



**International Symposium on
Health Aspects of Calcium and Magnesium in Drinking Water
April 24-26, 2006
Wyndham Baltimore Inner Harbor
Baltimore, Maryland, USA**

PROGRAM

Monday, April 24

9:00 - 10:30 am

Session I: Opening Session

Chairperson: *Dr. Suzanne Harris, International Life Sciences Institute (ILSI)*

• Welcome and Opening Remarks

Dr. Suzanne Harris, International Life Sciences Institute (ILSI)

Mr. Robert Ferguson, NSF International

Dr. Jamie Bartram, World Health Organization (WHO)

• Keynote speaker - *Invited*

Dr. Mirta Roses Periago, Director General, Pan American Health Organization

• Introductory: Rome Meeting Summary, Symposium Purpose and Focus on Calcium and Magnesium and Charge to the Technical Sessions

Dr. Joseph Cotruvo, Joseph Cotruvo & Associates, USA

10:30 -11:00 am

Break

11:00 -12:30 pm

Session II: Dietary Minerals Consumption and Health

Cochairs: *Dr. Stephanie Atkinson, McMaster University, Canada*

Dr. Rebecca Costello, National Institutes of Health, USA

• Basis for worldwide Recommended Daily Allowances for Calcium and Magnesium

Dr. Stephanie Atkinson, Dr. Rebecca Costello

• Estimated average requirements for calcium and magnesium: data from human balance studies

Dr. Mamoru Nishimuta, Incorporated Administrative Agency of Health and Nutrition, Japan

• Dietary intakes of calcium and magnesium: a comparison with dietary guidelines,

Dr. Joyce Donohue, US Environmental Protection Agency, USA

12:30 - 2:00 pm

Lunch

2:00 - 3:30 pm

Session III: Water as a Source of Dietary Minerals in World Regions

Chairperson: *Prof. Choon Nam Ong, National University of Singapore*

• Water mineral composition characteristics (tap water, bottled, mineral, spring, desalinated) in the world regions

Dr. Choon Nam Ong

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Water/Fluid Consumption Patterns Among the General Populations and Subpopulations Including High-Risk Segments
Dr. Ann Grandjean, The Center for Human Nutrition and Dr. Robert Heaney, Creighton University, USA

Contribution of drinking water to calcium and magnesium intake in Europe
Dr. Caroline van den Hooven and Dr. Jeanne de Vries, Wageningen University and Ms. Margreet Mons, KIWA Water Research, The Netherlands

Commenter: Calcium Bioavailability and Sensory Threshold of Calcium Chloride-fortified Water
Dr. Jonathan C. Allen, North Carolina State University, USA

3:30 - 4:00 pm

Break

4:00 – 5:30 pm

Session IV: Basis for Linking Magnesium, Calcium and Health Outcomes I
Chairperson: *Dr. William Weglicki, George Washington University, USA*

Cardiovascular effects of magnesium deficiency
Dr. William Weglicki

Magnesium and hypertension
Dr. Rhian Touyz, Ottawa Health Research Institute, Canada

Challenges and Importance of the Assessment of Magnesium Status
Dr. Ronald Elin, University of Louisville, USA

Commenter: The Association between Dietary Intake of Magnesium and the Metabolic Syndrome
Dr. Earl Ford, Centers for Disease Control and Prevention, USA

5:30 pm

Adjourn

6:00 – 7:30 pm

Poster Session and Reception

Tuesday, April 25

8:30 – 10:00 am

Session V: Controlled Human Exposure Studies of Magnesium and/or Calcium in Diet/Drinking Water

Chairperson: *Dr. Gerald Combs, USDA Grand Forks Human Nutrition Research Center, USA*

Indications of magnesium and calcium deficiency in populations
Dr. Gerald Combs

Calcium studies
Dr. Constance Weaver, Purdue University, USA

Dietary magnesium deprivation confirmed by balance induces biochemical and functional changes including increased calcium balance in postmenopausal women
Dr. Forrest Nielsen, USDA Grand Forks Human Nutrition Research Center, USA

Commenter: *Dr. Nickolas G. Zimmermann, Department of Animal and Avian Sciences, University of Maryland, USA*

10:00 – 10:30 am

Break

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10:30 - 12:00 pm	<p>Session VI: Basis for Linking Magnesium, Calcium and Health Outcomes II</p> <p>Chairperson:</p> <ul style="list-style-type: none">Calcium and magnesium in drinking water in relation to bone metabolism <i>Dr. Jeri W. Nieves, Columbia University, USA</i>Studies on the effects of taking of partially desalinated deep seawater on bone metabolism and blood pressure in postmenopausal women with osteopenia or osteoporosis <i>Dr. Toshiyuki Sado and Dr. Hajime Morikawa, Nara Medical University, Japan</i>Magnesium and the immune system <i>Dr. Terez Shea-Donohue, University of Maryland, USA</i>Commenter: Effects of magnesium rich drinking water made from deep-sea water without salt for health and especially lipid metabolism <i>Dr. Mieko Kimura, Takeda Research Institute of Life Science & Preventive Medicine, Graduate School of Medicine Kyoto University, Japan</i>
12:00 - 1:30 pm	Lunch
1:30 - 3:00 pm	<p>Session VII: Epidemiological Evidence Linking Drinking Water Components and Health -Cardiovascular and Other Diseases I</p> <p>Cochairs: <i>Dr. Paul Hunter, University of East Anglia, UK</i> <i>Dr. Rebecca Calderon, US Environmental Protection Agency, USA</i></p> <ul style="list-style-type: none">Overview of epidemiologic methods, strengths and weaknesses <i>Dr. Rebecca Calderon, Mr. Gunther Craun, Dr. Silvano Monarca and Dr. Francesco Donato</i>Findings from UK systematic review on water hardness and cardiovascular mortality and other effects <i>Dr. Paul Hunter</i>Studies needed to improve the database and interpretations <i>Dr. Martha Sinclair, Monash University, Australia</i>
3:00 - 3:30 pm	Break
3:30 - 5:00 pm	<p>Session VIII: Epidemiological Evidence Linking Drinking Water Components and Health - Cardiovascular and Other Diseases II</p> <p>Cochairs: <i>Dr. Rebecca Calderon and Dr. Paul Hunter</i></p> <ul style="list-style-type: none">Studies in Eastern Europe <i>Dr. Frantisek Kozisek, National Institute of Public Health, Czech Republic</i>Detailed analysis of studies in Taiwan <i>Dr. C.Y. Yang, Kaohsiung Medical University, Taiwan</i>Water quality and health in British men: old and new evidence from the British Regional Heart Studies <i>Dr. Richard Morris, University College London, UK</i>Commenter: <i>Dr. Ragnar Rylander, Professor emeritus, Gothenburg University, Sweden</i>
5:00 pm	Adjourn

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Wednesday, April 26

8:30 -10:00 am

Session IX: Alternative Hypotheses and Knowledge Gaps

Chairperson: *Dr. Shailendra Vajpeyee, Government Medical College and New Civil Hospital, Surat, India*

Alternative health effects interpretations

Dr. Shailendra Vajpeyee

Are there health consequences from long term consumption of low or high TDS water?

John Fawell, John Fawell Associates, UK

Israeli standards for calcium in desalinated water

Dr. Avner Adin, Hebrew University of Jerusalem, Israel

Corrosion and soft vs. softened water

Joseph Harrison, Water Quality Association, USA

10:00 - 10:30 am

Break

10:30 - 12:00 pm

Session X: Water Production, Technical Issues and Economics

Chairperson: *Dr. Perialwar Regunathan, ReguNathan Associates, USA*

Drinking Water Hardness, softening and benefits of the optimal composition of drinking water

Dr. Margreet Mons, KIWA Water Research, The Netherlands

Feasibility/costs of mineral supplementation of bottled water and beverages

Josep Molas Pages, The Coca-Cola Company, Spain

Twenty years of experience with central softening in The Netherlands: Water quality – Environmental benefits - Costs

Dr. Jan Peter van der Hoek, Amsterdam Water Supply, The Netherlands

Options for NF/RO permeate remineralization

Dr. Maarten Nederlof, Vitens, The Netherlands and Tom Pankratz, Water Desalination Report, USA

Business impacts of the ‘hard water benefits’ hypothesis

Dr. Perialwar Regunathan

12:00 - 1:00 pm

Lunch

1:00 - 3:30 pm

Session XI: Roundtable/Summaries/Conclusions/Discussions

Chairperson: *Dr. Jamie Bartram, World Health Organization*

Panel: Session Chairs

Dr. Suzanne Harris, Dr. Stephanie Atkinson, Dr. Rebecca Costello, Prof. Choon Nam Ong, Dr. William Weglicki, Dr. Gerald Combs, Dr. Rebecca Calderon, Dr. Shailendra Vajpeyee, Dr. Perialwar Regunathan

3:30 pm

Adjourn