



SKELLETAL TRAUMA IN CHILDREN FOURTH EDITION

创伤骨科学

儿童卷

第 4 版

Neil E. Green

Marc F. Swiontkowski

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Skeletal Trauma in Children

(Fourth Edition)

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中文版序——原作者致辞

自《创伤骨科学》第1版于1992年面市以来,本书诸位编委、作者和出版者一直致力于为罹患骨折、脱位和其他肌肉骨骼系统损伤的患者提供诊断、决策、治疗和康复的实用指南。每出版一次新版本都会增加一些新素材和新作者,以便体现骨科领域的新进展并回应读者反馈的信息。为了紧跟互联网和电子出版物的发展,我们正通过电子媒体稳步地扩展着获取本书的渠道。悉闻本书已然成为全球认可的标准参考书并指导了众多伤者的康复治疗,我们深感欣慰。

中国人口众多,中国骨科医师面临着治疗骨科创伤的各种挑战,因此,Elsevier 同意出版本书第4版的中文版,我倍感欣喜和荣幸。我相信,中文版本会使中国正接受培训和临床一线的骨科医师获取相关重要信息更加便捷,并有助于他们为日益增多的骨科创伤患者提供专业化治疗。除了道路交通事故损伤以外,人口老龄化和骨质疏松性脆性骨折病例数的扩大,目前已成为中国医疗的重大负担。本版还包括有困扰中国骨科医生的股骨近端和其他部位骨折的相关内容。

在中国,工业化和城市化使道路上的机动车数量激增,随之而来的是道路交通事故死伤人员数量的剧增。在2009年,全国发生交通事故238 351起,造成65 758人死亡,275 125人受伤,直接经济损失高达9.1亿元。人均交通事故死亡率高于其他发达国家。现已发现有多种因素造成了这一日益严重的问题。行人和骑自行车的人横穿马路,越出非机动车道;而司机通常又不停车避让,往往就会撞上他们。在上下班高峰期行车情况会变得更糟。由于安全带使用率低,司机受伤会更严重,此外在车满为患的道路上摩托车、轻型摩托车和电动车的数量也在与日俱增,也会使没有安全保护的人员受到伤害。

缺乏统一且广泛适用的院前护理以及训练有素的急症和创伤救护人员的不足,也会增加交通事故中受伤者的死亡和残疾风险。2003年,中国政府把道路交通事故认定为危害公众健康的主要问题,建立了道路安全部长协调系统,并制定了一系列新的道路安全法律法规。在过去的5年中,姜保国教授一直代表政府在北京从事标准化院前创伤救护的开发工作,是这一工程的重要创始人。《创伤骨科学》(第4版)中文版付梓在即,我诚邀他为之作序,他欣然应允,并详细介绍了这项工作。我希望《创伤骨科学》能同他一道帮助中国内外科医生为道路交通事故受害者提供最好的救护。

我相信在我们国家骨科手术医师有很多机会通过学习并与其他医生合作提高处理肌肉骨骼系统疾病的水平,为广民众解除痛苦。最好能与各家救护中心面对面的互动和互访,但是由于时间和资金有限,难以满足患者和家庭成员对护理的不同需求,因而促使我们更多地利用互联网来进行讨论。好在现代技术能让我们高清晰度地进行多地互动。

中美两国作为主要的经济实体和尖端的医疗团体，完全应该携起手来共同协助发展中国的同事应对预防和救护道路交通事故、战争和自然灾害造成的骨骼创伤所面临的巨大挑战。

能够与姜教授携手共建我们两个专业团体深化合作的桥梁，我感到万分荣幸。最后，我对所有参与本书翻译的业界同仁表示衷心的感谢。

Bruce D. Browner, MD, MHCM, FACS

中文版序——原作者致辞

Since publication of the first edition in 1992, the editors, authors and publisher of *Skeletal Trauma* have strived to make the text a practical resource to guide diagnosis, decision-making, treatment and rehabilitation of patients with fractures, dislocations and other injuries to the musculoskeletal system. New material and new authors have been added as each new edition was published to incorporate advances in the field and respond to input from readers. In keeping with the evolution of the Internet and electronic publishing, we have steadily expanded the access to the content via electronic media. We have been gratified by the worldwide adoption of the text as a standard reference and the knowledge that it has guided the care of so many injured people.

Given the immense population of China and the many challenges facing its orthopaedic surgeons who treat skeletal injuries, I am pleased and honored that Elsevier China has agreed to create a Chinese translation of the fourth Edition. The translation will make vital information more accessible to the orthopaedic surgeons in training and practice and aid their efforts to provide expert care for a growing number of skeletal injuries. In addition to road traffic injuries, the aging of the population and expanding number of osteoporotic fragility fractures are now a major portion of the country's medical burden. The text also covers fractures of the proximal femur and other parts of the skeleton that challenge Chinese surgeons.

Growing industrialization and urbanization has led to a burgeoning number of vehicles on the roads in China that has been associated with a tremendous increase in road traffic deaths and disabling injuries. In 2009, there were 238,351 traffic crashes leading to 65,758 deaths and 275,125 injuries with a direct economic cost of 0.91 billion Chinese Yuan. The rate of traffic related fatality per population is higher than in other highly developed countries.

A number of factors have been noted to explain the growing problem. Pedestrians and cyclists cross roads and don't remain in designated lanes. Drivers hit them frequently, because they often will not stop for them. The situation is even worse during rush hour when driving is more aggressive. Drivers are sustaining more injuries, because seat belt use is low. In addition growing number of motorcycles, scooters, and e-bikes are on the roads with heavier vehicles, leading to injuries of less protected riders.

The lack of uniform widely available prehospital care and trained emergency and trauma providers contributed to the deaths and disabilities of those injured in crashes. In 2003 the Chinese Government recognized road traffic injuries as a major public health

problem, established The Ministerial Coordination System on Road Safety and implemented a number of new road safety laws. For the past five years, Professor Baoguo Jiang has lead an important initiative on behalf of the government to develop standardized prehospital and trauma care in Beijing. I am honored that he has agreed to write the forward for the Chinese translation of the Fourth Edition and has described his wonderful program in some detail. I hope that Skeletal Trauma can be an adjunct to his efforts that will assist the Chinese physicians and surgeons in delivering optimal care for their citizens who are injured in road traffic crashes.

I believe there are many opportunities for orthopaedic surgeons in our countries to learn from and work with each other to improve the care of injuries and other musculoskeletal problems that face our populations. Although there is no substitute for face-to-face interaction and reciprocal visits to centers of practice, the respective demands of patient care and families resulting in limited time and funds for travel should move us to greater use of Internet based conferencing. Technology is now available to enable live interactive multisite programs with high definition quality.

As leading economic powers and sophisticated medical communities we should work together to assist our colleagues in the developing world to meet their enormous challenges for prevention and care of skeletal injuries from road traffic crashes, war and natural disasters.

It would be a privilege and honor to work with Professor Jiang to build bridges between our professional communities to foster collaboration. Finally, I would like to acknowledge the colleagues who translated this book into Chinese.

Bruce D. Browner, MD, MHCM, FACS

中文版序二

《创伤骨科学》由 Browner 等百余位国际知名骨科专家编写,自 1991 年第一版问世至今已至第四版,是一部享誉欧美亚、惠及世界各地的经典创伤骨科学教科书。本书分为总论、脊柱、骨盆、上肢、下肢 5 篇,共 65 个章节,系统地介绍了肌肉、骨骼创伤疾病诊断及治疗的新进展。其独特之处是着重关注创伤骨科学临床上共同关注问题的判断以及行之有效的诊疗技术,并对相关的诊疗技术进行了系统的综述和评价。在各论中每个章节均包括相关的解剖、损伤机制、损伤的分类、损伤的诊断与治疗以及对相关诊疗热点问题的讨论,具有系统性专业参考书的深度和广度。因此,对临床有很好的指导作用。在再版过程中,作者紧跟科技时代的发展步伐,在丰富和完善内容的基础上,尝试采用光盘视频和网络来展示外科技术,使其更易于广大医师尤其是年轻医师学习使用。此外,本书各个章节引用的文献比较多,不仅涉及最新的研究进展,同时也有既往的经典文献,利于读者深入学习阅读。本书内容丰富,观点明确,呈现形式生动新颖,给人耳目一新之感,是一本难得的创伤骨科学专著。

笔者在 2013 年美国创伤年会(OTA)上介绍了中国创伤救治现状及为此而做的一些工作,得到了 Browner 教授的高度认可,Browner 教授还惠赠了第四版的《创伤骨科学》。仔细拜读后深切感受到该书的经典与实用。笔者认为,此书不仅可以指导年轻医师对肌肉、骨骼损伤进行正确处理,同时可以完善临床资深创伤骨科医师的理论技术水平。本书中文版的出版发行,必将有助于进一步提高我国肌肉和骨骼创伤疾病的整体诊治水平。

饮水思源,在此向为本书出版面世付出辛勤劳动的著者和出版者表示敬意!也向本书在中国翻译、出版、发行过程中,所有付出努力的译者及工作者表示感谢!



第四版中文版前言

《创伤骨科学》(Skeletal Trauma)和《骨折》(Fracture)两部创伤骨科医学著作,都是目前世界创伤骨科医学领域最具影响力的两部经典。但《骨折》一书以突出理论阐述为特色,而《创伤骨科学》则重点放在传授创伤骨科临床的实践经验,它涵盖了与时代同步的几乎所有肌肉骨骼创伤的治疗方法和具体技术细节,因此更具有指导性和实用性。该书第三版中文译本于2007年出版后,立即受到我国创伤骨科医师的热烈欢迎。

《创伤骨科学》第四版仍然由创伤骨科界权威 Browner 等 117 位北美和欧洲的世界顶级创伤骨科专家撰稿,在原第三版的基础上对各个章节段落进行了全面修订、补充和更新,注入了大量最新的理论概念和技术内容,而这些正是临床创伤骨科医师所急切渴望了解、掌握和使用的。第四版修订也吸收了欧美国家许多近期出现的卓越优秀骨科创伤学专家参加工作,同时创建了与《创伤骨科学》相关的讲座和手术操作的 DVD 视频和网站浏览。第四版修订本是创伤骨科经典专著与时代技术同步的一次国际性修订的典范,体现了它的权威性、先进性和广泛的实用性。

《创伤骨科学》共三卷,前两卷为成人卷,后一卷是儿童卷。儿童肌肉骨骼损伤具有与成人明显不同的特殊性,我国是世界人口大国,儿童众多,肌肉骨骼创伤患儿的处理知识和技术亟需推进,疗效还有必要进一步提高,所以第四版中文译本一并将儿童卷翻译引进,以供国内儿童创伤骨科临床医师参考。

本书全体翻译者均在骨科临床工作,每天医疗业务极其繁忙,大家利用有限的业余时间完成译稿,确实非常辛苦。北京大学第三医院骨科牛晓燕同志对译稿收集给予了很大帮助,在此均致以衷心感谢。

马信龙 冯世庆 李世民 周 方

前言

第1版

骨外科已趋于高度专业化,更多已毕业的住院医师通过获取职业实习奖学金的方式来寻求更为专业的培训。尽管此趋势更侧重于骨外科实践本身,但事实上多数骨科医生一直从事创伤患者的治疗工作。这本书主要为临床医生而著,目的是编写一本实用且全面的书籍,可以涵盖全部儿童肌肉骨骼创伤领域。章节的设计使读者可以尽快获得某种特定损伤的相关信息,而不会受到以往观点的干扰。书中引用了广泛的相关文献,如有需要可进一步开展深入研究。本书作者都是小儿骨科创伤领域各专业的知名专家,致力于为读者提供小儿骨折治疗最前沿的观念和信息。此外编者中一半为对小儿骨科创伤有浓厚兴趣的骨创伤科医生,另一半为从事小儿肌肉骨骼创伤治疗的小儿骨科医生。

有一些治疗方法仍存在争议,本书介绍了一些可替代方法。然而,现今的前沿治疗方法也许就是未来的标准治疗方法。迄今为止,除了开放性骨折,其他小儿骨折很少考虑手术治疗,然而我们认为一些小儿骨折类型最好的治疗方法是开展手术,我们在书中已阐明此观点。

该书为《创伤骨科学》第3卷,前两卷为成人卷。《创伤骨科学·儿童卷》之所以自成一册,缘于它专门阐述了小儿骨科创伤。

第4版

《创伤骨科学·儿童卷》第2版为读者提供了最全面的小儿骨损伤的前沿知识的综述和疗法推荐。与第1版相比,第2版中介绍了更加先进的骨折治疗技术、更为广泛的参考文献,以及基于结果评估的治疗方法推荐。

对于小儿骨干骨折,非手术治疗并不是最好的方法,第2版对此做了详细阐述,并且介绍了骨干骨折的相关微创治疗方法。另外,书中还介绍了传统牵引和石膏治疗股骨骨折的并发症,以及长骨骨折手术治疗产生的并发症,如增生、感染和不愈合。第2版新增加了介绍肌肉骨骼损伤结果评估的章节,这部分内容在小儿肌肉骨骼损伤领域得到广泛应用。事实上,大量证据表明,小儿骨损伤可使用有创治疗方法。

第3版增加了两个新的章节。一章是“小儿骨折门诊治疗的麻醉和镇痛”,该章的编写源自于我们长期的学术兴趣,即寻找最好的小儿疼痛处理方法,从而有助于安全准确的复位治疗。按照本书惯例,编写每种损伤的治疗时,编者提供了推荐治疗方法的详细描述。另一章是“小儿多发损伤的康复”,此章对于小儿多发损伤,尤其是伴有头部伤的病例恢复最佳功能十分有用。

第4版扩展了“康复”和“麻醉”章节的内容,增加了内固定最新治疗方法的相关内容,其中包括指征和评估结果。另外,新增加了“运动损伤”一章。

与前3个版本一样,编者没有花费大量时间回顾以往有意义的治疗方法。本版更新了所有肌肉骨骼损伤的治疗方法,可使读者快速找到所需信息,了解目前每种小儿肌肉骨骼损伤最好的治疗方法。编者们,无论是个人还是团队,都努力工作数百小时,以便为读者呈现这本经典著作。最重要的是,将这些材料编写成为一本实用、有益的图书,能够让骨科医生更加自信,从而造福广大肌肉骨骼损伤的儿童。

Neil E. Green

Marc F. Swiontkowski

(孙 静 译 叶伟胜 校)

致 谢

在编写第4版的这几年中,Elsevier Science出版社的很多员工都在这本教科书的设计、写作和编辑中起到关键作用。我们尤其要感谢 Kim Murphy,他一直在 Elsevier Science 监管此书出版的全部流程。此外,Janice Gaillard 也给予了我们很大的帮助。

我,Neil Green,衷心感谢在此书出版过程中帮助过我们的朋友。Joan Lorber 帮助我们与出版社和编者沟通,完成了此书最后一稿的修改。Debbie Chessor 拍出的照片在书中非常完美。我的父亲,Howard Green 博士,不仅对我本人意义非凡,还是我学术生涯的引路人。作为一名临床医生,他对患者关怀备至,并且医术非凡,他将这些传承给了三个儿子。另外,我还要感谢很多一起工作过的骨科学教授,包括 J. Leonard Goldner 博士、James Urbaniak 博士和 Ben Allen 博士。非常感谢 Paul P. Griffin 博士,他是一名小儿骨科医生,我首次来到 Vanderbilt 时合作的同事。最后,我要感谢 Gregory Mencio 博士,我们有着超过十年的同事关系,对于小儿骨科创伤的治疗,我们有着几乎相同的观点。

我,Marc Swiontkowski,必须说明此书中的材料是由我和 Neil Green 博士从 1985 年到 1988 年在 Vanderbilt 大学医学中心工作时期基于广泛经验编辑而成的。1988 至 1997 年,我们在西雅图 Harborview 医学中心工作,期间增加了不少经验。当时一起工作的有 Catherine Kramer 博士和 M. L. Chip Routt, Jr. 博士,他们都给予我们很大帮助。特别感谢我的老师们 Frederick N. Elliott 博士、J. Paul Harvey, Jr. 博士和 Sigvard T. Hansen, Jr. 博士,他们的教导和榜样力量在我职业关键时期影响深远。自从 1997 年来到 Minnesota 大学,通过与 Hennepin 医学中心的 Thomas Varecka 博士、Richard Kyle 博士、Andrew Schmidt 博士、Ed Rutledge 博士、David Templeman 博士,以及圣保罗的 Regions 医学中心的 Peter Cole 博士、Joel Smith 博士、Greg Brown 博士、John Stark 博士、Thuan Ly 博士、Mengnai Li 博士、Tom Lange 博士一起工作,我们的小儿骨折治疗研究得到了深入和扩展。最后感谢 Steven Koop 领导的 Gillette 小儿骨科组,他们给了我很多鼓舞与启发。

(孙 静 译 叶伟胜 校)

计量单位说明

书中介绍的内植入物、固定架、固定钢板、螺钉、髓内钉等,以及相关的分类系统、手术方法、康复措施、图表等,有些采用英制单位。由于这些单位在世界范围内的该领域中使用极为普遍,并已被业内人士共同认可,故在中文版中仍延用原书的计量单位。这样做一来行文方便,二来也便于业内的技术交流。换算成我国的法定计量单位时,请参照下列换算式。

长度:1 英寸=2.54 cm,1 英尺=12 英寸=0.3048 m,1 英里=1.6 km

质量:1 盎司=28.35 g,1 磅=0.454 kg

能量:1 磅(力)·英尺=1.356 J

力矩:1 英寸·磅(力)=0.113 N·m,1 英尺·磅(力)=1.356 Nm

压强:1 磅(力)/英寸²=6.895 kPa

血压:1 mmHg=0.1333 kPa

血糖:1 mg/dL=0.0555 mmol/L