

Oxidative stress in chronic diseases: causal inference from observational studies Luo, J.

Citation

Luo, J. (2022, September 1). Oxidative stress in chronic diseases: causal inference from observational studies. Retrieved from https://hdl.handle.net/1887/3454705

Version: Publisher's Version

Licence agreement concerning inclusion of doctoral

License: thesis in the Institutional Repository of the University

of Leiden

Downloaded from: https://hdl.handle.net/1887/3454705

Note: To cite this publication please use the final published version (if applicable).

Oxidative Stress in Chronic Diseases:

Causal inference from observational studies

Jiao Luo

Oxidative Stress in Chronic Diseases: Causal Inference from Observational Studies PhD thesis. Department of Clinical Epidemiology, Leiden University Medical Center, Leiden, the Netherlands J. Luo was supported by the Chinese Scholarship Council (No. 201808500155). Cover design and layout: Rentao Li and Jiao Luo Printed by: printsupport4u.nl ISBN: 978-94-93289-08-6 Copyright © J. Luo, 2022, Leiden, the Netherlands All right reserved. No part of this thesis may be transformed, reproduced or trans-

mitted in any form by any means without prior permission of the author.

Oxidative Stress in Chronic Diseases:

Causal inference from observational studies

Proefschrift

ter verkrijging van de graad van doctor aan de Universiteit Leiden, op gezag van rector magnificus prof.dr.ir. H. Bijl, volgens besluit van het college voor promoties te verdedigen op donderdag 1 september 2022 klokke 13.45 uur

door

Jiao Luo geboren te Hongya, China in 1991

Promotor

Prof. dr. S. le Cessie

Co-promotors

Dr. D. van Heemst

Dr. R. Noordam

Leden promotiecommissie

Prof. dr. B. T. Heijmans

Dr. R. de Mutsert

Prof. dr. R. Frikke-Schmidt (University of Copenhagen, Denmark)

Dr. M. Kavousi (Erasmus University Medical Center, the Netherlands)

Financial support by the Dutch Heart Foundation for the publication of this thesis is gratefully acknowledged.

To my family 献给我的家人

"Knowledge is the object of our inquiry, and men do not think they know a thing till they have grasped the 'why' of (which is to grasp its primary cause)."

Aristotle, 384-322 BC

TABLE OF CONTENTS

Part I	General aspects
Chapter 1 Chapter 2	General introduction, study population, and thesis outline Ageing, age-related diseases, and oxidative stress: What to do next?
Part II	Mitochondrial dysfunction in cardiovascular disease
Chapter 3	Low mitochondrial DNA copy number drives atherosclerotic cardiovascular disease: cohort and genetic studies
Chapter 4	The associations between mitochondrial DNA copy number and metabolomic profiles in the general population
Part III	Antioxidants in cardiovascular disease
Chapter 5	Diet-derived circulating antioxidants and risk of coronary heart disease: a Mendelian randomization study
Chapter 6	Urinary oxidized, but not enzymatic vitamin E metabolites are inversely associated with measures of glucose homeostasis in middle-aged healthy individuals
Chapter 7	Associations of metabolomic profiles with circulating vitamin E and urinary vitamin E metabolites in middle-aged individuals

Part IV	Inflammation in neurological disorders
Chapter 8	Depression and inflammatory bowel diseases:
	a bidirectional two-sample Mendelian randomization study
Chapter 9	Systemic inflammatory markers in relation to
	cognitive function and measures of brain atrophy:
	a Mendelian randomization study

Part V	Summary
Chapter 10	Main findings and future perspectives
Appendices	Nederlandse samenvatting (Summary in Dutch)
	List of publications
	PhD Portfolio
	Curriculum vitae
	Acknowledgements