

FLUORIDE

Quarterly Journal of The International Society for Fluoride Research Inc.

www.fluorideresearch.org

www.fluorideresearch.com

www.fluorideresearch.net

Owned & published by THE INTERNATIONAL SOCIETY FOR FLUORIDE RESEARCH INCORPORATED © 2011. All rights reserved.

Editor:

Professor Emeritus Albert W Burgstahler. Lawrence, KS, USA. E-mail: awburg@ku.edu

Associate Editors:

Professor Dariusz Chlubek. Dept. of Biochemistry and Chemistry, Pomeranian Medical University, Szczecin, Poland.

Associate Professor Hardy Limeback. University of Toronto, Toronto, ON, Canada.

Professor Emeritus Gene W Miller. Utah State University, Logan, UT, USA.

Christopher Neurath. American Environmental Health Studies Project, Lexington, MA, USA.

Associate Professor Jashwanti D Sharma. Dept. of Zoology, University of Rajasthan, Jaipur, India.

Professor Dianjun Sun. Chinese Research Center for Endemic Disease Control, Harbin Medical University, Harbin, China.

Professor Emeritus AK Susheela. Fluorosis Research & Rural Development Foundation, Delhi, India.

Associate Professor Masashi Tsunoda. Kitasato University School of Medicine, Sagamihara, Japan.

Professor Emeritus Ming-Ho Yu. Western Washington University, Bellingham, WA, USA.

Editorial Assistants:

Bill Wilson. North Shore City, New Zealand.

Peter Meiers. Saarbrücken, Germany.

Managing Editor:

Dr Bruce Spittle. Dunedin, New Zealand. E-mail: spittle@es.co.nz

EDITORIAL

- 117–124 NEUROTOXIC EFFECTS OF FLUORIDE
Bruce Spittle. Dunedin, New Zealand.

RESEARCH REPORTS

- 125–134.... FLUORIDE AND GENERATION OF PRO-INFLAMMATORY FACTORS IN HUMAN MACROPHAGES
Izabela Gutowska, Irena Baranowska-Bosiacka, Aldona Siennicka, Magdalena Bańkiewicz, Bogusław Machaliński, Ewa Stachowska, Dariusz Chlubek. Szczecin, Poland.
- 135–142.... FLUORIDE EFFECTS ON CHOLESTEROL INFLUX AND EXPRESSION OF THE SCAVENGER RECEPTOR CD36 IN THP1 DIFFERENTIATED MONOCYTE/MACROPHAGE CELLS
Izabela Gutowska, Irena Baranowska-Bosiacka, Aldona Siennicka, Marta Rybicka, Magdalena Bańkiewicz, Bogusław Machaliński, Agnieszka Kolasa, Barbara Wiszniewska, Ewa Stachowska, Dariusz Chlubek. Szczecin, Poland.
- 143–146.... FLUORIDE IN SKIN AND MUSCLE OF TWO COMMERCIAL SPECIES OF FISH HARVESTED OFF THE BUSHEHR SHORES OF THE PERSIAN GULF
Sina Dobaradaran, Dariush Ranjbar Vakil Abadi, Amir Hossein Mahvi, Allahbakhsh Javid. Bushehr, Iran.
- 147–152.... PROTECTIVE EFFECT OF CURCUMIN AND QUERCETIN ON THYROID FUNCTION IN SODIUM FLUORIDE INTOXICATED RATS
Seyed Fazel Nabavi, Akbar Hajizadeh Moghaddam, Seyed Mohammad Nabavi, Shahram Eslami. Babolsar, Tehran, and Sari, Iran.
- 153–157.... FLUORIDE ACCUMULATION IN CROPS AND VEGETABLES AND DIETARY INTAKE IN A FLUORIDE-ENDEMIC AREA OF WEST BENGAL
S Gupta, S Banerjee. Burdwan, India.
- 158–162.... EFFECTS OF FLUORIDE ON PSYCHOMOTOR PERFORMANCE AND MEMORY OF ALUMINUM POTROOM WORKERS
Seyedeh Monavar Yazdi, Akbar Sharifian, Maryam Dehghani-Beshne, Vahid Reza Momeni, Omid Aminian. Tehran, Iran.
- 163–167.... A COMPARATIVE STUDY OF THE IQ OF CHILDREN AGE 7–9 IN A HIGH AND A LOW FLUORIDE WATER CITY IN IRAN
Hamid Reza Poureslami, Azadeh Horri, Behshid Garrusi. Koohbanan, Iran.

Click on the blue rectangles for press quality pdf copies (larger file sizes and slower to load but better quality) and on the red rectangles for smallest file size pdf copies (smaller file sizes and faster to load but lower quality)

- 168–172.... INTELLIGENCE QUOTIENTS OF 12–14 YEAR OLD SCHOOL CHILDREN IN A HIGH AND A LOW FLUORIDE VILLAGE IN INDIA
Pranati Eswar, L Nagesh, CG Devaraj. Davangere, Karnataka, India.

RESEARCH NOTE

- 173–174.... THYROID FUNCTION TESTS IN ALUMINUM POTROOM WORKERS EXPOSED TO FLUORIDE EMISSIONS
Vahid Reza Momeni, Maryam Dehghani Beshne, Akbar Sharifian, Alireza Esteghamati, Ebrahim Masoudi. Tehran, Iran.

ABSTRACTS

ROLE OF Na, Ca, AND FLUORIDE IN CHRONIC RENAL FAILURE

- 175 DOSE-DEPENDENT Na AND Ca IN FLUORIDE-RICH DRINKING WATER—ANOTHER MAJOR CAUSE OF CHRONIC RENAL FAILURE IN TROPICAL ARID REGIONS
Chandrajith R, Dissanayake CB, Ariyaratna T, Herath HMJMK, Padmasiri JP. Peradeniya, Sri Lanka.

- 175..... EDITOR'S NOTE

NO BENEFIT OF NaF OR IBANDRONATE IN MANAGING BONE DISEASE

- 175–176.... BONES AND CROHN'S: NO BENEFIT OF ADDING SODIUM FLUORIDE OR IBANDRONATE TO CALCIUM AND VITAMIN D
Klaus J, Reinshagen M, Herdt K, Schröter C, Adler G, von Boyen G, von Tirpitz C. Ulm, Germany.

FLUORIDE AND THE CENTRAL NERVOUS SYSTEM

- 176–177.... EFFECTS OF THE FLUORIDE ON THE CENTRAL NERVOUS SYSTEM [REVIEW]
Valdez-Jiménez L, Soria Fregozo C, Miranda Beltrán ML, Gutiérrez Coronado O, Pérez Vega MI. Guadalajara, Jalisco, México.

FLUORIDE APOPTOSIS OF OSTEOLASTS

- 177..... SODIUM FLUORIDE INDUCES APOPTOSIS AND ALTERS BCL-2 FAMILY PROTEIN EXPRESSION IN MC3T3-E1 OSTEOLASTIC CELLS
Yang S, Wang Z, Farquharson C, Alkasir R, Zahra M, Ren G, Han B. Beijing, China.

ENDEMIC FLUOROSIS AT VESUVIUS

- 177–178.... ENDURING FLUORIDE HEALTH HAZARD FOR THE VESUVIUS AREA POPULATION: THE CASE OF AD 79 HERCULANEUM
Petroni P, Giordano M, Giustino S, Guarino FM. Naples, Italy.

AMOXICILLIN RISK FOR DENTAL FLUOROSIS

- 178..... AMOXICILLIN USE DURING EARLY CHILDHOOD AND FLUOROSIS OF LATER DEVELOPING TOOTH ZONES
Hong L, Levy SM, Warren JJ., Broffitt B. Memphis, TN, USA.

FLUID INTAKE AND CHILD DENTAL CARIES IN AUSTRALIA

- 178–179.... CONTEMPORARY FLUID INTAKE AND DENTAL CARIES IN AUSTRALIAN CHILDREN
Lee J, Brearley-Messer LJ. Melbourne, Victoria, Australia.

- 179..... EDITOR'S NOTE

STATISTICS OF NEVADA YOUTH CARIES EXPERIENCE

- 179–180.... INEQUALITIES OF CARIES EXPERIENCE IN NEVADA YOUTH EXPRESSED BY DMFT INDEX VS. SIGNIFICANT CARIES INDEX (SIC) OVER TIME
Ditmyer M, Dounis G, Mobley C, Schwarz E. Las Vegas, NV, USA.

SALT FLUORIDATION

- 180..... EFFICACY OF SALT FLUORIDATION
Yeung CA. Hamilton, Scotland, UK.

DEFLUORIDATION OF WATER

- 181..... PERFORMANCE OF GRANULAR ZIRCONIUM-IRON OXIDE IN THE
REMOVAL OF FLUORIDE FROM DRINKING WATER
Dou X, Zhang Y, Wang H, Wang T, Wang Y. Beijing, PR China.

INFANT FORMULA FLUORIDE INTAKE IN POLAND

- 181–182.... DIETARY FLUORIDE INTAKE FROM INFANT AND TODDLER FORMULAS IN
POLAND
Opydo-Szymaczek J, Opydo J. Poznan, Poland.

- 182..... EDITOR'S NOTE

FLUORIDE AND BONE CELL RESPONSE TO MECHANICAL LOADING

- 182..... FLUORIDE INHIBITS THE RESPONSE OF BONE CELLS TO MECHANICAL
LOADING
Willems HM, van den Heuvel EG, Castelein S, Buisman JK, Bronckers AL,
Bakker AD, Klein-Nulend J. Amsterdam, The Netherlands.

CORRECTIONS

- 182..... CORRECTION OF ERRORS IN REFERENCE 9 IN: EFFECTS OF HIGH
FLUORIDE AND LOW IODINE ON BRAIN HISTOPATHOLOGY IN OFFSPRING
RATS BY GE YM, NING HM, WANG SL, AND WANG JD, FLUORIDE
2002;35(1):12-21.
- 182..... CORRECTION OF AN ERROR IN THE LISTING IN THE TABLE OF CONTENTS
OF FLUORIDE 2011;44(1), ON PAGE iii, OF THE LISTING OF THE TITLE OF
THE ABSTRACT: THE RELATIONSHIPS BETWEEN LOW LEVELS OF URINE
FLUORIDE ON CHILDREN'S INTELLIGENCE [AND] DENTAL FLUOROSIS IN
ENDEMIC FLUOROSIS AREAS IN HULUNBUIR, INNER MONGOLIA, CHINA
BY DING YG, GAO T, SUN H, HAN H, WANG W, JI X, LIU X, AND SUN D.

THE INTERNATIONAL SOCIETY FOR FLUORIDE RESEARCH INC.

The International Society for Fluoride Research was founded in 1966, at a meeting in Detroit of the American Society for Fluoride Research, to promote the sharing of scientific information on all aspects of inorganic and organic fluorides. This is done by publication of the peer-reviewed quarterly journal *Fluoride* and sponsoring international conferences. The first ISFR conference was held in Frankfurt, Germany in 1967 and subsequent conferences have been held in Spain, Austria, the Netherlands, England, the United States of America, Switzerland, India, Japan, Hungary, China, Poland, New Zealand, and Canada.

The XXXth ISFR conference will be hosted by Professor Dariusz Chlubek in Szczecin, Poland, on September 5–8, 2012.

The XXXIst conference is planned for Chiang Mai, Thailand in 2014 with Dr Sunsanee Rajchagool the host, and the XXXIInd conference in 2016 is planned for Hyderabad, India, with Dr Arjun Khandare the host.

Fluoride is an open access journal available free on the internet at <http://www.fluorideresearch.org>, .com, and .net, in full text without an embargo period.

Subscription to *Fluoride* in hardcopy and attendance at the conferences are welcomed for all interested in fluoride research. *Bona fide* fluoride researchers are invited to apply for Membership in the ISFR.

The Society does not hold an official position on issues such as water fluoridation but encourages, through its conferences, and the publication of papers, commentaries, and letters to the editor, a critical examination of the scientific basis of the views which are held by individuals and organizations.

MEMBERS OF THE ISFR INC. ADVISORY BOARD 2011

President:

Associate Professor Jashwanti D Sharma. Dept. of Zoology, University of Rajasthan, Jaipur, India

First Vice President:

Professor Dariusz Chlubek. Pomeranian Medical University, Szczecin, Poland.

Second Vice President:

Dr Sunsanee Rajchagool. Director of Intercountry Centre for Oral Health, WHO Collaborating Centre for Promoting Community-based Oral Health, Chiang Mai, Thailand.

Co-Secretaries:

Professor Dariusz Chlubek. Pomeranian Medical University, Szczecin, Poland.

Associate Professor Masashi Tsunoda. Kitasato University School of Medicine, Sagamihara, Japan.

Editor of *Fluoride*:

Professor Emeritus Albert W Burgstahler. University of Kansas, Lawrence, KS, USA.

Members at Large:

Asia

Professor Koichi Kono. Osaka Medical College, Osaka, Japan.

Professor Emeritus AK Susheela. Fluorosis Research & Rural Development Foundation, Delhi, India.

Professor Guifan Sun. China Medical University, Shenyang, China.

Professor Emeritus Humio Tsunoda. Iwate Medical University, Morioka, Japan.

Europe

Professor Miklós Bély. Hungarian Academy of Science, Budapest, Hungary.

Professor Jürgen Franke. Rehaklinik an der Salza, Bad Langensalza, Germany.

Professor Emeritus Zygmunt Machoy. Pomeranian Medical Academy, Szczecin, Poland.

Professor Jörg Spitz. Society for Medical Information and Prevention, Wiesbaden, Germany.

North America

Professor Emeritus Gene W Miller. Utah State University, Logan, UT, USA.

Treasurer and Managing Editor of *Fluoride*:

Dr Bruce Spittle. Dunedin, New Zealand.

MEMBERS OF THE ISFR INC. EDITORIAL BOARD 2011

Editor of *Fluoride*:

Professor Emeritus Albert W Burgstahler. University of Kansas, Lawrence, KS, USA

Associate Editors:

Prof. Dariusz Chlubek. Dept of Biochemistry & Chemistry, Pomeranian Medical University, Szczecin, Poland.

Professor Hardy Limeback. University of Toronto, Toronto, ON, Canada.

Professor Emeritus Gene W Miller. Utah State University, Logan, UT, USA.

Christopher Neurath. American Environmental Health Studies Project, Canton, NY, USA.

Associate Professor Jashwanti D Sharma. Dept. of Zoology, University of Rajasthan, Jaipur, India.

Prof. Dianjun Sun. Chinese Research Center for Endemic Disease Control, Harbin Med. Uni., Harbin, PR China.

Professor Emeritus AK Susheela. Fluorosis Research & Rural Development Foundation, Delhi, India.

Associate Professor Masashi Tsunoda. Kitasato University School of Medicine, Sagamihara, Japan.

Professor Emeritus Ming-Ho Yu. Western Washington University, Bellingham, WA, USA.

Editorial Board Members:

Dr Miklos Bély. Hungarian Academy of Science, Budapest, Hungary.

Dr Russell L Blaylock. Ridgeland, Mississippi, USA.

Assoc. Prof. Andrzej Bohatyrewicz. Dept. of Orthopedics & Traumatology, Pom. Med. Uni., Szczecin, Poland.

Professor Masahiko Chikuma. Osaka University of Pharmaceutical Sciences, Osaka, Japan.

Professor Edward Czerwinski. Jagiellonian University, Kraków, Poland.

Dr Mark Diesendorf. Sustainability Centre, Box 521, Epping, NSW 1710, Australia.

Professor J Franke. Rehaklinik an der Salza, Bad Langensalza, Germany.

Assistant Professor Toshitaka Horiuchi. Nihon University School of Dentistry at Matsudo, Japan.

Associate Professor Kazuyoshi Itai. Iwate Medical University, Morioka, Iwate, Japan.

Professor K Kono. Osaka Medical College, Osaka, Japan.

Professor Jerzy Krechniak. Medical University, GdaNsk, Poland.

Professor Emeritus C James Lovelace. Humbolt State University, Arcata, CA, USA.

Dr Boguslaw Machaliński. Pomeranian Academy of Medicine, Szczecin, Poland.

Professor Emeritus Zygmunt Machoy. Pomeranian Medical Academy, Szczecin, Poland.

Professor F Murray. Murdoch University, Murdoch, WA, Australia.

Professor Masayuki Okazaki. Hiroshima University, Hiroshima, Japan.

Dr James C Pushnik. California State University, Chico, CA, USA.

Professor Masashi Shimahara. Osaka Medical College, Takatsuki City, Osaka, Japan.

Professor Jörg Spitz. Society for Medical Information and Prevention, Wiesbaden, Germany.

Professor Anna Strunecká. Charles University, Prague, Czech Republic.

Professor Guilfan Sun. China Medical University, Shenyang, China.

Professor Satoshi Takizawa. Dept. of Urban Engineering, Graduate School of Engineering, University of Tokyo.

Professor Emeritus SPS Teotia. Institute of Higher Medical Sciences, Whitefield, India.

Professor Emeritus Humio Tsunoda. Iwate Medical University, Morioka, Japan.

Prof. Jundong Wang. College of Animal Science & Veterinary Med., Shanxi Agri. Uni., Taigu, Shanxi, PR China.

Professor Emeritus Zan-Dao Wei. Guiyang Medical College, Guizhou, China.

Professor Emeritus Y Yoshida. Osaka Medical College, Osaka, Japan.

Professor Emeritus NBK Yoshitake. Shiga University of Medical Science, Otsu, Japan.

Prof. Boasham Zheng., Inst. of Geochemistry, Chinese Acad.of Sciences, Guiyang, Guizhou, PR China.

Editorial Assistants:

Bill Wilson. North Shore City, New Zealand.

Peter Meiers. Saarbrücken, Germany.

Managing Editor:

Dr Bruce Spittle. Dunedin, New Zealand.

FLUORIDE QUARTERLY JOURNAL OF THE INTERNATIONAL SOCIETY FOR FLUORIDE RESEARCH INC.

ISSN 0015-4725, is published four times a year (January-March, April-June, July-September, and October-December), and contains peer-reviewed scientific reports on agricultural, analytical, biochemical, biological, chemical, clinical, dental, ecological, environmental, industrial, medical, metabolic, pharmacological, synergistic, toxicological, and veterinary aspects of inorganic and organic fluorides. Publication is usually made towards the end of each quarterly period rather than at the start of the period. The journal does not contain advertising.

Copyright. *Fluoride* is owned and published by the International Society for Fluoride Research. © 2011. All rights reserved.

Online access: *Fluoride* is an open access journal available without an embargo period and with free full text at: www.fluorideresearch.org, www.fluorideresearch.com, and www.fluorideresearch.net.

Further details are given below in the section on past issues. Articles in *Fluoride* can be searched for using the Google custom search on the website by inserting, in the white box, appropriate key words such as author names, subject key words, and dates, and clicking on the search box. The results can be cleared by clicking on the × to the right of the search box. The search engine covers all articles on the website including the 35-year Cumulative Author and Subject Indexes and subsequent annual indexes. Fluoride is also covered by the Chemical Abstracts search engine *SciFinder Scholar* (from Chemical Abstracts Service) and *Web of Science* (from Thomson Corporation for Science Citation Index), but not, at present, through *Medline/PubMed*.

Subscription to Fluoride in hard copy for 2011 and 2012, is available for an annual fee, payable annually in advance, of: US\$51, Canadian\$53, £33, Japan¥4500, €39, Australian\$57, or New Zealand\$72, with a discount of 10% for copies posted to a New Zealand address, which incurs a lower postal cost. No subscription agency discount is available. Payment may be made in any of the currencies above. No journals will be mailed until payment is received for the current subscription or membership period. Apply to Dr Spittle, Managing Editor *Fluoride*, 727 Brighton Road, Dunedin 9035, New Zealand. E-mail: spittle@es.co.nz. Please indicate if you would like the subscription to start with the calendar year or with a particular issue of the journal. Invoices are sent to subscribers with the last issue of each year, apart from those whose copies are ordered through a subscription agency.

Payment options for subscription to *Fluoride*, and the purchase of back issues are: bank transfer, cheque, cash, or PayPal. Bank transfers can be made to The Bank of New Zealand, New Lynn Branch, 3029 Great North Road, New Lynn, Auckland, New Zealand; Swift BKNZNZ22; Website: www.bnz.co.nz; Fax 64 09 827 6806; Account name: International Society for Fluoride Research; Account number 02 0184 0333239 000. Cheques should be made out to the same or to ISFR. Personal cheques, bank cheques or drafts, and cash may be posted to Dr Bruce Spittle, 727 Brighton Road, Ocean View, Dunedin 9035, New Zealand. Personal or bank cheques, and cash, in US\$, Canadian\$, £, €, Australian\$, and NZ\$ are fine. Cash as Japanese Yen is also fine. Please do not send Canadian or British Postal Notes, cheques drawn on Japanese banks, or cheques in US\$ drawn on British banks in the United Kingdom as they cannot be negotiated in New Zealand. PayPal allows payment by Visa or Mastercard directly to an E-mail address in a secure way. It is necessary to first register with PayPal at <http://paypal.com>. The recipient E-mail address for the payment is spittle@es.co.nz. Just giving the credit card number to the ISFR is not sufficient.

Copies of articles and previous issues of Fluoride: Hard copies of all of the previous issues of *Fluoride*, including the 35-year cumulative indexes in *Fluoride* 2002;35(4-Parts 1 and 2), are usually kept in stock and may be ordered directly through the Managing Editor for US\$10 or equivalent per single copy of an issue or part of *Fluoride* including postage. Individual articles can also be downloaded, free in full text, from the ISFR websites at: www.fluorideresearch.org, www.fluorideresearch.com, and www.fluorideresearch.net.

Instructions to authors: Manuscripts, including reports of original research, papers presented at ISFR conferences, research reviews, discussion papers, and letters to the Editor, are accepted for publication after appropriate evaluation and recommendation by qualified reviewers. The initial version of the manuscript, double-spaced throughout with wide margins, should be submitted, as a Word attachment by E-mail, to Prof Emeritus AW Burgstahler, Editor, *Fluoride*, 1620 Massachusetts Street, Lawrence, KS 66044-4254, USA (E-mail: awburg@ku.edu). Do not send manuscripts to the Managing Editor. If submission is by post, please send two copies, without a computer disc. Detailed instructions for preparing papers are at www.fluorideresearch.org and in *Fluoride* 2011;44(1):51-6. **These instructions should be followed meticulously to avoid publication delays.**

The Editorial Officers of *Fluoride* strongly support the maintenance of the highest standards of animal care and the control of discomforts to animals in research. Authors must indicate whether their institutional and national guidelines for the care and use of laboratory animals were followed. When reporting experiments on human subjects, authors should indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMA 2000 Dec 20;284(23):3043-5).

Complimentary copies: Donors wishing to fund gift copies, which will be suitably inscribed, are invited to contact Dr Spittle.

Membership of the International Society for Fluoride Research Inc.: Membership in the ISFR Inc. is invited from *bona fide* fluoride researchers. Membership allows participating in the activities of the Society and voting at business meetings. No membership fee is payable. Application for membership may be made by letter to Dr Spittle, E-mail: spittle@es.co.nz, including name, postal address, E-mail address, and the area of fluoride research the applicant is involved in.

Co-secretaries: Enquiries about ISFR Inc. membership, ISFR Inc. conferences and meetings, and other matters under their jurisdiction may be made to the co-secretaries:

Professor Dariusz Chlubek, Department of Biochemistry and Chemistry, Pomeranian Medical University, al. Powstancow Wlkp. 72, 70-111 Szczecin, Poland. E-mail: dclubek@pam.szczecin.pl

Associate Professor Masashi Tsunoda, Department of Preventive Medicine and Public Health, Kitasato University School of Medicine, Kitasato 1-15-1, Sagamihara, Kanagawa, 228-8555, Japan. E-mail: mtsunoda@med.kitasato-u.ac.jp