Lasers In Neurosurgery Foundations Of Neurological Surgery 1st Edition By Robertson Jon H Published By Springer Hardcover

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Lasers for Medical Applications Iph001
Since the introduction of electrosurgery the techniques of surgery on the nervous system have passed through further improvements (bipolar coagulation, microscope), even if the procedure was not substantially modified. Today, laser represents a new "discipline", as it offers a new way of performing all basic maneuvers (dissection, demolition, hemostasis, vessel sutures). Furthermore, laser offers the possibility of a special maneuver, namely reduction of the volume of a tumoral mass through vaporization. Its application is not restricted to traditional neurosurgery but extends also to stereotactic and vascular neurosurgery. Laser surgery has also influenced the anesthesiologic techniques. At the same time new instrumentation has been introduced: CUSA ultrasonic aspiration, echotomography, and Doppler flowmeter. I have had the chance to utilize these new technologies all at a time and have come to the conclusion that we are facing the dawn of a new methodology which has already shown its validity and lack of inconveniences, and whose object is to increase the precision of neurological surgery. The technological development is still going on, and some improvements are to be foreseen. Laser scalpel is splitting the initial laser surgery into NO TOUCH and TOUCH surgery with laser. As new instrumentarium will be developed, a variable and tunable beam will become available. For example, in a few years Free Electron Laser will further add to the progress in this field.

Biomedical Aspects of the Laser Springer Nature
The Nd:YAG laser has finally become the multidisciplinary and muitispeciaity tool of the 1980s. Primarily developed for gastrointestinal applications for controlling bleeding, at present it is also used for endoscopic treatment of gastrointestinal tumors, endobronchial cancer, and bladder and gynecological lesions and finding applications in otorhinolaryngology and neurosurgery. De velopment of laser scalpels and focusing head-pieces has now allowed the Nd:YAG laser to be used for open surgical procedures in general and plastic surgery, head and neck surgery, urology, gynecology, dermatology, and neu rosurgery. The rapid development in ceramic technology has led to contact surgery allowing physicians a choice of excision, vaporization, coagulation, incision, or combinations thereof by easily changing probes rather than having to select new laser wavelengths. This technology is rapidly replacing the carbon dioxide laser which currently has no adequate flexible waveguide for fiberoptic en doscopy, cannot be used in a water medium (e.g., bladder), and has poor coagulation properties when compared to the Nd:YAG laser. Future developments may see the Nd:YAG laser even replacing electro cautery in the operating room due to its greater safety and efficacy. Local hyperthermia (laserthermia) with computer control, photodynamic therapy, and ophthalmic applications make the Nd:YAG laser the most exciting tech nological advancement in medicine and surgery for the 1980s.

Complications in Laser Cutaneous Surgery Springer Science & Business Media
Lasers in Medical Diagnosis and Therapy provides an overview on medical lasers and laser systems as well as laser applications in medical diagnosis and therapy. Since it was written by physicists, it focusses on the physics and underlying mechanisms of laser diagnosis and therapy and thus initially covers the basics of laser light generation, a selection of the most important laser types and systems commonly used in medicine, and the principles of laser light guidance. The book should be used as a textbook for lectures, practice lessons and for the preparation of exams and addresses students, lecturers, and researchers in the fields of medical engineering and technology, medical physics, medicine and surgery, ophthalmology, dermatology, laser physics and development as well as optical engineering. Part of Series in Physics and Engineering in Medicine and Biology.
Endoscopic Laser Surgery Handbook Springer Science & Business Media
The laser's range of application is extraordinary. Arthur Schawlow says, "What instrument can shuck a bucket of oysters, correct typing errors, fuse atoms, lay a straight line for a garden bed, repair detached retinas, and drill holes in dia monds?"O The laser's specifically biomedical uses cover a similarly broad and interesting spectrum. In this book, I have endeavored to convey some of the fas cination that the laser has long held for me. It is my hope that both clinicians and researchers in the various medical and surgical specialties will find the book a use ful introduction. Biologists, particularly molecular biologists, should also find a great deal of relevant information herein. This volume's distinguished contributors provide admirably lucid discussions of laser principles, instrumentation, and current practice in their respective special ties. Safety, design, capabilities, and costs of various lasers are also reviewed. We have aimed to create a practical text that is comprehensive but not exhaustive. Our emphasis on the practical, rather than the esoteric, is dictated not only by the short history of biomedical laser use, but by the extent of the community to which this information will appeal.
Handbook of Laser Neurosurgery St. Lucie Press
This book is concerned primarily with operative endoscopy utilizing lasers, presenting proved and future endoscopic applications of lasers in medicine. It includes new concepts of cancer therapy, such as photodynamic therapy, because of the laser's endoscopic application.
Lasers in General Surgery Gower Publishing Company, Limited
This book serves as a foundation for MRI guided laser interstitial thermal therapy (LITT) across neurosurgical diseases. It provides state-of-the-art information on the latest indications and results for LITT in CNS applications, as well as prerequisite historical perspective and technical fundamentals. Written by experts in the field, the text reviews the historical development of LITT, the technical and technological components required to perform LITT, its indications and contraindications, areas that still require investigation, LITT complications, and challenges to starting up LITT within one’s practice. As early adopters of the technology, the authors provide sage advice that reflects the initial learning curves of many of the users. The book then concludes with a practical guide to starting up a LITT practice in the current medical socioeconomic environment. Laser Interstitial Thermal Therapy in Neurosurgery is a guide that will allow all neurosurgeons interested in LITT to successfully adopt the technology and incorporate its use seamlessly, safely and appropriately into their individual practices.
Lasers in Aesthetic Surgery Springer Nature
The use of lasers in oral & maxillofacial surgery has increased dramatically in recent years, becoming an essential, "must-know" area for all practitioners in the field. This timely reference examines both new & established laser techniques, providing expert guidance on using lasers successfully in a wide variety of clinical situations.
Advances in Nd:YAG Laser Surgery Wiley-Liss
Since the introduction of laser technology into medicine, quite a number of clinical applications in orthopaedics have been developed. This text is the first to provide comprehensive guidelines and how-to-do instructions for the application of lasers in orthopaedics. These cover patient selection and decision-making as well as the benefits and risks of the clinical application of lasers in arthroscopic surgery, spine surgery and open surgery. An overview is given on the basics of laser technology and the various laser types are evaluated in terms of optimal use.
Laser Interstitial Thermal Therapy in Neurosurgery John Libbey Eurotext
This book offers a comprehensive guide to the technical basis of laser ablation, describing and reporting in detail on the latest findings. The world of medicine is currently working to reduce the invasiveness of treatment, in order to improve patients’ quality of life. Image-guided ablations are rapidly becoming an effective alternative to several surgical treatments. Among the many techniques available for ablation, laser is still not widely used, though its efficacy has been amply demonstrated. The scientific community is now showing a growing interest in laser techniques for image-guided ablations, and many physicians are willing to start using lasers in their clinical practice. The book is divided into 16 chapters, including historical notes, technical aspects, outcomes of ex-vivo experiments, and results of the application of this technique in various clinical scenarios. It will be of great interest to a broad range of physicians (interventional radiologists, surgeons, gastroenterologists, endocrinologists, urologists), from less experienced trainees to expert physicians who want to introduce a novel clinical practice.
Lasers in Neurosurgery Thieme
The advent in the 1960s of the unique and exciting new form of energy called laser brought to medicine a marvelous tool that could accomplish new treatments of previously untreatable disorders as well as improved treat ment of mundane problems. This brilliant form of light energy is many times more powerful than the energy of the sun yet can be focused microscopically to spot sizes as small as 30 microns. Lasers can be directed into seemingly inaccessible areas by mirrors or fiberoptic cables or can be directly applied into sensitive areas such as the retina without damage to intervening structures. There has been a rapid proliferation in the use of lasers in all surgical specialties. Starting with bold ideas and experiments of "thought leaders" in each specialty, the application of lasers has evolved into commonplace usage. Beginning with the era when laser presentations and publications were an oddity, now nearly all specialty areas have whole sections of meetings or journals devoted exclusively to laser usage. Laser specialty societies within a specialty have developed and residency training programs routinely instruct trainees in laser techniques. Basic science and clinical experimentation has supported laser knowledge. Laser usage has also become international. Newer wavelengths and accessories have added to the armamentarium of laser usage. Despite the rapid growth in laser interest, no single source exists to instruct the many new laser users in proper, safe, and effective use of this new modality.
The Biomedical Laser Thieme
In the past decade, the application of lasers in surgery and medicine has increased dramatically. Recent advances in technology and procedures have brought many changes to the field and created a need for an authoritative, focused reference that both reviews the basic principles of laser medicine and provides detailed coverage of specific applications in various surgical subspecialties. Laser Surgery and Medicine: Principles and Practice assembles work from a diverse group of leading clinicians to offer a comprehensive, integrated survey of the current status and latest innovations in the biomedical uses of lasers. The text comprises papers originally published in the distinguished journal Lasers in Surgery and Medicine and covers such general topics as laser safety, laser welding of tissue, and photodynamic therapy, in addition to targeting nine distinct specialty areas. Chapters addressing surgical specialties feature high-quality illustra tions showing the finer points of essential techniques, as well as reports on current clinical trials, new therapeutic procedures, and relevant aspects of laser biophysics, bioengineering, and photobiology. This book covers the latest laser applications in the following specialties: * Neurosurgery * Dentistry * Otolaryngology * Cardiovascular medicine * Gastroenterology Laser Surgery and Medicine: Principles and Practice is a timely, practical resource designed to provide detailed explanations of equipment and procedures that will satisfy the needs of practitioners in specialized disciplines and serve as a well-rounded overview of the field. An indispensable resource for all clinicians who perform laser procedures, it is also a must for basic scientists and engineers who want to keep up with the latest in biomedical laser applications.
Laser Spine Surgery CRC Press
The first complete, "how to" guide to laser surgery of the head and neck! This comprehensive reference covers all aspects of the use of lasers in facial plastic surgery, from basic science to surgical techniques. Introductory chapters provide complete coverage of different laser systems, laser safety, and laser physics. The majority of the book is devoted to presenting the use of lasers in skin resurfacing, treatment of vascular lesions, hair removal, treatment of pigmented lesions and tattoos, and aesthetic surgery. Throughout, you'll find expert commentary from surgeons at the forefront of the field.
Principles and Practice of Lasers in Otorhinolaryngology and Head and Neck Surgery Springer Science & Business Media
Medical practitioners, scientists and graduate students alike will find this exhaustive survey a vital learning tool. It provides a thorough description of the fundamentals and applications in the field of laser-tissue interactions. Basic concepts such as the optical and thermal properties of tissue, the various types of tissue ablation, and optical breakdown and its related effects are treated in detail. The author pays special attention to mathematical tools (Monte Carlo simulations, the Kubelka-Munk theory etc.) and approved techniques (photodynamic therapy, laser-induced interstitial thermotherapy etc.). A section on applications reviews clinically relevant methods in modern medicine using the latest references.
Principles and Practices in Cutaneous Laser Surgery Springer Science & Business Media
Lasers in Aesthetic Surgery presents over 70 years of cumulative clinical experience with lasers, for both surgical and non-surgical uses of lasers. This practical manual teaches the practitioner the application of the various lasers used in face-lifting and eyelid surgery. With over 200 4-color illustrations, surgeons will find this book to be a valuable resource.
Recommended Practices for Laser Refractive Surgery Elsevier
In every area of human endeavor, technology has opened the door for new advancements to occur. Much of the progress in medicine over the last few years is due, in large part, to new technological tools made available to clinicians and researchers. Laser is an expanding technological discipline in medicine that will ultimately contribute to a broad and rapid expansion of both diagnostic and treatment procedures. Laser is to light what music is to noise. Those physicians who wish to be most successful in the application of this technology, to the benefit of their patient, will learn of the subtle interactions of light with tissue. No technology is good or bad in itself. It is only in the choices we make, in when and how to apply that technology, that it gains its moral value. The use of lasers in medicine has some very definite advantages in the surgical and medical treatment of a variety of disorders. At the same time we must all be careful to not perpetrate the myth of lasers in medicine. Vastly overstated claims of the value of 'laser surgery' have been held out to the general public, resulting in health care being sought on the basis of laser availability.
Laser Applications in Oral and Maxillofacial Surgery CRC Press
The concept of selective photothermolysis revolutionized cutaneous therapy and continues to be the basis of low-risk laser treatment of photoaged skin, benign pigmented lesions and tattoos, unwanted hair, and cutaneous vascular lesions. However, all practitioners are aware that problems can arise, and with the increasing availability of more powerf
Principles and Practices in Cutaneous Laser Surgery Kendall Hunt
This book is a review of past and current studies and future plans of the Laser Laboratory in Cincinnati and some of the contributions of laser research groups in other medical centers. Special thanks are due to the Directing Physicist of the Laser Labora tory, R. James Rockwell. Without his advice, constant supervision and corrections, this enthusiastic investigator would continue to upset even many more people than he has done already. The excuse, of course, is to stimulate much needed interest and controlled research and development of the laser for biology and medicine. The Associate Research Physicist, Ralph Schooley, has worked with many phases of laser research but especially in Q spoiling, Raman spectroscopy, and the almost alchemy of holography. Holography, as of now, provides many opportunities for Gumperson's Law, "If anything can go wrong, it will. " Sincere appreciation is expressed to the Surgeons in the Laser Labora tory, who have supplied clinical and investigative surgical supervision often under great difficulties, Dr. V. E. Siler and Dr. Bruce Henderson. We are grateful for help from the Directing Biologist of the Laser Labo ratory, Edmond Ritter, the Director of Laser Neurosurgery, Dr. Thomas Brown and the Professor of Neurosurgery, Dr. Robert McLaurin, for important and basic work in laser neurosurgery. Special thanks are given to Robert Meyer, who has given most of the treatments in careful and skillful fashion, and his associate, Robert Otten.
Image-guided Laser Ablation Kugler Publications
Textbook of Laser Refractive Cataract Surgery is a comprehensive reference for the general ophthalmologist and cataract surgeon regarding the

explosive new technology in femtosecond laser cataract surgery. Femtosecond laser allows extreme precision in surgery, and is used in refractive surgery and for ‘cuts’ in the cornea, leading to a more uniform treatment for the patient. Textbook of Laser Refractive Cataract Surgery is for cataract surgeons and all eye care providers managing or diagnosing cataracts who wish to be informed about this technology and its applications. Edited and written by recognized leaders in the field, this book covers background, technical, clinical, and commercial aspects of this exciting technology. Some of the topics covered include the evolution of cataract surgery, femtosecond laser fundamentals, challenges of femtosecond laser technology for cataract surgery, and the economics of laser cataract surgery. Edited and written by recognized leaders in the field, this book covers background, technical, clinical, and commercial aspects of this exciting technology. Some of the topics covered include the evolution of cataract surgery, femtosecond laser fundamentals, challenges of femtosecond laser technology for cataract surgery, and the economics of laser cataract surgery.
Laser-Tissue Interactions Gower Publishing Company, Limited
This book describes and illustrates state-of-the-art techniques in laser spine surgery. Laser technology has revolutionized surgeries in many specialties to perform minimally invasive and cutting-edge procedures. Recent advances in spinal surgery have led to the increasingly widespread use of minimally invasive techniques based on endoscopy and microscopy. Nevertheless, the application of laser in the context of spinal surgery remains less well known, and the aim of this book is to present practical usage of laser in spine surgery to our readers. A wide variety of minimally invasive approaches to spine surgery using CO2, Ho: YAG, and Nd: YAG lasers are presented in detail, with a discussion of equipment and specific recommendations on laser settings. Care has been taken to ensure that the content is faithful to the fundamental principles of spine surgery and evidence-based medicine. The book will be an essential resource for all who use or are intending to use lasers in spine surgery.
Lasers in the Musculoskeletal System Springer Science & Business Media
In the last two decades, there has been a virtual explosion in the use of lasers in medicine, especially in the field of cosmetic dermatology. In fact, many of the clinical conditions presented today are solely treated by lasers.When discussing the term ‘lasers’, many different types of lasers and other similar energy-based devices have to be considered. Physicians who look upon this vast field often find themselves facing an extremely complex physics-based area of medicine with a veritable jungle of different devices on offer. This book provides a structured and comprehensive overview of the physical knowledge required to understand laser medicine and surgery. Moreover, the various clinical indications and treatments are clearly laid out and discussed. The authors, all experts in their field, have provided concise and topical chapters, which have purposely been kept generic when talking about the various lasers in order to increase the longevity of this volume.