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代谢营养的理论和实践

Theory and Practice of Nutrition and
Metabolism in Burn Trauma

名誉主编 黎介寿 王正国
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谨以本书献给

黎鳌、史济湘、汪良能、方之扬等
我国已故烧伤医学开拓奠基者

深切缅怀

董燕麟、尤忠义等
我国烧伤代谢营养研究先驱者



黎介寿

黎介寿，中国工程院院士。国际著名普通外科专家、医学教育家。南京军区南京总医院副院长，南京大学临床学院副院长，解放军普通外科研究所所长，国家、军队、江苏省重点学科（实验室）负责人。主任医师、教授，博士生导师。南京大学、第二军医大学、南方医科大学教授，香港中文大学医学院客座教授，浙江大学、华西医科大学、哈尔滨医科大学、第三军医大学等兼职或名誉教授。曾任解放军医学科学委员会副主任委员，江苏省医学会副会长，国际外科学会会员，欧洲肠外与肠内营养学会会员，中华外科学会常委等。

擅长腹部外科，尤其对肠外瘘、临床营养支持、小肠移植、肠屏障功能障碍、重症急性胰腺炎、短肠综合征、顽固性便秘等复杂疑难疾病的诊断与治疗有丰富的经验与卓越效果。1994年完成了亚洲第一例人同种异体小肠移植术，2003年4月完成了亚洲首例肝肠联合移植、10月进行亲体供肠移植，从而完成了对肠功能障碍的系列研究。

根据我国临床医学教育受传统医学教育的影响，教育观念、教学内容、教学手段、知识结构等不能满足医疗卫生事业需要的现状，遵循医学教育与卫生人才的成长规律，确立科学的临床医学教学理念，建立全新的临床医学教育模式，凝练大师加团队的组织形式，培养博士研究生131名、硕士研究生147名、博士后16名，绝大部分成为我国临床医学的拔尖人才。

发表学术论文600余篇，担任13卷巨著《手术学全集》总主编，主编《肠外瘘》《临床肠外及肠内营养支持》《围手术期处理》等专著10部。以第1完成人，获全国科技大会奖1项、国家科技进步一等奖1项、二等奖2项，军队及省部级医、教、研成果一等奖8项。

荣获“何梁何利奖励基金”医学与药学奖、中国医师奖、中国人民解放军专业技术重大贡献奖、总后勤部有突出贡献的医学专家、培养人才先进个人等称号10余次。2009年，被中央军委荣记一等功。2011年领导的团队被南京军区授予“科技创新模范医疗科室”荣誉称号。

Prof. Li Jieshou, an academician of the Chinese Academy of Engineering, is a world-wide known general surgical scientist and educator. He is currently served as the vice director of Nanjing General Hospital of Nanjing Command, the deputy dean of Clinical Medical School of Nanjing University, head of the Research Institute of General Surgery of the Peoples Liberation Army (PLA), and chief of state and province Key Discipline and Laboratory. He was appointed as professor of surgery in Nanjing University, the Second Military Medical University and Southern Medical University; was a guest professor in Chinese University of Hong Kong and honor professor in Zhejiang University, West China Union University, Harbin Medical University and the Third Military Medical University. He worked as the vice chief of PLA medical committee, deputy dean of Jiangsu province medical association, fellowship of International Society of Surgery, member of European Society of Parenteral and Enteral Nutrition and Board of Directors of Chinese Medical Association.

His clinical interests include enteric fistula, clinical nutritional support, small bowel transplantation, intestinal dysfunction, severe acute pancreatitis, short bowel syndrome and refractory constipation. Over 60 years of clinical practice, he has earned a honorable reputation in the difficult-handling and complex problems and diseases of general surgery. In 1994, he finished the first human allograft small bowel transplantation in Asia and in 2003, again, he successfully performed the first small bowel and liver transplantation in Asia.

Besides his clinical practice, Prof. Li Jieshou was also a great medicine educator. Based on the growth regulation of medical talents, he established a new medicine teaching theory and trained 131 PhD and 147 master students and 16 post-doctors, most of whom have grown as the outstanding specialists in their hospitals.

Prof. Li has been authored in over 600 scientific papers and is the editor in chief of several famous medicine books, including SURGERY, INTESTINAL FISTULA, CLINICAL PARENTERAL AND ENTERAL NUTRITION SUPPORT, PERIOPERATIVE MANAGERMENTS and etc. He was also awarded for National Science Development, once for the first grade and twice for the second grade, which is the nationwide highest honor for a scientist.

He has won the Prize for Scientific and Technological Achievements of Ho Leung Ho Foundation, Chinese Medical Award, award for the special scientific contributions of PLA and etc. In 2009, Prof. Li was cited for the first-class meritorious service by President Hu Jintao. Under his guidance, in 2011, Research Institute of General Surgery was named as "Medical Department of Science and Technological Innovation".



王正国

王正国，1935年12月出生于福建漳州。现任国际交通医学学会候任主席，亚洲创伤学会主席，中国人民解放军医学科学技术委员会副主任委员，第三军医大学野战外科研究所研究员。

王正国院士是我国冲击伤、创伤弹道学、交通医学研究的主要创始人之一，国家重点学科“野战外科学”学术带头人，我国第一位创伤项目973首席科学家。他致力于战创伤研究五十余年，取得了一批国际先进以至领先的重大科研成果，为我国战创伤医学的发展做出了卓越贡献。

他以第一作者发表论文260余篇，已先后编著、主编专著34部，参编10余部。获首批军内专业技术重大贡献奖（1996），香港何梁何利基金医学科学技术奖（1997），美国Michael DeBakey国际军医奖（1998，是该奖设立以来至今获此殊荣的唯一亚洲人），陈嘉庚医学科学奖（2000），国际交通医学重大成就奖（2000），光华工程科技奖（2002），“十五”全军后勤重大科技成果奖（2005），重庆市科技突出贡献奖（2007），吴阶平医学奖（2009）。被评为全国优秀共产党员（2001），重庆直辖十年建设功臣（2007），当选《科学中国人》2009年度人物。被中央军委荣记一等功。

Professor Zhengguo WANG M. D. was born in 12. 1935, academician of the Chinese Academy of Engineering; research professor of the Research Institute of Surgery at Third Military Medical University of PLA; Honor director of the Institute for Traffic Medicine of PLA /Institute for Traffic Medicine of Chongqing City.

Prof. Zhengguo WANG is one of the precursors in the fields of blast injury, wound ballistics and traffic medicine in China, and the academic leader of national key subject-field surgery. In the past 55 years, he has devoted himself to the research work on basic theories and applied basis in the field of war wound /trauma and obtained a series of high-level scientific achievements.

He has published more than 260 papers; edited and published 34 books; won one first-class, four second-class and four third-class prizes of State Award for Progress in Science and Technology and four first-class prizes of Army Award for Progress in Science and Technology. He was selected to be "Outstanding Middle- and Young-age Expert" by National Personnel Department (1990) and appointed the chief scientist of trauma research entitled "Basic scientific research on early general damage and tissue repair in severe trauma" granted by Major State Basic Research Development Program (1999). He was awarded "Award of Medical Sciences and Technology of He-Liang-He-Li Foundation" (1997); "Michael DeBakey International Award of Military Surgeon" (1998); "Chen Jiageng Award of Medical Sciences" and "International Outstanding Achievement Award for Traffic Medicine" (2000); "Guanghua Engineering Science and Technology Prize" (2002); "Outstanding achievement of technology award of Chongqing" (2007); "Wu Jieping Medical Prize" (2009). Now he is the president elect of the International Traffic Medicine Association (ITMA); editors-in-chief of "Chinese Journal of Traumatology" (both Chinese and English editions). In addition, he has been appointed to be the guest professor or senior academic counselor of Yugoslavian Academy of Military Medicine; Tsinghua University; Peking University; Hunan University; the Second and Fourth Military Medical Universities; Southern Medical University; Jinan University, Tianjing Medical University; Shangdong Medical University; Huaxi Medical Center of Sichuan University, etc.



汪仕良

汪仕良，第三军医大学西南医院烧伤研究所教授、主任医师、博士生导师，专业技术一级，文职一级。1956年毕业于上海第二军医大学医疗系，1984年3月至1985年7月通过WHO及Michigan考试赴美Cincinnati Shriners烧伤研究所从事烧伤代谢营养等研究（Research Fellow）1.5年。1988年6月至1999年12月任第三军医大学西南医院烧伤研究所所长。

从事烧伤医学五十多年，是我国第一批从事烧伤专业的医师，我国烧伤代谢营养医学开拓者之一。负责军队“七五”“八五”“九五”“十五”烧伤指令性课题、国家自然科学基金重大项目及973国家重点基础研究项目等有关烧伤代谢营养研究部分。发表论文300多篇，国际会议交流近50篇，翻译、审校文摘数十篇。参与编写专著51部，其中主编、副主编8部，主编《烧伤代谢营养学》（国家出版基金资助）是我国第一部烧伤代谢营养专著。获国家科技进步二等奖2项，中国人民解放军四总部专业技术重大贡献奖1项，全军后勤重大科技成果奖“九五”2项、“十五”1项，军队科技进步及医疗成果一、二等奖各4项，总后勤部优秀科技人才建设“伯乐奖”、科学技术“一代名师”，以及中华医学会“烧伤医学终身成就奖”等。1992年获国务院特殊津贴，荣立二等功一次、三等功二次。

任所长期间，烧伤研究所成为全军第一个烧伤研究所，烧伤界第一个国家重点学科，被评为“总后基层建设标兵单位”，并荣立集体一、二等功。先后任中华医学会烧伤外科分会副主委，全国外科营养支持学组委员，西南地区烧伤整形协会主委、名誉主委、顾问，中华烧伤杂志总编辑、名誉总编辑，肠外与肠内营养杂志、解放军医学杂志、中华临床营养杂志、中华整形烧伤外科杂志等10多种杂志常务编委、编委以及ISBI、ESPEN会员。

主要学术贡献为：①提出已列入我国《烧伤营养指南》并有国外学者认同的“烧伤成人热量供应公式”。②在创制三种、改进一种实验动物模型基础上，提出了早期喂养可促进烧伤后胃肠道复苏的新思路。③提出了烧伤后“肠源性高代谢”理论及其调理措施。

Shi-liang Wang, born on Apr. 2, 1935 in Shanghai, China, professor of Surgery, tutor of doctorate, director of Burn Institute (1988—1999), Southwest Hospital, Third Military Medical University. Engaged in surgery, burn medicine for 57 yrs, participated in treating more than 10 thousands of burn patients in some dozens of cities and areas. In 1984, after passing WHO examination, went to Shriners Burns Institute (Cincinnati, USA) as research fellow for 1.5 yrs. In charge of and fulfilling more than 20 items of state and army scientific research projects, published more than 300 scientific papers, presented about 50 articles in international conferences, wrote and edited 51 books (8 as chief or associate editor).

Developed the first formula for supplying energy in Chinese burn adults, collected by "Guideline for Nutrition Support in Chinese Burn Adults"; on the basis of three creative and one revised experimental animal models, found early feeding could resuscitate gut during the early stage after burn injury; advanced the theory of "Enterogenous Hypermetabolism" and its modulation post-burn, i. e. hypermetabolism not only from burn wound, but also from internal organ especially gut, it is beneficial to burn organism if modulate hypermetabolism induced by gut. Gained 24 items of nation and/or army, local prizes (2 items of nation science and technology 2nd award, 1 item of great Science and technology award of PLA, 4 items of army science and technology or medical treatment 1st, 2nd award respectively. Trained 31 postgraduate students and more than 50 advanced studying doctors. Served successively the co-chairman and advisor of Chinese Burn Association; chairman, honorary chairman and consultant of South-west China Society for Burns and Plastic Surgery; honorary chief editor, editor in chief of Chinese Journal of Burns; editorial or senior editorial board members of journal "Parenteral & Enteral Nutrition", "Chinese Journal of Clinical Nutrition", "Medical Journal of People's Liberation Army" and more than 10 journals. Gained "special subsidy of the State Council", "Prize of Outstanding Teacher of the Generation" and "Bo-Le Prize of science and technology award" by GLD (General Logistics Department). Was cited meritorious service 2nd class once and 3rd class twice, and promoted once to a higher officer in advance.



邓诗琳

邓诗琳，1932年生，福建泉州人。教授，主任医师。

1955年毕业于广州中山医学院。在天津医院、天津市第四医院工作，任天津市烧伤研究所所长。长期从事基本外科、烧伤外科的医疗、科研、教学工作。是在危重症烧伤救治、代谢营养、危重症医学等领域的医疗临床和学术造诣均有建树的专家。在天津医院承担多批大面积成批烧伤患者的救治任务，积累了丰富的救治经验。“成批大面积烧伤救治经验课题”获卫生部科技进步奖。1988年组建天津市第四医院及天津市烧伤研究所，建立拥有100张床位的烧伤病房。在国内率先开展肠外营养在烧伤基础及临床的研究，引进代谢车等先进医疗设备，对烧伤代谢营养理论及实践进行研究。20世纪70年代参与组织由中华外科学会营养学组黎介寿院士、蒋朱明教授牵头，在天津建立医药学专家与氨基酸制药企业的研发团队。在国内率先研制出系列国产11种、14种、18种平衡型氨基酸和疾病治疗型氨基酸制剂，确保国内临床营养的应用，推动了我国外科临床营养支持工作的发展。

历任中华医学会烧伤外科学会副主委、常委，中华烧伤杂志副总编，中国病理学会危重症学会委员，中国临床营养杂志副总编，天津市烧伤学会主委等。任国家科技部国家技术发明奖、国家科技进步奖医疗卫生组评委，年度国家自然科学基金项目医学部项目评委，中华医学会科技奖评委，解放军总后研究生培养单位军队重点建设项目评审专家。发表论文100余篇。主编及参编《烧伤代谢营养学》《中华烧伤医学》《黎鳌烧伤学》《国家药典临床用药须知2005年（中华人民共和国药典、临床用药须知2005年版）》《国家基本用药与新特药物临床指南》《实用临床营养学》《人工胃肠支持——肠外与肠内营养》等15部著作。获卫生部技术进步奖、中国中西医结合学会、天津市科学技术奖一、二、三等奖共15项。获国务院特殊津贴，天津市劳动模范。

Deng Shi—lin (1932—), born in Fujian, China, professor, professor of surgery, graduated from Zhongshan School of Medicine in 1955, had served in Tianjin Hospital and Tianjin No. 4 Hospital, head of the Tianjin Burn Institute. He is one expert who has been conducting medical research and teaching on burn surgery and fundamental surgery for comprehensive years. He also has extensive clinical experience and high academic attainment in severe burn, surgical infection, disorder of metabolism and nutrition, and critical care. Prof. Deng is a renowned expert and scientist in burn injury, clinical nutrition, and critical care.

During his time at Tianjin Hospital, he was responsible for the treatment of mass burn casualties with large—area burns and awarded with Science and Technology Progress Award of provincial level. He was one of the founders of No. 4 Hospital and Tianjin Burn Research Institute that contains 100 beds in 1988. As a starting force in using the approach of parenteral nutrition in basic and clinical research in the field of burn wound healing, he also introduced metabolic measurement and testing system in order to have dynamic measurements of patient's metabolism. He joined the research and development group consisted of academic experts and amino acid pharmaceuticals in Tianjin, which was initiated by Li Jieshou and Jiang Zhuming from Nutrition Unit of China Surgical Society in 1970s. Following the formation of the group, a series of 11, 14 and 18 domestic balanced and disease—specific amino acid was produced. It has provided support to domestic clinical nutrition applications and promoted the development of surgical nutrition of the nation.

His experience include, vice director of Chinese Burn Society Chinese Medicine Association, vice editor—in—chief of Chinese Journal of Burns, committee member of Chinese Critical Care Society and Association of Pathophysiology, vice editor—in—chief of Chinese Journal of Clinical Nutrition, lead member of Tianjin Medical Burn Society Association, judge of National Technical Invention Award and National Science & Technology Progress Award, judge of Department of Health of National Natural Science Foundation of China, judge of Chinese Medical Association Technology Award, evaluation expert of key construction projects in postgraduate training institutions of PLA. He has published over 100 papers and jointly edited 15 books including Nutrition and Metabolism in Burns, Chinese Burn Surgery, Li'ao Science of Burn, Clinical Guide to the Chinese Pharmacopoeia (2005 edition), The Clinical Guide of National Basic, New and Special Drugs, Practical clinical Nutriology and Artificial Nutrition Support — Parenteral and Enteral Nutrition. He has been awarded in total of 15 prizes including Science and Technology Progress Award of provincial and national level, first, second and third

prize of Science and Technology Awards by Chinese Association of Integrative Medicine. He has also been recognized as a State Council Expert for Special Allowance and Tianjin's model worker.



王凤君

王凤君, 1963 年出生, 医学博士, 第三军医大学西南医院烧伤研究所创伤、烧伤与复合伤国家重点实验室博士生导师。1999 年毕业于第三军医大学并获博士学位, 2002—2004 年在美国芝加哥大学进行博士后研究。先后主持国家自然科学基金、国家 973 创伤项目分题、教育部创新团队项目分题、重庆市自然科学基金、教育部回国人员科研基金、国家重点实验室课题等项目 10 余项, 系教育部创新团队项目主要学术成员。参与获得国家科技进步二等奖 4 项, 军队科技进步一等奖 1 项、二等奖 2 项, 国家新药证书 1 项。在 Gastroenterology、Am J Pathol、J Biol Chem、PLOS One、Cell Physiol Biochem、Cytokine 等国内外杂志署名发表论文 120 余篇, 其中 SCI 论文 20 余篇, 单篇 SCI 论著最高影响因子 12.46, 发表的 SCI 论文已被累计引用 970 余次, 单篇最高被引用 300 余次; 参编专著 8 部。招收培养或联合培养研究生 10 名, 其中 1 名研究生的毕业论文获全军优秀学位论文。目前任 Burns & Trauma 及中华烧伤杂志编委, J Cell Mol Med、PLOS One、Acta Pharmacol Sin、Med Sci Monitor、J Allergy Ther、J Anesth Clin Res、第三军医大学学报等杂志审稿专家。主要从事烧伤代谢营养及肠道屏障功能损害的发生机制与防治策略的研究。

Fengjun Wang, Ph. D., M. D., born in 1963, professor and doctoral tutor at the State Key Laboratory of Trauma, Burns and Combined Injury, Southwest Hospital, Third Military Medical University, graduated from Third Military Medical University in 1999, and was a postdoctoral research fellow at The University of Chicago from 2002 to 2004. As a principle investigator, he has undertaken more than ten scientific research projects supported by the National Natural Science of China, National '973' Project, etc. He is also the member of the Innovative Research Team supported by the Education Ministry of China. He has won 7 scientific awards, including 4 item of the 2nd Class Prize of the Award for the Advancement of Science and Technology of China, 1 item of the 1st Class, 2 items of the 2nd Class Prize of the Award for the Advancement of Science and Technology of PLA. He has published more than 120 papers, and 8 book chapters. His research interests are focused on nutrition, metabolism, the molecular mechanisms and preventive strategies of intestinal barrier dysfunction of burn injury.



韩春茂

韩春茂, 1960 年出生, 浙江大学医学院附属第二医院烧伤科教授、博士生导师、主任医师。中华医学会烧伤外科学会副主任委员, 中华医学会创伤分会伤口愈合与组织修复学组委员, 中华医学会肠外肠内营养学分会常务委员, 浙江省医学会烧伤外科分会主任委员。担任 10 余种杂志如中华烧伤杂志副总编委、中华医学杂志(英文版)编委等。担任多种国外杂志审稿人。从事烧伤、伤口诊疗工作 30 年, 对大面积烧伤救治、复杂疑难烧伤的综合治疗和慢性伤口的诊疗有较丰富的经验。主要研究方向有组织工程皮肤、伤口愈合和营养代谢。发表论文 100 余篇, 其中 SCI 论文 30 余篇。参编和主编著作 10 余本。获省科技进步二等奖 3 次, 三等奖 1 次。在国内较早规范地开展早期肠内营养, 推广和改良营养风险筛查, 并对微量元素和免疫生态营养做了一些研究。2004 年率先在国内成立医生主导的伤口治疗中心, 广泛和国内外著名的专家进行交流学习。翻译出版了 Frykberg (美国) 等主编的《糖尿病足——临床操作指南》。

Chunmao HAN born in 1960, 3, professor, doctoral tutor and chief doctor in Burns Department, Second Affiliated Hospital, Zhejiang University School of Medicine. His main academic positions are: vice chair of Chinese Association of Burn Surgery, member of Division Wound healing and Tissue repair of Chinese Association of Trauma, standing member of Committee of Chinese Association of Parenteral and Enteral Nutrition, chair of Zhejiang Association of Burn Surgery. Also, more than 10 journals editor such as vice chief editor of Chinese Journal of Burns, editor of Chinese Journal of Medicine English version and peer reviewer of international journals. Chunmao HAN has worked for burn and wound treatment for 30 years and have had much more experience especially in massive burn, complicated burn and chronic wounds. His main study field involves in tissue engineering skin, wound healing and nutrition metabolism. More than 100 papers have been published, of them about 30 papers are SCI. And also he wrote more than 10 books or chapters in book. Zhejiang Science and Technology awards have been achieved by his team. In china, he earlier developed formal early enteral nutrition support in several burned patients, carried out NRS 2002 concept and modified NRS 2002 application in burn patients. He also did some studies in microelements and eco-immuno-nutrition in burned patients. In 2004, he firstly set up wound center guided by doctor in china. From then, he widely communicated with famous experts in domestic and abroad on the chro-

nic wound diagnosis and treatment, translated “Diabetic foot disorders: practice guideline” written by Fryberg RG et al.