

ISSN 0141-5387 (PRINT)
ISSN 1460-2210 (ONLINE)

European Journal of Orthodontics

Volume 33 | Number 3 | June 2011

www.ejo.oxfordjournals.org

OXFORD
UNIVERSITY PRESS



European Journal of Orthodontics

Published by the European Orthodontic Society

Scope

The *European Journal of Orthodontics* publishes (in English) research or clinical papers of interest to all orthodontists. Although the primary intention is to provide a forum for orthodontists in Europe, the journal welcomes papers from all parts of the world.

Editor

David Rice

Associate Editors

Tiziano Baccetti Dirk Bister Timo Peltomäki

Editorial Board

Selma Elekdag-Türk

Piotr Fudalej

Demetrios J. Halazonetis

Anthony J. Ireland

Agneta Linder-Aronson Karsten

Ambra Michelotti

Pertti Pirttiniemi

Yijin Ren

European Orthodontic Society

Officers of the Society

President 2010/2011:

Professor Nejat Erverdi

President elect:

Professor David Suárez Quintanilla

Hon. Secretary:

Professor Susan Cunningham

Hon. Treasurer:

Professor Andrej Zentner

Subscriptions

A subscription to the *European Journal of Orthodontics* comprises 6 issues. Prices include postage by surface mail, or for subscribers in the USA and Canada by airfreight, or in India, Japan, Australia and New Zealand, by Air Speeded Post. Airmail rates are available on request.

Annual Subscription Rate (Volume 33, 6 issues, 2011)

Institutional

Print edition and site-wide online access: £366.00/\$731.00/€550.00

Print edition only: £336.00/\$670.00/€504.00

Site-wide online access only: £302.00/\$603.00/€453.00

Personal

Print edition and individual online access: £259.00/\$518.00/€389.00

Please note: US\$ rate applies to US & Canada, Euros applies to Europe, UK£ applies to UK and Rest of World

There may be other subscription rates available, for a complete listing please visit www.ejo.oxfordjournals.org/subscriptions/.

Full prepayment, in the correct currency, is required for all orders. Orders are regarded as firm and payments are not refundable. Subscriptions are accepted and entered on a complete volume basis. Claims cannot be considered more than FOUR months after publication or date of order, whichever is later. All subscriptions in Canada are subject to GST. Subscriptions in the EU may be subject to European VAT. If registered, please supply details to avoid unnecessary charges. For subscriptions that include online versions, a proportion of the subscription price may be subject to UK VAT. Personal rate subscriptions are only available if payment is made by personal cheque or credit card and delivery is to a private address.

The current year and two previous years' issues are available from Oxford University Press. Previous volumes can be obtained from the Periodicals Service Company, 11 Main Street, Germantown, NY 12526, USA. Email: psc@periodicals.com. Tel: +1 (518) 537 4700. Fax: +1 (518) 537 5899.

For further information, please contact: Journals Customer Service Department, Oxford University Press, Great Clarendon Street, Oxford OX2 6DP, UK. Email: jnl.cust.serv@oup.com. Tel (and answerphone outside normal working hours): +44 (0)1865 353907. Fax: +44 (0)1865 353485. **In the US, please contact:** Journals Customer Service Department, Oxford University Press, 2001 Evans Road, Cary, NC 27513, USA. Email: jnlorders@oup.com. Tel (and answerphone outside normal working hours): 800 852 7323 (toll-free in USA/Canada). Fax: 919 677 1714. **In Japan, please contact:** Journals Customer Services, Oxford University Press, Tokyo 4-5-10-8F Shiba, Minato-ku, Tokyo 108-8386 Japan. Email: custserv.jp@oup.com. Tel: (03) 3813 1461. Fax: (03) 3818 1522.

Methods of payment. (i) Cheque (payable to Oxford University Press, to Oxford University Press, Cashiers Office, Great Clarendon Street, Oxford OX2 6DP, UK) in GB£ Sterling (drawn on a UK bank), US\$ Dollars (drawn on a US bank), or EU€ Euros. (ii) Bank transfer to Barclays Bank Plc, Oxford Group Office, Oxford (bank sort code 20-65-18) (UK), overseas only Swift code BARC GB 22 (GB£ Sterling to account no. 70299332, IBAN GB89BARC20651870299332; US\$ Dollars to account no. 66014600, IBAN GB27BARC20651866014600; EU€ Euros to account no. 7892365, IBAN GB16BARC20651878923655). (iii) Credit card (Mastercard, Visa, Switch of American Express).

European Journal of Orthodontics is published bimonthly in February, April, June, August, October and December by Oxford University Press, Oxford, UK. Annual subscription price is £366.00/\$731.00/€550.00. *European Journal of Orthodontics* is distributed by Mercury International, 365 Blair Road, Avenel, NJ 07001, USA. Periodicals postage paid at Rahway, NJ and at additional entry points.

US Postmaster: send address changes to *European Journal of Orthodontics* (ISSN 0141-5387), c/o Mercury International, 365 Blair Road, Avenel, NJ 07001, USA.

Permissions

For information on how to request permissions to reproduce articles/information from this journal, please visit www.oxfordjournals.org/permissions.

Advertising

Advertising, inserts and artwork enquiries should be addressed to Advertising and Special Sales, Oxford Journals, Oxford University Press, Great Clarendon Street, Oxford OX2 6DP, UK. Tel: +44 (0)1865 354767; Fax +44 (0)1865 353774; E-mail: jnladsvertising@oup.com

Environmental and ethical policies

Oxford Journals, a division of Oxford University Press, is committed to working with the global community to bring the highest quality research to the widest possible audience. Oxford Journals will protect the environment by implementing environmentally friendly policies and practices wherever possible. Please see <http://www.oxfordjournals.org/ethicalpolicies.html> for further information on environmental and ethical policies.

© European Orthodontic Society 2011

All rights reserved; no part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without prior written permission of the Publishers, or a licence permitting restricted copying issued in the UK by the Copyright Licensing Agency Ltd, 90 Tottenham Court Road, London W1P 9HE, or in the USA by the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. For those in the USA or Canada not registered with CCC, articles can be obtained by fax in 48 hours by calling: WISE for Medicine™ 1-800-667-WISE.

Typeset by TNQ Books and Journals Pvt. Ltd., Chennai, India. Printed by Bell and Bain Ltd., Glasgow, UK.



Mixed Sources

Product group from well-managed forests and other controlled sources
www.fsc.org Cert no. TT-COC-002769
© 1996 Forest Stewardship Council