years in Nutrition, Epidemiology, and Meta-Analysis. At NUS, he has been PI of the Singapore Population Health Studies, Director of the MSc and Ph.D. program, Leader of the Epidemiology Domain, and Vice Dean for Academic Affairs. In addition, he has contributed expertise on nutrition to the WHO, Clinical Practice Guidelines on Obesity and Lipids in Singapore, and the Singapore Health Promotion Board. He is currently on the Editorial/ Advisory Board of *Food and Function* and *Metabolites* and Associate Editor of the *Journal of Nutrition*.

Under the ‘Expertise’ heading

EXPERTISE:

Nutrition

Epidemiology

Type 2 diabetes

Obesity

Dietary assessment

Physical activity

Meta-analysis

Asian populations

EDUCATION:

MSc Nutrition and Health, Wageningen University, 1998

MSc Epidemiology, Netherlands Epidemiology Society, 1999

Ph.D. VU University Amsterdam, 2003

TEACHING:

PUBH 6699Nutritional Epidemiology: Study Design and Analysis

EXNS 8110Doctoral Seminar in Exercise Physiology and Applied Nutrition

PUBH 8435 Ph.D. Dissertation Proposal Development

Under the ‘Research’ heading

Dr. Rob van Dam’s research is focused on nutrition and physical activity in the development of obesity, type 2 diabetes, and cardiovascular diseases. He is interested in extending this research to diverse ethnic groups. The ultimate goal of this research is to inform recommendations and policies for the lifestyle prevention of chronic diseases. He conducts epidemiological studies, trials, and meta-analyses to define more precisely what aspects of dietary and movement patterns affect cardio-metabolic health. For this purpose, he is currently incorporating metabolic and proteomic biomarkers and device-based and digital assessments to gain more insight into patterns of lifestyle behaviors. He has conducted pioneering research on the impact of dietary composition in type 2 diabetes and on diet and cardio-metabolic diseases in Asian populations. In addition, he examines how the cultural and physical environment influence lifestyle behaviors to bridge epidemiological studies and behavioral interventions. In more detail, his research has focused on the following topics:

**The role of dietary factors in developing type 2 diabetes: The research by** Dr. van Dam and colleagues have provided novel insights into the role of dietary composition in the development of type 2 diabetes. For example, they were the first to report that dietary patterns were associated with diabetes risk independent of adiposity (van Dam RM et al. *Ann Intern Med* 2002) and that higher coffee intake is associated with lower diabetes risk (van Dam RM and Feskens EJ. *Lancet* 2002). In addition, their research provided early evidence for a beneficial role of the flavonoid anthocyanin (Wedick NM et al. *Am J Clin Nutr* 2012) and a detrimental role of processed meat intake (van Dam RM et al. *Diabetes Care* 2002) in the development of type 2 diabetes. These findings suggest that diet may affect diabetes risk beneficially (phytochemicals) and adversely (components of processed meat) independent of energy balance and macronutrient intakes. Finally, they have extended their research on the impact of coffee consumption to other health outcomes contributing to the evidence that moderate coffee consumption can be part of a healthy lifestyle in non-pregnant individuals (van Dam RM et al. *NEJM* 2020).

**Effects of obesity throughout life and physical activity on chronic disease risk and mortality:** Dr. van Dam and colleagues have highlighted the importance of adolescent adiposity for premature mortality, particularly cancer mortality, showing a monotonous association between higher body mass index and a higher risk of chronic diseases and premature mortality (van Dam RM et al. *Annals of Internal Medicine* 2006; de Mutsert R, et al. *Am J Epidemiol* 2014). In addition, they identified adiponectin levels as a consistent mediator of the effects of adiposity on diabetes development (Li S et al. *JAMA* 2009). They also conducted meta-analyses indicating that physical activity can contribute to long-term weight maintenance (Wu T et al. *Obesity Reviews* 2009), and moderate activity is associated with lower diabetes risk (Jeon CY et al. *Diabetes Care* 2007). Finally, they estimated that the impact of diet, physical activity, and obesity on premature mortality in US women was similar in magnitude to smoking (van Dam RM, et al. *BMJ* 2008).

**Dietary patterns and risk of cardio-metabolic diseases in Asian populations:** Dr. van Dam’s team examined dietary patterns and foods commonly used in Asia in relation to cardio-metabolic conditions. A key result has been that associations between diet quality indices such as the DASH and AHEI-2010 scores and chronic disease risk were remarkably consistent for western and Asian populations supporting dietary recommendations aligned with these dietary patterns (Neelakantan N et al. *J Nutr* 2018. Chen GC et al. *Am J Epidemiol* 2018). In addition, their meta-analyses of clinical trials showed that consumption of palm oil (Sun Y et al. *J Nutr* 2015) and coconut oil (Neelakantan N et al. *Circulation* 2020) substantially increase LDL-cholesterol levels compared with non-tropical cooking oils. Furthermore, replacing carbohydrates with polyunsaturated fat, but not saturated fat, was associated with a lower risk of cardiovascular diseases in a multi-ethnic Asian cohort (Lim C et al. *Am J Clin Nutr* 2021). These findings suggest that greater attention to dietary fat quality in Asian populations is warranted. They also facilitated nutrition research by developing and validating a food frequency questionnaire for a multi-ethnic Asian population (Whitton C et al. *Nutrients* 2017).

**Lifestyle, metabolomics and proteomics, and cardio-metabolic diseases:** Dr. van Dam and colleagues identified enterolignans, gut microbiota metabolites of dietary lignans, as potential contributors to the beneficial effects of plant foods on diabetes risk (Sun Q et al. *Diabetes Care* 2014). They also examined dietary and lifestyle determinants of metabolomic, lipidomic, and proteomic profiles. For example, we reported that higher intakes of polyunsaturated fatty acids and protein were associated with more favorable sphingolipid profiles (Seah JY et al. *Metabolites* 2021). These sphingolipid profiles were, in turn, associated with the risk of cardiovascular diseases (Seah JY et al. *Metabolomics* 2020), suggesting that sphingolipids may be novel mediators of the effects of diet on cardiovascular diseases. They also conducted research highlighting the consistency of associations between metabolomics profiles and diabetes risk for Asian and European populations (Seah JY et al. *J Clin Endocrinol Metab* 2022).

**Genetic, cultural, and environmental determinants of eating behaviors and obesity**

Dr. van Dam and colleagues conducted research highlighting the strong association of ethnicity with obesity independent of socioeconomic status and geographical location in a multi-ethnic Asian setting (Park SH et al. *Obesity* 2020). They also conducted quantitative and qualitative research on cultural determinants of eating behaviors (Chen LW et al. *Public Health Nutr* 2014; Reddy G, van Dam RM, *Appetite* 2020; Lim CG *Appetite* 2020). This research showed that the social environment and traditional health beliefs play a prominent role in food choice in Asian populations. Furthermore, they have examined the genetic determinants of food choice and identified genetic variants associated with the consumption of coffee, other bitter beverages, and foods, and obesity-related eating styles (Cornelis MC et al. *Plos Genet* 2011, *Obesity* 2013, *Sci Rep* 2021). In addition, their intervention research has provided insights into the role that food labels can play in changing food choices (Seah SS et al. *IJBNPA* 2018; Finkelstein EA et al. *Nutrients* 2019). Furthermore, they showed in a cluster-randomized trial how a healthy dining program targeting vendors and consumers could improve food consumption Asian institutes of higher learning (Seah SS et al. *Food Policy* 2022). Currently, they are conducting the COBRA study with continuous assessment through multiple devices to understand better personal and environmental determinants of diet and physical activity (Edney SM et al. *Digit Health* 2022).

Under the ‘Publications’ heading

All published work can be found in Pubmed (<https://www.ncbi.nlm.nih.gov/myncbi/rob.van%20dam.2/bibliography/public/>) and Google Scholar (<https://scholar.google.com.sg/citations?user=OtF51ewAAAAJ&hl=en>).

**Selected publications**

1. Edney SM, Park SH, Tan L, Chua XH, Dickens BSL, Rebello SA, Petrunoff N, Müller AM, Tan CS, Müller-Riemenschneider F, van Dam RM. Advancing understanding of dietary and movement behaviours in an Asian population through real-time monitoring: Protocol of the Continuous Observations of Behavioural Risk Factors in Asia study (COBRA). Digit Health. 2022;8:20552076221110534.
2. Lim CGY, Tai ES, van Dam RM. Replacing dietary carbohydrates and refined grains with different alternatives and risk of cardiovascular diseases in a multi-ethnic Asian population. Am J Clin Nutr. 2022;115:854-863.
3. Seah SS, van Dam RM, Tai BC, Tay Z, Wang MC, Rebello S. An evaluation of the healthier dining programme effects on university student and staff choices in Singapore: A cluster-randomized trial. Food Policy 2022;107:102211.
4. Seah JYH, Hong Y, Cichońska A, Sabanayagam C, Nusinovici S, Wong TY, Cheng CY, Jousilahti P, Lundqvist A, Perola M, Salomaa V, Tai ES, Würtz P, van Dam RM\*, Sim X\*. Circulating metabolic biomarkers are consistently associated with type 2 diabetes risk in Asian and European populations. J Clin Endocrinol Metab. 2022;107:e2751-e2761. (\*Joint senior authors).
5. van Dam RM, Hu FB, Willett WC. Coffee, caffeine, and health. New Engl J Med 2020;383:369-378.
6. Seah JYH, Chew WS, Torta F, Khoo CM, Wenk MR, Herr DR, Tai ES, van Dam RM. Dietary fat and protein intake in relation to plasma sphingolipids as determined by a large-scale lipidomic analysis. Metabolites. 2021;11:93.
7. Seah JYH, Chew WS, Torta F, Khoo CM, Wenk MR, Herr DR, Choi H, Tai ES, van Dam RM. Plasma sphingolipids and risk of cardiovascular diseases: a large-scale lipidomic analysis. Metabolomics. 2020;16:89.
8. Neelakantan N, Seah JY, van Dam RM. The effect of coconut oil consumption on cardiovascular risk factors: a systematic review and meta-analysis of clinical trials. Circulation 2020;141:803-814.
9. Reddy G, van Dam RM. Food, culture, and identity in multicultural societies: Insights from Singapore. Appetite. 2020;149:104633.
10. Park SH, Nicolaou M, Dickens BSL, Yang Q, Tan KW, van Dam RM. Ethnicity, neighborhood and individual socioeconomic status, and obesity: The Singapore Multiethnic Cohort. Obesity. 2020;28:2405-2413.
11. Alperet DJ, Rebello SA, Khoo EY, Tay Z, Seah SS, Tai BC, Tai ES, Emady-Azar S, Chou CJ, Darimont C, van Dam RM. The effect of coffee consumption on insulin sensitivity and other biological risk factors for type 2 diabetes: a randomized placebo-controlled trial. Am J Clin Nutr. 2020;111:448-458.
12. Neelakantan N, Koh WP, Yuan JM, van Dam RM. Diet-quality indexes are associated with a lower risk of cardiovascular, respiratory, and all-Cause mortality among Chinese adults. J Nutr. 2018;148:1323-1332.
13. Chen GC, Koh WP, Neelakantan N, Yuan JM, Qin LQ, van Dam RM. Diet quality indices and risk of type 2 diabetes: The Singapore Chinese Health Study. Am J Epidemiol. 2018;187:2651-2661.
14. Alperet DJ, Butler LM, Koh WP, Yuan JM, van Dam RM. Influence of temperate, subtropical, and tropical fruit consumption on risk of type 2 diabetes in an Asian population. Am J Clin Nutr. 2017;105:736-745.
15. Sun Q, Wedick NM, Pan A, Townsend MK, Cassidy A, Franke AA, Rimm EB, Hu FB, van Dam RM. Gut microbiota metabolites of dietary lignans and risk of type 2 diabetes: a prospective investigation in two cohorts of US women. Diabetes Care. 2014;37:1287-95.
16. de Mutsert R, Sun Q, Willett WC, Hu FB, van Dam RM. Overweight in early adulthood, adult weight change, and risk of type 2 diabetes, cardiovascular diseases, and certain cancers in men: a cohort study. Am J Epidemiol. 2014;179:1353-65.
17. Nang EE, Salim A, Wu Y, Tai ES, Lee J, van Dam RM. Television screen time, but not computer use and reading time, is associated with cardio-metabolic biomarkers in a multi-ethnic Asian population: a cross-sectional study. Int J Behav Nutr Phys Act. 2013;10:70.
18. Gao H, Salim A, Lee J, Tai ES, van Dam RM. Can body fat distribution, adiponectin levels and inflammation explain differences in insulin resistance between ethnic Chinese, Malays and Asian Indians? Int J Obes. 2012;36:1086-93.
19. Wedick NM, Pan A, Cassidy A, Rimm EB, Sampson L, Rosner B, Willett W, Hu FB, Sun Q, van Dam RM. Dietary flavonoid intakes and risk of type 2 diabetes in US men and women. Am J Clin Nutr. 2012;95:925-33.
20. Cornelis MC, Monda KL, Yu K, Paynter N, Azzato EM, Bennett SN, Berndt SI, Boerwinkle E, Chanock S, Chatterjee N, Couper D, Curhan G, Heiss G, Hu FB, Hunter DJ, Jacobs K, Jensen MK, Kraft P, Landi MT, Nettleton JA, Purdue MP, Rajaraman P, Rimm EB, Rose LM, Rothman N, Silverman D, Stolzenberg-Solomon R, Subar A, Yeager M, Chasman DI\*, van Dam RM\*, Caporaso NE\*. Genome-wide meta-analysis identifies regions on 7p21 (AHR) and 15q24 (CYP1A2) as determinants of habitual caffeine consumption. PLoS Genet. 2011;7:e1002033 (\*corresponding/senior authors)
21. van 't Riet E, Dekker JM, Sun Q, Nijpels G, Hu FB, van Dam RM. The role of adiposity and lifestyle in the relationship between family history of diabetes and 20-year incidence of type 2 diabetes in US women. Diabetes Care. 2010;33:763-7.
22. Wu T, Gao X, Chen M, van Dam RM. Long-term effectiveness of diet plus exercise versus diet-only interventions for weight loss: a meta-analysis. Obesity Reviews 2009;10:313-23.
23. Li S, Shin HJ, Ding EL, van Dam RM. Adiponectin levels and risk of type 2 diabetes: a systematic review and meta-analysis. JAMA. 2009;302:179-88.
24. Lopez-Garcia E, Rodriguez-Artalejo F, Rexrode KM, Logroscino G, Hu FB, van Dam RM. Coffee consumption and risk of stroke in women. Circulation. 2009;119:1116-23.
25. van Dam RM, Li T, Spiegelman D, Franco OH, Hu FB. Combined impact of lifestyle factors on mortality: a prospective study in US women. BMJ 2008;337:a1440.
26. Jeon CY, Lokken RP, Hu FB, van Dam RM. Physical activity of moderate intensity and risk of type 2 diabetes: a systematic review. Diabetes Care 2007;30:744-52.
27. van Dam RM, Willett W, Manson JE, Hu FB. The relationship between overweight in adolescence and premature death in women. Annals of Internal Med 2006;145:91-7.
28. van Dam RM, Willett WC, Rimm EB, Stampfer MJ, Hu FB. Dietary fat and meat intake in relation to risk of type 2 diabetes mellitus in men. Diabetes Care 2002;25:417-24.
29. van Dam RM, Rimm EB, Willett WC, Stampfer MJ, Hu FB. Dietary patterns and risk of type 2 diabetes mellitus in U.S. men. Ann Intern Med 2002;136:201-9.
30. van Dam RM, Feskens EJM. Coffee consumption and risk of type 2 diabetes mellitus. Lancet 2002;360:1477-8.