## Contents

### Part I  Food and Nutrition Security (Johanna Dwyer/Adam Drewnowski)

1  **Overview: Food and Nutrition Security** ................................. 3  
   Johanna T. Dwyer and Adam Drewnowski

2  **Sustainable, Healthy Diets: Models and Measures** .............. 25  
   Adam Drewnowski

3  **Measuring Food Insecurity** .................................................. 35  
   Katia Castetbon

4  **Modeling Sustainable Nutrition Security** ............................... 43  
   David I. Gustafson

### Part II  Social Disparities in Food and Nutrition Security  
(Jana Rückert-John)

5  **Nutrition Security in Older Adults: Status Quo and Future Development** ................................. 61  
   Christine A.F. von Arnim

6  **Rationale for a Combination of Selected Micronutrients to Improve Cognition and Prevent or Slow Down Age-Related Cognitive Impairment** .......................... 75  
   Hans Konrad Biesalski

7  **Food Insecurity and Poverty in Germany** .............................. 99  
   Sabine Pfeiffer, Tobias Ritter and Elke Oestreicher

8  **Meat Consumption and Sustainability: How Might It Be Possible to Change the Behavior of Consumers?** .......................... 111  
   Jana Rückert-John
9 Food Insecurity: Determinants and Impacts .......................... 125
Nicole Darmon and France Caillavet

Part III Consequences of Nutrition Insecurity
(Hans Konrad Biesalski/JJ Strain)

10 Sustainable Micronutrients in Europe: Is There Cause
   for Concern? ..................................................... 143
   Hans Konrad Biesalski

11 Micronutrient Status in Affluent Societies ....................... 167
   Barbara Troesch

12 The B-Vitamins ................................................. 185
   JJ Strain, Catherine Hughes, Kristina Pentieva, Mary Ward,
   Leane Hoey and Helene McNulty

13 Iron and Zinc: Two Principal Trace Element Nutrients
   in the Context of Food Security Transitions ................... 205
   Noel W. Solomons and Klaus Schümann

14 Iodine Deficiency: Achievements and Challenges
   for the 21st Century .......................................... 223
   Alida Melse-Boonstra

15 Adequate Protein in Nutrition: Arguments for More or Less? .... 237
   Andreas F.H. Pfeiffer

16 Malnutrition: Consequences for Clinical Outcomes
   in the Context of German Hospitals .......................... 245
   Carl Meißner

Part IV Solutions and Future Challenges
(Manfred Eggersdorfer/Peter Weber)

17 Ensuring Food and Nutrition Security in Affluent Societies ...... 259
   Peter Weber

18 The Food Industry as a Partner for Public Health? .............. 261
   Jörg Spieldenner and Janet H. Matope

19 Improving Food and Nutrition Security in Affluent Societies:
   The View of a Food Ingredients Manufacturer .................. 275
   Marcel Wubbolts

20 Food and Nutrition Security: A Consumer Perspective .......... 279
   Klaus G. Grunert

21 Food Chain Processes and Food Quality .......................... 283
   M.A.J.S. (Tiny) van Boekel
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>The Bioavailability of Carotenoid Forms.</td>
<td>289</td>
</tr>
<tr>
<td></td>
<td>Loni Schweikert</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>The Stability of Vitamins A and E in Edible Oils.</td>
<td>295</td>
</tr>
<tr>
<td></td>
<td>Marc Pignitter and Veronika Somoza</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>The Search for Optimal Macronutrient Recommendations</td>
<td>307</td>
</tr>
<tr>
<td></td>
<td>Wim H.M. Saris</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Producing Sufficient Animal-Source Protein for the Growing World Population</td>
<td>321</td>
</tr>
<tr>
<td></td>
<td>Gilbert M. Weber and Wilhelm Windisch</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Nutrient Density: An Important Concept to Ensure Food and Nutrition Security in Modern Societies</td>
<td>335</td>
</tr>
<tr>
<td></td>
<td>Barbara Troesch, Peter Weber and Adam Drewnowski</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Does It Work? Is It Worth It? Evaluating the Costs and Benefits of Nutritional Interventions</td>
<td>343</td>
</tr>
<tr>
<td></td>
<td>Simon Wieser and Christina Tzogiou</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Approaches to Ensuring Food and Nutrition Security in the Elderly</td>
<td>355</td>
</tr>
<tr>
<td></td>
<td>M.H. Mohajeri, P. Weber and M. Eggersdorfer</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>The Role of Food Fortification: The Example of Folic Acid</td>
<td>371</td>
</tr>
<tr>
<td></td>
<td>Helene McNulty</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>The Role of Fortification and Dietary Supplements in Affluent Countries: Challenges and Opportunities</td>
<td>389</td>
</tr>
<tr>
<td></td>
<td>Johanna T. Dwyer and Regan L. Bailey</td>
<td></td>
</tr>
</tbody>
</table>
Sustainable Nutrition in a Changing World
Biesalski, H.K.; Drewnowski, A.; Dwyer, J.T.; Strain, J.;
Weber, P.; Eggersdorfer, M. (Eds.)
2017, XVI, 406 p. 40 illus., 29 illus. in color., Hardcover
ISBN: 978-3-319-55940-7