



A O T T

ACTA ORTHOPAEDICA et TRAUMATOLOGICA TURCICA

Volume 53 • Number 6 • November 2019

Acta Orthop Traumatol Turc ISSN 1017-995x

ACTA ORTHOPAEDICA et TRAUMATOLOGICA TURCICA

Editorial Contact Person:

Dr. Önder Kılıçoglu
e-mail: editor@aott.org.tr

Executive Office:

Şehremini Mah., Koyuncu Sk., Ciğdem Apt.,
No: 4, D 5, Fatih, İstanbul, Turkey
Phone : +90 212 - 530 15 08/21
Fax : +90 212 - 530 15 21
<http://www.aott.org.tr>
e-mail: info@aott.org.tr

Acta Orthopaedica et Traumatologica Turcica (AOTT) is a peer-reviewed journal published six times a year by the Turkish Association of Orthopaedics and Traumatology (TOTDER).

Materials published in the Journal is covered by copyright ©2019 TOTDER.
All rights reserved.

Included and indexed in the **Science Citation Index-Expanded (SCIE)**, **Index Medicus-Medline**, **Index Copernicus**, and the **Turkish Medical Index**.



This publication is printed on paper that meets the international standard ISO 9706: 1994.

National Library of Medicine recommends the use of permanent, acid-free paper in the production of biomedical literature.

Aims and Scope

Acta Orthopaedica et Traumatologica Turcica (AOTT) publishes diagnostic, treatment, and prevention methods related to orthopedics and traumatology and original studies in related disciplines. Contributions may be in the form of clinical and basic research articles, case reports, personal clinical and technical notes, systematic reviews, meta-analyses and letters to the Editor. The Journal also publishes brief reports on original studies or evaluations, book reviews, and proceedings of scientific meetings. Opinions presented in published articles by no means represent the official endorsement of the Turkish Association of Orthopaedics and Traumatology. Articles and illustrations become the property of the Journal after publication.

The official language of the Journal is English. Electronic versions of all printed articles are presented in both English and Turkish at the official web site (<http://www.aott.org.tr>).

© 2019 Turkish Association of Orthopaedics and Traumatology. Publishing services by Elsevier B.V.

Peer review under responsibility of Turkish Association of Orthopaedics and Traumatology

Notice

No responsibility is assumed by Acta Orthopaedica et Traumatologica Turcica nor Elsevier for any injury and/or damage to persons, property as a matter of product liability, negligence, or otherwise, or from any use or operation of any methods, products, instructions, or ideas contained in the material herein.

Although all advertising material is expected to conform to ethical standards, inclusion in this publication does not constitute a guarantee or endorsement of the quality or value of such product or of the claims made of it by its manufacturer.

Full text available on ScienceDirect® and Scopus®

Guide for Authors

<https://www.elsevier.com/journals/acta-orthopaedica-et-traumatologica-turcica/1017-995X/guide-for-authors>

Association between calcium-phosphorus balance and adolescent idiopathic scoliosis: A meta-analysis <i>Q. Zhu, J. Chen, C. Chen, H. Wang, S. Yang</i>	468	Meta-analysis of the association of IL1-RN variable number of tandem repeats polymorphism with osteoarthritis risk <i>B. Xu, X.-Q. Shi, R.-L. Xing, Y.-C. Xiao, P. Wu, P.-M. Wang.....</i>	497
Comparison of surgical trends in zone 2 flexor tendon repair between Turkish and international surgeons <i>S. S. Unsal, T. Yildirim, M. Armangil.....</i>	474	Biomechanical effects of sequential resection of the posterior ligamentous complex on intradiscal pressure and resistance to compression forces <i>A. Merter, M. O. Karaca, T. Yazar.....</i>	502
Locally administrated single-dose teriparatide affects critical-size rabbit calvarial defects: A histological, histomorphometric and micro-CT study <i>T. Özer, Ö. Başlarlı, A. Aktaş, E. Barış, H. H. Çelik, M. Ocak.....</i>	478	Case Report Unusual localization and aggressive progression of large infantile fibrosarcoma <i>İ. B. Atalay, G. Togral</i>	507
The effects of cryopreserved human amniotic membrane on fracture healing: Animal study <i>E. Sarı, M. Yalçınözhan, B. Polat, H. Özkaralar</i>	485		
Biomechanical comparison of humeral nails with different distal locking mechanisms: Insafelock nails versus conventional locking nails <i>T. Erden, M. Kapıcıoğlu, A. Demirtas, K. Bilsel, F. Akpinar, H. Kuduz.....</i>	490		



AOTT

ACTA ORTHOPAEDICA et TRAUMATOLOGICA TURCICA

Volume 53 • Number 6 • November 2019

Acta Orthop Traumatol Turc ISSN 1017-995x

FROM THE EDITOR

Dear AOTT Readers,

With the sixth issue of 2019, we are completing the 53nd volume of our journal. As you will notice immediately, this is the largest issue in the last four years, since we have included all online published articles in this issue. This was due to a necessity since the publishing service agreement between AOTT and Elsevier will be ending at the end of 2019 and the Turkish Association of Orthopaedics and Traumatology (TOTDER) has decided to work with another publishing company.

Starting from the first issue of 2020, AVES, a Turkish medical publishing firm will be the new publisher of AOTT Journal. We have held many meetings with AVES for realizing a smooth and hassle-free transition. AVES has accepted to use our current article submission and review system, the "Editorial Manager" upon the request of the Editorial team, which will prevent many delays and problems in the transfer to another Journal Management System. I would like to thank to AVES team for their meticulous approach to Journal's current publishing problems and their team spirit.

We have accepted numerous articles in the past 3 months. They are not yet published online and planned to be issued in the coming issues. AVES will be preparing these papers in a short time for publication and contact their authors for proof corrections. The DOI numbers will be given by the new publisher accordingly.

In the last issue of AOTT volumes, as an ongoing tradition, we will present you a list of our reviewers of the year 2019, divided by the number of articles they have reviewed. On behalf of our authors, readers and, the Editorial Board, I would like to thank all our esteemed reviewers, and especially those who honored all our review requests.

Looking forward to meet you all in a short time, with the first issue of 2020,

Best regards,

Prof. Dr. Önder KILIÇOĞLU
AOTT Editor-in-Chief

List of reviewers in the year 2019

9 or more reviews

Ayhan, Egemen
Demirkiran, Nihat
Deveci, Mehmet Ali
Ergun, Selim
Okay, Erhan
Özbek, Emre Anıl
Turgut, Ali
Yilmaz, Cengiz

6-8 reviews

Aktaş, Şeref
Aktekin, Cem Nuri
Atilla, Bülent
Aydın, Bahattin
Bağır, Melih
Beksaç, Burak
Bilgili, Fuat
Çolak, Mehmet
Demirtaş, Abdullah
Güntürk, Özgün Barış
Kurdemir, Vecihi
Kocaoğlu, Hakan
Küçükdurmaz, Levent

Özcanlı, Haluk
Uygur, Esat
Üzel, Murat

3-5 reviews

Ademoğlu, Yalçın
Akgül, Turgut
Akman, Budak
Akman, Yunus Emre
Akmeşe, Ramazan
Akseki, Devrim
Arazi, Mehmet
Aslantürk, Okan
Aşçı, Murat
Atalar, Hakan
Aykut, Serkan
Azbøy, İbrahim
Bacakoğlu, Kadir
Balci, Halil İbrahim
Bayramoğlu, Meral
Beng, Kubilay
Biçer, Ahmet
Bilgen, Ömer Faruk
Bilgili, Mustafa
Birsel, Olgar

Canbora, Mehmet Kerem
Ceylan, Mehmet Fethi
Chiu, Chee Kidd
Coşkun, Tamer
Çakmak, Gökhan
Çalışkan, Emrah
Çelik, Derya
Çeliktaş, Mustafa
Çevik, Hüseyin Bilgehan
Çiftdemir, Mert
Çopuroğlu, Cem
Dağlar, Bülent
Demirel, Mehmet
Durakbaşa, Oğuz
Eralp, Levent
Erdem, Mehmet
Eren, İlker
Erkan, Serkan
Erol, Bülent
Erşen, Ali
Esenkaya, İrfan
Fang, Christian
Gökkuş, Kemal
Gülabi, Deniz
Gürbüz, Yusuf

Harma, Ahmet
Kabakaş, Fatih
Kaçmaz, İsmail Eralp
Kadhim, Muayad
Kalenderer, Önder
Karabörklü Argut, Sezen
Karaca, Mustafa Onur
Karakaplan, Mustafa
Kavak, Mustafa
Marangoz, Salih
Mert Altıntaş, Zuhal
Nuran, Rüştü
Onay, Tolga
Özaksar, Kemal
Özkan, Cenk
Öztemur, Zekeriya
Öztürk, Kahraman
Öztürkmen, Yusuf
Pirpiris, Marinis
Polat, Gökhan
Rodop, Osman
Sağlam, Yavuz
Saldız, Ahmet
Sarıkaya, İlker Abdullah
Sarıoğlu, Ender

Sarışözen, Bartu
Savran, Ahmet
Sügün, Tahir
Şençan, Ayşe
Tomak, Yılmaz
Tuncay, İbrahim
Uluçay, Çağatay
Yıldırım, Cengiz
Yüksel, Serdar

1-2 reviews

Acaroğlu, Emre
Agrawal, Anup
Akgülle, Ahmet Hamdi
Akkaya, Zehra
Akpinar, Sercan
Aktaş, Safiye
Aktaş, Savaş
Aktuğlu, Kemal
Albayrak, Mehmet
Alemdaroğlu, Kadir
Alpan, Buğra
Altay, Taskin
Altıntaş, Faik
Apivatthakakul, Theerachai
Açıçı, Murat
Ateş Numanoğlu, Esra
Atıcı, Teoman
Atilla, Bülent
Atmaca, Halil
Ay, Şadan
Aycan, Osman Emre
Aydan, Aytar
Aydoğan, Nevres
Aydoğan, Umur
Aydoğdu, Semih
Ayhan, Selim
Azaklı, Hülya
Baca, Emre
Bagatur, Erdem
Balioğlu, Mehmet
Barak, Uri
Bayhan, İlhan
Beytemür, Ozan
Biçimoğlu, Ali
Bilen, Fikri Erkal
Bilgin, S. Sinan
Bilsel, Kerem
Bozkurt, Murat
Bulut, Mehmet
Burç, Halil
Can, Ata
Can, Filiz
Canavese, Federico
Cansabuncu, Gökhan
Cao, Wujing
Chan, Chris Yin Wei

Chang, Chih-Wei
Chehrassan, mohammadreza
Cheung, Jason
Chiu, Chih-Hao
Cimerman, Matej
Çakmak, Selami
Çelik, Haluk
Çetin, Engin
Çetinkaya, Mehmet
Çınar, Bekir Murat
Çıraklı, Alper
Çiloğlu, Osman
Dabak, Nevzat
Davulcu, Cumhur Deniz
de Laat, Peter
Demirkan, Fahir
Demiroğlu, Murat
Demirtaş, Mehmet
Dikmen, Göksel
Durak, Kemal
Düzgün, İrem
Eceviz, Engin
Elmalı, Nurzat
Erdem, Yusuf
Eren, Ali
Ergin, Ömer Naci
Erler, Kaan
Erşen, Ömer
Ertan Birsel, Sema
Ertem, Kadir
Esemenli, Tanıl
Esenyel, Cem Zeki
Eskandari, Metin
Manouchehr
Fırat, Ahmet
Fong, Ho Ken
Frøkjær, Johnny
Gemalmaz, Halil Can
Gomez-Barrena, Enrique
Gökçe, Alper
Görmeli, Gökyay
Gross, Christopher
Gundavda, Manit
Gündemi, Zafer
Güney, Ahmet
Güven, Mehmet Fatih
Hapa, Onur
Harman, Ferhat
Hoogendoorn, Jochem
Ishimoto, Yuyu
İşik, Çetin
İncel, Nurgül
Kahraman, Serdar
Kalem, Mahmut
Kanatlı, Ulunay
Kanık, Arzu
Karademir, Gökhan

Karaduman, Mert
Karaduman, Zekeriya Okan
Karalezli, Nazım
Kati, Yusuf Alper
Kaya, Alper
Kayaalp, Mahmut Enes
Kaynak, Gökhan
Kılıçoğlu, Gamze
Kiter, Esat
Kitis, Ali
Kocababaş, Fatih
Kocaoğlu, Barış
Konya, Deniz
Konya, Mehmet Nuri
Kovalak, Emrah
Kumar, Sankara
Kuyucu, Ersin
Küçükdurmaz, Fatih
Küçükkaya, Reyhan
Kürklü, Mustafa
Lazaro-Martinez, Josa Luis
Leithner, Andreas
Lim, Austin
Lu, Ko Hsiao
Lui, Darren
Mavrogenis, Andreas
Megaloiconomos, Panayiotis D.
Merter, Abdullah
Metin Terzibaşıoğlu, Aynur
Milcan, Abtullah
Miyazaki, Masaya
Nabi, Vugar
Nijland, Hendricus
Ofluoğlu, Önder
Öğuz, İzzet
Oh, Jacob
Ohlin, Acke
Okçu, Güvenir
Orak, Mehmet Müfit
Oto, Murat
Öner, Mithat
Özbaydar, Mehmet
Özçivici, Engin
Özden, Fatih
Özden, Vahit Emre
Özer, Hamza
Özger, Harzem
Özkan, Mustafa
Özkan, Namık Kemal
Özler, Turhan
Öznur, Ali
Öztekin, Haluk Hayri
Pang, Henry
Parent, Eric
Parker, Martyn
Parvizi, Javad
Poyanlı, Oğuz
Ramstrand, Nerrollyn
Reisoğlu, Ali
Riise, Rolf
Sabah, Dündar
Sambri, Andrea
Say, Ferhat
Saygı, Baransel
Schepers, Tim
Selvi, Hüseyin
Seyhan, Mustafa
Shigematsu, Hideki
Sofulu, Ömer
Soh, Reuben
Sökücü, Sami
Steinberg, Ely
Stokes, Oliver
Şahin, Namık
Şimşek, Aykın
Şimşek, Serkan
Şükür, Erhan
Tanrıkuşu, Seval
Tecimel, Osman
Temelli, Yener
Tetik, Cihangir
Tilkeridis, Constantine
Toğrul, Emre
Toker, Serdar
Topkar, Mert
Toros, Tulgar
Tosyalı, Hakan Koray
Tsukamoto, Shinji
Turan, Hakan
Türker, Mehmet
Türkmen, Arif
Türkmen, İsmail
Umur, F. Levent
Uysal, Mustafa
Uzer, Gökçer
Uzun, Metin
Ülkü, Tekin Kerem
Ünver, Bayram
Ürgüden, Mustafa
Wong, Arnold
Wu, Ai-Min
Yalçınöz, Mehmet
Yang, Shu Hua
Yasui, Yoichi
Yel, Mustafa
Yıldırım, Ahmet Özgür
Yıldız, Fatih
Yılgor, Çağlar
Yılmaz, Güney
Yılmaz Yalçınkaya, Ebru
Yılmazlar, Aysun
Yoğun, Yener
Zehra, Uruj
Zinnuroğlu, Murat

ACTA ORTHOPAEDICA et TRAUMATOLOGICA TURCICA

Vol. 53 - No. 6 – November 2019

ISSN 1017-995X

The Official Journal of the Turkish Association of Orthopaedics and Traumatology
and the Turkish Society of Orthopaedics and Traumatology

Ownership and Accountability for Contents
on behalf of the Turkish Association of Orthopaedics and Traumatology
Hasan Bombaci

Editor-in-Chief
Önder Kılıçoğlu

Former Editor
Mehmet Demirhan

Associate Editors

Kaya Akan
Umut Akgün
Mümtaz Alpaslan
Ata Can Atalar
Jason Pui Yin Cheung

Bülent Erdemli
Bruno Fuchs
Emel Gönen
Taner Güneş
Murat Kayalar

Hakan Kınık
Ufuk Özkaray
Volkan Öztuna
Aksel Seyahi
Cengiz Şen

Alpaslan Şenköylü
Merter Yalçınkaya
Yusuf Yıldız

Technical Editors

Yavuz Arıkan

Engin Eceviz

İlker Eren

Murat Korkmaz

**Executive Board of Turkish Association of Orthopaedics
and Traumatology**

Hasan Bombaci (President)
Mehmet Demirhan (Former President)
Serkan Aykut
Halil İbrahim Balci
Ali Erşen
Erden Ertürer
Gökhan Kaynak
Cemal Kural
Yusuf Öztürkmen
Merter Yalçınkaya

**Executive Committee of the Turkish Society of
Orthopaedics and Traumatology**

Halit Pınar (President)
İrfan Öztürk (Former President)
Cem Nuri Aktekin
Ahmet Murat Bülbül
Önder Ersan
İrfan Esenkaya
Volkvan Öztuna
Kahraman Öztürk
Aykın Şimşek
Ahmet Özgür Yıldırım

International Scientific Review Consultants

Mavrogenis Andreas, *Greece* Özgür Dede, *United States*
Roberto Binazzi, *Italy* Gregory J. Della Rocca, *United States*
Stephanie Böhm, *Sweden* Kamil Eyvazov, *Azerbaijan*
Juan Bruguera, *Spain* Samuel Ford, *United Kingdom*
Louis Cheung, *Hong Kong* John Gliatis, *Greece*
Chee Kidd Chiu, *Malaysia* Enrique Gomez-Barrena, *Spain*

Horia Haragus, *Romania* Alberto Maleci, *Italy*
Jose Manuel Ignacio, *Philippines* Hani Mhaidli, *Spain*
Sophia Kamran, *United States* Peter Obid, *Germany*
Paul Koljonen, *Hong Kong* Javad Parvizi, *United States*
Kenny Kwan, *Hong Kong* Marc Philippon, *United States*
Kin Cheung Mak, *Hong Kong* Rolf Riise, *Norway*