Systematic Review and Meta-Analysis

297 Inborn Errors of Metabolism That Cause Sudden Infant Death: A Systematic Review with Implications for Population Neonatal Screening Programmes
van Rijt, W.J. (Groningen); Koolhaas, G.D.; Bekhof, J. (Zwolle); Heiner Fokkema, M.R.; de Koning, T.J. (Groningen); Visser, G. (Utrecht); Schielen, P.C.J.I. (Bilthoven); van Spronsen, F.J.; Derks, T.G.J. (Groningen)

Original Papers

239 Routine Use of Probiotics in Preterm Infants: Longitudinal Impact on the Microbiome and Metabolome
Abdulkadir, B.; Nelson, A.; Skeath, T.; Marrs, E.C.L.; Perry, J.D.; Cummings, S.P.; Embleton, N.D.; Berrington, J.E. (Newcastle upon Tyne); Stewart, C.J. (Newcastle upon Tyne/Houston, Tex.)

248 Demographic and Behavioral Predictors of Severe Fetomaternal Hemorrhage: A Case-Control Study
Stroustrup, A.; Plafkin, C.; Tran, T.-A. (New York, N.Y.); Savitz, D. (Providence, R.I.)

258 Binasal Prong versus Nasal Mask for Applying CPAP to Preterm Infants: A Randomized Controlled Trial

265 Continuous End-Tidal Carbon Dioxide Monitoring during Resuscitation of Asphyxiated Term Lambs

274 Caffeine Prevents Hyperoxia-Induced Functional and Structural Lung Damage in Preterm Rabbits
Nagatomo, T. (Matsuyama); Jiménez, J. (Santiago/Leuven); Richter, J. (Leuven); De Baere, S. (Merelbeke); Vanoirbeek, J.; Naulaers, G.; Allegaert, K. (Leuven); Croubels, S. (Merelbeke); Deprest, J.A. (Leuven/London); Toelen, J. (Leuven)

282 Severe Neonatal Anaemia, MRI Findings and Neurodevelopmental Outcome
Zonnenberg, I.A.; Vermeulen, R.J.; Rohaan, M.W.; van Weissenbruch, M.M. (Amsterdam); Groenendaal, F.; de Vries, L.S. (Utrecht)

289 Right Ventricular Function in Infants with Bronchopulmonary Dysplasia: Association with Respiratory Sequelae
Sehgal, A.; Malikiwi, A.; Paul, E.; Tan, K.; Menahem, S. (Melbourne, Vic.)

308 Sedation during Minimal Invasive Surfactant Therapy in Preterm Infants
Dekker, J.; Lopriore, E.; Rijken, M.; Rijnjjes-Jacobs, E.; Smits-Wintjens, V.; te Pas, A. (Leiden)

314 Gestational Timing of Prenatal Disturbance and Fetal Sex Determine the Developmental Outcomes
Rendina, D.N.; Lubach, G.R.; Coe, C.L. (Madison, Wis.)

(Continued on inside front cover)
Novel Insights from Clinical Practice

303 N-Carbamylglutamate Is an Effective Treatment for Acute Neonatal Hyperammonaemia in a Patient with Methylmalonic Aciduria

Commentary

255 Fetomaternal Hemorrhage: Mostly a Hidden Hazard

Sharing Progress in Neonatal (SPIN) Lung and Brain

Preface

322 Sharing Progress in Neonatal (SPIN) Lung and Brain.
Incorporating the 31st International Workshop on Surfactant Replacement, Naples, June 3–4, 2016
Buonocore, G. (Siena); Curstedt, T. (Stockholm); Halliday, H.L. (Belfast); Hallman, M. (Oulu); Saugstad, O.D. (Oslo); Speer, C.P. (Würzburg)

8th Bengt Robertson Memorial Lecture

325 Neonatal Respiratory Diseases in the Newborn Infant: Novel Insights from Stable Isotope Tracer Studies
Carnielli, V.P.; Giorgetti, C. (Ancona); Simonato, M.; Vedovelli, L. (Padova); Cogo, P. (Udine)

Reviews

334 Advances in Neonatal Pulmonary Hypertension
Steinhorn, R.H. (Washington, D.C.)

345 The Vulnerable Newborn Brain: Imaging Patterns of Acquired Perinatal Injury
Ferriero, D.M. (San Francisco, Calif.)

352 Oxygen Saturation Targets for Extremely Preterm Infants after the NeOProm Trials
Stenson, B.J. (Edinburgh)

359 Synchronized Nasal Intermittent Positive Pressure Ventilation of the Newborn: Technical Issues and Clinical Results
Moretti, C. (Rome); Gizzi, C. (Potenza); Montecchia, F.; Barbàra, C.S.; Midulla, F. (Rome); Sanchez-Luna, M. (Madrid); Papoff, P. (Rome)

366 Sustained Inflation and Its Role in the Delivery Room Management of Preterm Infants
Lista, G.; La Verde, P.A.; Castoldi, F. (Milan)

369 Retinopathy of Prematurity: Therapeutic Strategies Based on Pathophysiology
Cayabyab, R.; Ramanathan, R. (Los Angeles, Calif.)

377 Stem Cells for Neonatal Brain Disorders
Ahn, S.Y.; Chang, Y.S.; Park, W.S. (Seoul)

384 Abstracts

393 Author Index

after Contents Vol. 109, 2016
Editors-in-Chief
H.L. Halliday, Belfast
C.P. Speer, Würzburg

Fetal and Neonatal Research
Incorporating 'Developmental Pharmacology and Therapeutics', founded by J.V. Aranda, Montreal.

Editorial Board
K. Allegaert, Leuven
S. Andersson, Helsinki
E. Bancalari, Miami, Fla.
D. Bassler, Zurich
C. Bührer, Berlin
W. Carlo, Birmingham, Ala.
Y.-S. Chang, Seoul
R. Christensen, Salt Lake City, Utah
T. Curstedt, Stockholm
C. Dani, Florence
B. Darlow, Christchurch
M. Hallman, Oulu
J.E. Harding, Auckland
W.W. Hay Jr., Aurora, Colo.
H.H. Hummler, Ulm
S.E. Juul, Seattle, Wash.
M. Kaplan, Jerusalem
B. Kramer, Maastricht
R.J. Martin, Cleveland, Ohio
W. McGuire, York
J. Neu, Gainesville, Fla.
PC. Ng, Hong Kong
M.W. Obladen, Berlin
W.S. Park, Seoul
N.J. Robertson, London
E. Saliba, Tours
O.D. Saugstad, Oslo
M.P. Sherman, Columbia, Mo.
E.S. Shinwell, Tsfat
J. Smith, Tygerberg
(Cochrane Review Updates)
J. Soul, Boston, Mass.
B. Sun, Shanghai
N. Takahashi, Tokyo
B. Thébaud, Ottawa, Ont.
D. Tibboel, Rotterdam
N. Vain, Buenos Aires
F. van Bel, Utrecht
J.N. van den Anker, Washington, D.C.
M. Vento Torres, Valencia
F.J. Walther, Leiden
J.A. Widness, Iowa City, Iowa
T.F. Yeh, Taipei
Guidelines for Authors

Aims and Scope
This highly respected and frequently cited journal is a prime source of information in the area of fetal and neonatal research. Original papers present research on all aspects of neonatology, fetal medicine and developmental biology. These papers encompass both basic science and clinical research including randomised trials, observational studies and epidemiology. Basic science research covers molecular biology, molecular genetics, physiologically, biochemistry and pharmacology in fetal and neonatal life. In addition to the classic features the journal accepts papers for the sections Research Briefings and Sources of Neonatal Medicine (historical pieces). Papers reporting results of animal studies should be based upon hypotheses that relate to developmental processes or disorders in the human fetus or neonate.

Submission
Manuscripts written in English should be submitted using the online submission website at:

www.karger.com/neon

Should you experience any problems with your submission, please contact:

neo@karger.com

S. Karger AG
Editorial Office 'Neonatology'
P.O. Box
CH–4009 Basel (Switzerland)

All manuscripts must be accompanied by a cover letter and the copyright transfer statement with all authors’ signatures (handwritten) confirming that they agree with the publication of the paper. Names, postal and e-mail addresses of four international experts in the appropriate area of research should accompany each manuscript. Selected scientist(s) will be invited to act as referee(s). Referees suggested should not be from the same institution as the author and should have expert knowledge of the subject.

Manuscripts may be submitted to the following sections:

• Reviews
• Systematic Reviews and Meta-Analyses
• Original Papers
• Consensus Statements
• Short Communications
• Novel Insights from Clinical Practice
• Research Briefings
• Sources of Neonatal Medicine
• Letters to the Editor

Reviews/Systematic Reviews and Meta-Analyses
Most reviews are submitted upon invitation. However, the editors are open to unsolicited reviews. Authors planning such a review are requested to contact the Editorial Office with a one page outline of the intended review. All reviews are subject to peer review. Systematic reviews should be reported using the format of the Cochrane Neonatal Review Group (www.neonatal.cochrane.org/welcome).

Original Papers
Original articles should not exceed a printed length of five pages, i.e. generally not more than 2,500 words of text accompanied by not more than 4–6 figures or tables as well as approx. 25 references.

Original Papers – Clinical Trials
Reports of randomised clinical trials should conform with CONSORT guidelines (www.consort-statement.org/consort-statement).

Short Communications
Short reports, brief laboratory observations, and preliminary communications, can be submitted for accelerated publication under ‘Short Communications’. To qualify for rapid publication, such reports should not exceed a printed length of approximately not more than 1,400 words of text accompanied by 2 figures or tables and from 5 to 10 references.

Novel Insights from Clinical Practice
(formerly Case Reports)
The publication space available for case reports is very limited. The journal only considers case reports with significant new insights or that present cases that may lead to changes in clinical practice, that stimulate further research or seem to contradict established facts. Highlighted boxes containing one or two bullet points on ‘Established Facts’ (what is already known) and ‘Novel Insights’ (what new information has been gained) are required and should be placed on the first page of the report. These should be selected so as to reinforce the novelty of the clinical observation. The manuscript should be presented with an abstract (unstructured, max. 150 words), followed by introduction, case report and discussion. Maximum 2 figures or 2 tables or 1 figure and 1 table.

Conditions
All manuscripts are subject to editorial review. Manuscripts are received with the explicit understanding that they are not under simultaneous consideration by any other publication. Submission of an article for publication implies the transfer of the copyright from the author to the publisher upon acceptance. Accepted papers become the permanent property of Neonatology and may not be reproduced by any means, in whole or in part, without the written consent of the publisher. It is the author’s responsibility to obtain permission to reproduce illustrations, tables, etc. from other publications.

Conflict of Interest:
All forms of support, including that from drug companies, and any potential source of conflict of interest should be acknowledged in the cover letter to the editor when applicable. The statement will be printed at the end of the article.

Ethics:
Published research must comply with the guidelines for human studies and animal welfare regulations. Authors should state that subjects have given informed consent and that the study protocol has been approved by the institute’s committee on human research. Further, they should also state that animal experiments conform to institutional standards.

Arrangement

Title page: The first page of each paper should indicate the title, the authors’ names, the institution where the work was conducted, and a short title for use as running head. Line numbering: Lines should be numbered (1, 2, 3, etc.) and displayed in the left margin of the manuscript (line numbering can be added from the Page Setup or Format menu of word processing programs). The line numbering should be continuous throughout the entire manuscript (i.e., do not begin numbering from 1 again at the top of each page).

Abstract:
Each paper needs an abstract of up to 250 words. It should be structured as follows:

Background: What is the major motive that prompted the study?

Objectives: What is the purpose of the study?

Methods: How was the study done?

Results: Most important findings

Conclusions: Most important conclusions

Key words: Please supply 3–10 key words in English that reflect the content of the paper.

References:
In the text identify references by Arabic numerals [in square brackets]. Material submitted for publication but not yet accepted should be noted as [unpublished data] and not be included in the reference list. The list of references should include only those publications which are cited in the text. Do not alphabetize; number references in the order in which they are first mentioned in the text. Surnames of the authors followed by initials should be given. There should be no punctuation other than a comma to separate the authors. Please cite all authors. Abbreviate journal names according to the Index Medicus system. Also see International Committee of Medical Journal Editors: Uniform requirements for manuscripts submitted to biomedical journals (www.icmje.org). Consider using EndNote (http://endnote.com/downloads/styles).

Examples
(b) Papers published only with DOI numbers: AlFaleh K, Anabrees J, Basler D: Probiotics reduce the risk of necrotizing enterocolitis in preterm infants: a meta-analysis. Neonatology DOI: 10.1159/000235684.
(c) Edited books: Hausman GJ, Barb CR: Adipose tissue and the reproductive axis: biological aspects; in Levy-Marchal C, Pincaud I (eds): Adipose Tissue Devel-

Karger
E-Mail karger@karger.com
www.karger.com
© 2016 S. Karger AG, Basel
The Guidelines for Authors are available at:
www.karger.com/neon_Guidelines
SI Units
SI units should be used. Listings of SI units may be found in the following publications:

Digital Object Identifier (DOI)
S. Karger Publishers supports DOIs as unique identifiers for articles. A DOI number will be printed on the title page of each article. DOIs can be useful in the future for identifying and citing articles published online without volume or issue information. More information can be found at www.doi.org.

Supplementary Material
Supplementary material is restricted to additional data that are not necessary for the scientific integrity and conclusions of the paper. Please note that all supplementary files will undergo editorial review and should be submitted together with the original manuscript. The Editors reserve the right to limit the scope and length of the supplementary material. Supplementary material must meet production quality standards for Web publication without the need for any modification or editing. In general, supplementary files should not exceed 10 Mb in size. All figures and tables should have titles and legends and all files should be supplied separately and named clearly. Acceptable files and formats are: Word or PDF files, Excel spreadsheets (only if the data cannot be converted properly to a PDF file), and video files (.mov, .avi, .mpeg).

Self-Archiving/Green Open Access
Karger permits authors to archive their pre-prints (i.e. peer review) or post-prints (i.e. accepted manuscript after peer review but before production) on their personal or their institution’s internal website. In addition, authors may post their accepted manuscripts in public Open Access repositories and scientific networks (e.g. ResearchGate or Mendeley) no earlier than 12 months following publication of the final version of their article. For all self-archiving, the posted manuscripts must:
• Be used for noncommercial purposes only
• Be linked to the final version on www.karger.com
• Include the following statement: ‘This is the peer-reviewed but unedited manuscript version of the following article: [insert full citation, e.g. Cytogenet Genome Res 2014;142:227–238 (DOI: 10.1159/000361001)]. The final, published version is available at http://www.karger.com/?doi=[insert DOI number].’

It is the author’s responsibility to fulfill these requirements.

For papers published online first with a DOI number only, full citation details must be added as soon as the paper is published in its final version. This is important to ensure that citations can be credited to the article.

Manuscripts to be archived in PubMed Central due to funding requirements will be submitted by Karger on the author’s behalf [see Funding Organizations (NIH etc.)].

For self-archiving Author’s Choice (Gold Open Access) articles, see Author’s Choice.

Author’s Choice
Karger’s Author’s Choice service broadens the reach of your article and gives all users worldwide free and full access for reading, downloading and printing at www.karger.com. The option is available for a one-time fee of CHF 3,000.00, which is a permissible cost in grant administration. More information can be found at www.karger.com/authors_choice.

The final, published version of the article may be posted at any time and in any repository or on other websites, in accordance with the relevant Creative Commons license. Reposted Open Access articles must:
• Follow the terms of the relevant Creative Commons license
• Be linked to the final version on www.karger.com
• Include the following statement: ‘The final, published version of this article is available at http://www.karger.com/?doi=[insert DOI number].’

It is the author’s responsibility to fulfill these requirements.

For papers published online first with a DOI number only, full citation details must be added as soon as the paper is published in its final version. This is important to ensure that citations can be credited to the article.

Funding Organizations (NIH etc.)
The U.S. National Institutes of Health (NIH) Public Access Policy mandates that accepted, peer-reviewed manuscripts are archived in its digital database, PubMed Central (PMC), within 12 months of the official publication date. As a service to authors, Karger submits NIH-funded articles to PMC on behalf of the authors immediately upon publication. The NIH assigns a PMCID within approximately 1 month and the manuscript will appear in PMC after a 12-month embargo. For authors making their paper Open Access through Author’s Choice, the embargo will be overridden, thereby accelerating the accessibility of the article. Karger also complies with other funders’ requirements (including Wellcome Trust and RCUK) for submission to PMC. Authors should include information on their grants in the Acknowledgements section of their papers.

Page Charges
A charge of CHF 60.00 per page (except for invited reviews which are free) will be levied for the first 3 printed pages of an article. Each additional complete or partial page will be charged to the author at CHF 325.00. A charge of CHF 3,000.00 for each additional complete page is levied for the first 3 printed pages of an article. Each additional complete or partial page will be charged to the author at CHF 325.00. 3 print-ed pages are equal to approx. 9 manuscript pages (including tables, illustrations and references).

Proofs
Proofs are sent to the corresponding author and should be returned with the least possible delay. Alterations other than the correction of printer’s errors are charged to the author.

Reprints
Order form and price list is sent with the pdf proofs. Orders submitted after the issue is printed are subject to considerably higher prices.
Endocrine Development

Communicating scientific advances in a clinical context

This series is devoted to specific areas of fetal, neonatal, pediatric and adolescent endocrinology. It addresses a wide range of relevant issues in the context of a well-defined subject and covers new areas of clinical and basic research. Clear evidence-based guidelines on clinical management by highly qualified basic and clinical scientists who present their clinically relevant recent findings are also provided. Bringing together experts from related disciplines such as fetal and perinatal medicine, epidemiology, public health, molecular endocrinology, the volumes cover a broad spectrum in endocrine development.
112. Jahrestagung der Deutschen Gesellschaft für Kinder- und Jugendmedizin (DGKJ)

Congress Center Hamburg

Informationen zu
• Programm
• Teilnehmerregistrierung
• Abstracteinreichung
unter www.dgkj2016.de

Abstractdeadline
• 30. April 2016

gemeinsam mit der

68. Jahrestagung der Deutschen Gesellschaft für Sozialpädiatrie und Jugendmedizin (DGSPJ)

54. Herbsttagung der Deutschen Gesellschaft für Kinderchirurgie (DGKCH)

38. Jahrestagung des Berufsverbandes Kinderkrankenpflege Deutschland (BeKD)

31. Jahrestagung der Gesellschaft für Pädiatrische Gastroenterologie und Ernährung (GPGE)

www.dgkj2016.de
Contents

See the journal website for contents
The 6th Congress of the
EUROPEAN ACADEMY OF PAEDIATRIC SOCIETIES
EAPS
October 21-25, 2016, Geneva, Switzerland
A Joint Scientific and Educational Event of EAP, ESPNIC and ESPR

Abstract Submission Deadline: April 13th, 2016
Early Registration Deadline: June 29th, 2016

www.kenes.com/paediatrics
SAVE THE DATE October 23 - 27, 2016

ISPN2016
44th Annual Meeting of the International Society for Pediatric Neurosurgery
October 23 - 27, 2016 / KOBE PORTOPIA HOTEL

Hosted by
Japanese Society for Pediatric Neurosurgery
AIJINAI Healthcare Corporation, Takatsuki General Hospital

www.ispn2016.org
@ISPNneurosurgery
ISPNneurosurgery

Registration Early Bird Deadline: August 22, 2016, Monday

Congress Secretariat: Kenes Group
Sirin Sokak No: 58, 34467 Emirgan, Sariyer, Istanbul - Turkey
Phone: +90 212 299 9984 / Fax: +90 212 299 9977 / e-mail: mrodie@kenes.com
Gain new insights into the mechanisms of normal and abnormal brain development

Developmental Neuroscience

Editor-in-Chief
S.W. Levison, Newark, N.J.

Associate Editors
P.G. Bhide, Tallahassee, Fla.
K. Ikenaka, Okazaki
J.M. Lauder, Chapel Hill, N.C.
C. Mallard, Gothenburg
R.S. Nowakowski, Tallahassee, Fla.
G.D. Stanwood, Tallahassee, Fla.

Selected contributions
- Cellular and Axonal Constituents of Neocortical Molecular Layer Heterotopia: Ramos, R.L.; Siu, N.Y. (Old Westbury, N.Y.); Brunken, W.J. (Brooklyn, N.Y.); Yee, K.T. (Jackson, Miss.); Gabel, L.A. (Easton, Pa.); Van Dine, S.E.; Hoplight, B.J. (Old Westbury, N.Y.)
- Prenatal Infection Affects the Neuronal Architecture and Cognitive Function in Adult Mice: Li, W.-Y.; Chang, Y.-C. (Taipei); Lee, L.-J.-H. (Taipei/Chuzan), Lee, L.-J. (Taipei)
- Molecular Changes during Neurodevelopment following Second-Trimester Binge Ethanol Exposure in a Mouse Model of Fetal Alcohol Spectrum Disorder: From Immediate Effects to Long-Term Adaptation: Mantha, K.; Lauder, B.J.; Singh, S.M. (London, Ont.)
- Increased Aggression, Improved Spatial Memory, and Reduced Anxiety-Like Behaviour in Adult Male Mice Exposed to Fluoxetine Early in Life: Kiryanova, V.; Dyck, R.H. (Calgary, Alta.)
There is ample evidence that early-life nutrition plays a powerful role in programming a person’s development, metabolism and health for the future. Optimizing early nutrition may reduce the risk of cardiovascular diseases, allergies, diabetes and obesity, and positively influence immune function as well as cognitive and behavioral outcomes later in life. The first part of this book covers the impact of nutrition on the immune system, the role of gut microbiota in the immune status, as well as the prevention and management of food allergies in children. The second part is dedicated to obesity prevention: experts in epigenetics and metabolic programming share scientific evidence on the use of biomarkers for predicting the risk of early obesity. They also discuss potential strategies for interrupting intergenerational cycles of obesity during pregnancy, early infancy and childhood. The last part covers complementary feeding and its importance in short- and long-term health, and how it can affect behavioral and psychological aspects, as well as food preferences in later life.

Contents

Preface:
Foreword
Contributors

Allergy

• Early Nutrition as a Major Determinant of ‘Immune Health’: Implications for Allergy, Obesity and Other Noncommunicable Diseases: Prescott, S.L.
• The Future of Infant and Young Children’s Food: Food Supply/Manufacturing and Human Health Challenges in the 21st Century: Venter, C.; Maslin, K.
• Infant Feeding: Foods, Nutrients and Dietary Strategies to Prevent Allergy: Beyer, K.
• Using Food and Nutritional Strategies to Induce Tolerance in Food-Allergic Children: Nowak-Węgrzyn, A.
• Summary on Allergy: Prescott, S.L.

Obesity Prevention

• Interrupting Intergenerational Cycles of Maternal Obesity: Gillman, M.W.
• Development, Epigenetics and Metabolic Programming: Godfrey, K.M.; Costello, P.M.; Lillycrop, K.A.
• Postnatal High Protein Intake Can Contribute to Accelerated Weight Gain of Infants and Increased Obesity Risk: Haschke, F.; Grathwohl, D.; Detzel, P.; Steenhout, P.; Wagemans, N.; Erdmann, P.
• Summary – Early Nutrition and Obesity Prevention: Haschke, F.

Complementary Feeding:

• Can Optimal Complementary Feeding Improve Later Health and Development? Fewtrell, M.S.
• Learning to Eat: Behavioral and Psychological Aspects: Birch, L.L.
• The Development of Flavor Perception and Acceptance: The Roles of Nature and Nurture: Forrestel, C.A.
• Dietary Patterns during Complementary Feeding and Later Outcomes: Emmett, P.M.
• Nature and Nurture in Early Feeding Behavior: Cooke, L.; Llewellyn, C.
• Summary on Complementary Feeding: Taste, Eating Behavior and Later Health: Fewtrell, M.S.