

Beyond the Plate

New Frontiers in Nutrition and Dietetics

Editor

Prof. Dr. Yahya ÖZDOĞAN



Beyond the Plate

New Frontiers in Nutrition and Dietetics

Editor

Prof. Dr. Yahya ÖZDOĞAN

Authors

Açelya GÜL KOYUNCU - Aslı UÇAR - Ayşe Nur ERDİNÇ - Ayşen BABACAN
Aysima ERGÜVEN - Burak ERİM - Buse ÜNAL - Büşra BAŞPINAR
Dilara SERARSLAN YILMAZ - Ece YALÇIN PEHLİVAN - Emine ELİBOL
Fadime Figen KARAHAN - Fatma Kübra SAYIN - Ferhat GÖKAY - Gözde ÇALIŞKAN
AKIMAL Hasan Kaan KAVSARA - Havvanur TAŞKIN - Hilal HIZLI GÜLDEMİR
Meryem AYRANCI PINARCIK - Muhammet Ali CEBİRBAY - Niran ÇOMAK - Sedef
GÜNGÖR Semanur DEMİR - Serap BALABAN BARTA - Sudenaz ÖNER - Şeyma SÜNBÜL
Tuba TEKİN - Yahya ÖZDOĞAN

E-ISBN: 978-625-382-505-8

DOI: 10.54637/vizetek.9786253825058

Copyright © Vizetek

Bu kitabın basım, yayım ve satış hakları Vizetek Yayıncılık Sanayi ve Ticaret Limited Şirketine aittir. Vizetek Yayıncılık'ın izni alınmadan kitabın tümü ya da bölümleri, kapak tasarımı, elektronik, mekanik, fotokopi, manyetik, kayıt ya da başka yöntemlerle çoğaltılamaz, basılamaz, dağıtılamaz.

Bu kitap, basılı ve elektronik (e-kitap) formatlarında yayımlanmaktadır.
Kitap içeriğinin tüm sorumluluğu yazar(lar)ına aittir.

Publication Design and Coordination: Büşra KULAKSIZ

Cover Design: Ahmet TUNÇDEMİR

Typesetting and Layout: Samet TORUN

Printing: Ankara | Ekim, 2026



Seyranbağları Mah. İncesu Cad. 10/2 Çankaya/ANKARA

Tel.: (0312) 482 00 11

Web: www.vizetek.com.tr

E-mail: vizetekiayincilik@gmail.com

Yayıncı Sertifika No: 41575

TABLE OF CONTENTS

I

Sustainable Food Systems and Food Processing

Chapter 1

POTENTIAL EFFECTS OF CLIMATE CHANGE ON FOOD SECURITY AND NUTRITIONAL STATUS: A GLOBAL FOOD SYSTEMS PERSPECTIVE	3
---	---

Buse ÜNAL

Tuba TEKİN

Chapter 2

MICROBIAL PROTEINS: SUSTAINABLE NUTRITION, FUNCTIONAL HEALTH, AND THE FUTURE CONCEPTS	30
--	----

Ayşe Nur ERDİNÇ

Muhammet Ali CEBİRBAY

Chapter 3

ULTRA-PROCESSED FOODS: TECHNOLOGICAL FUNCTIONS AND IMPLICATIONS FOR NUTRITION AND HEALTH	54
---	----

Şeyma SÜNBÜL

Ayşen BABACAN

II

Gut Microbiota and Gastrointestinal Health

Chapter 4

ULTRA-PROCESSED FOODS AND GUT MICROBIOTA: CURRENT EVIDENCE AND POTENTIAL MECHANISMS	72
--	----

Ece YALÇIN PEHLİVAN

Chapter 5

THE ROLE OF PHYTOCHEMICALS IN INFLAMMATORY BOWEL DISEASES	84
--	----

Aysima ERGÜVEN

Yahya ÖZDOĞAN

Chapter 6

GUT MICROBIOTA AND NEUROLOGICAL DISORDERS:
IMPLICATIONS FOR NEURODEGENERATION 102

Gözde ÇALIŞKAN AKIMAL

III

Nutrition in Diabetes and Cardiometabolic Health

Chapter 7

DIABETES MELLITUS AND MEDICAL NUTRITION THERAPY:
CLINICAL OVERVIEW AND CONTEMPORARY
DIETARY APPROACHES 123

Burak ERİM

Chapter 8

BEYOND WHAT IS ON THE PLATE: MAIN-MEAL SKIPPING
AND ADIPOSITY IN TYPE 2 DIABETES* 143

Serap BALABAN BARTA

Aslı UÇAR

Ferhat GÖKAY

Chapter 9

CHRONONUTRITION AND CARDIOMETABOLIC HEALTH 161

Meryem AYRANCI PINARCIK

Havvanur TAŞKIN

Chapter 10

DIETARY BIOACTIVE COMPOUNDS IN FATTY LIVER DISEASE:
THEIR EFFECTS ON METABOLIC HEALTH 185

Fatma Kübra SAYIN

IV

Nutrition and Dietary Supplements in Special Conditions

Chapter 11

CHANGING NUTRITIONAL PHENOTYPE AND CURRENT DIETETIC APPROACHES IN CYSTIC FIBROSIS IN THE ERA OF CFTR MODULATORS	209
---	-----

Fadime Figen KARAHAN

Chapter 12

SPIRULINA SUPPLEMENTATION DURING THE POSTMENOPAUSAL PERIOD: EFFECTS ON METABOLIC HEALTH AND QUALITY OF LIFE	222
--	-----

Niran ÇOMAK

Chapter 13

THE ROLE OF DIETARY INTERVENTIONS IN ATTENTION- DEFICIT/HYPERACTIVITY DISORDER IN CHILDREN	245
---	-----

Semanur DEMİR

Emine ELİBOL

Chapter 14

EXOGENOUS KETONES AND THEIR HEALTH EFFECTS	261
--	-----

Hilal HIZLI GÜLDEMİR

Sudenaz ÖNER

V

Digital Food Environments, Behavioral Nutrition, and Applied Practice

Chapter 15

FROM FOOD LABELS TO DIGITAL FEEDS: RETHINKING FOOD AND NUTRITION LITERACY IN THE AGE OF FOOD CLAIMS AND MISINFORMATION	275
--	-----

Sedef GÜNGÖR

Chapter 16

ORTHOREXIA NERVOSA IN DIGITAL FOOD ENVIRONMENTS:
IMPLICATIONS FOR DIETETIC PRACTICE AND PREVENTION 300

Büşra BAŞPINAR

Chapter 17

NUTRITIONAL PERIODIZATION FOR ENERGY AVAILABILITY,
PERFORMANCE, AND ATHLETE HEALTH 321

Hasan Kaan KAVSARA

Açelya GÜL KOYUNCU

Dilara SERARSLAN YILMAZ

PREFACE

Nutritional science is a dynamic field that continually evolves well beyond the mere quantification of nutrient intake, encompassing complex environmental, microbiological, metabolic, and behavioral dimensions. On one front, global climate crises and the resulting threats to food security necessitate a shift toward sustainable protein sources. On the other, the pervasive presence of ultra-processed foods, driven by technological advancements, profoundly influences human metabolism and the gut microbiota.

Contemporary scientific literature increasingly unveils the novel mechanisms through which nutrition dictates the trajectory of metabolic diseases and chronic conditions. Breakthroughs in understanding the gut-brain axis, cell-signaling bioactive compounds, circadian-aligned dietary models, and novel gene-modulating therapies collectively demand a more personalized and context-specific approach to medical nutrition therapy. Concurrently, the proliferation of digital misinformation and shifting eating behaviors present practitioners with unprecedented clinical and psychosocial challenges.

This volume was conceived to address this multifaceted landscape, spanning from planetary health and cellular metabolism to chrononutrition and digital food environments. Comprising seventeen comprehensive chapters, the works presented herein synthesize the latest empirical evidence with practical clinical insights provided by leading researchers in the field.

I extend my sincere gratitude to all contributing authors for their scholarly rigor, to the peer reviewers for their critical insights, and to the editorial team for their seamless coordination throughout the publication process. It is my hope that this reference book will serve as a valuable guide for dietitians, physicians, academic researchers, and anyone seeking to understand the evolving interplay between food and human health through the lens of science.

Edited by
Prof. Dr. Yahya ÖZDOĞAN
Ankara - 2026