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JOINT SECTION ON DISORDERS OF THE  
SPINE AND PERIPHERAL NERVES

**SPINE SECTION NEWSLETTER**



The American Association of Neurological Surgeons  
and  
Congress of Neurological Surgeons



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Gary L. Rea, MD, PhD

January 1996

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**In This Issue...**

Biomechanical Bits .....	2
Selected Abstracts from the CNS 12th Annual Meeting .....	3
12th Annual Meeting Program Schedule .....	4
Awards and Grants .....	7
Book Review .....	7

**NEUROSURGERY HOMEPAGE  
INTRODUCED**

**NEUROSURGERY ON-CALL™ (N://OC)**, The American Association of Neurological Surgeons (AANS) and Congress of Neurological Surgeons' (CNS) homepage on the World Wide Web will officially open during the 1996 AANS Annual Meeting in Minneapolis. Several workstations will be placed in an "On-Line Pavilion" demonstrating the site while start up software will be distributed to meeting attendees. The **N://OC** Editor is Richard Toselli, MD.

The prototype of the site was demonstrated at the CNS Annual Meeting recently held in San Francisco. A workstation was available for members to navigate through the site and make comments about content they would like to see added. The exhibit received an enthusiastic response from neurosurgeons in attendance.

Sections and Committees of the AANS and CNS have selected content editors who are responsible for providing content for their particular area of interest. The editor for the Spine and Peripheral Nerves section of the site is Gary Rea, MD. This section includes information on membership, past and recent newsletters, meeting registration, a bulletin board and section updates. If you would like to have information placed on this section of the site, please contact Dr. Rea for consideration. Information may be sent to him at Ohio State University, N-007 Upham Hall, 473 West Twelfth Avenue, Columbus, Ohio 43210. Other areas of interest will include the following:

**CPT Coding Coach™** — an automated CPT coding assistant. This decision tree database prompts you and your staff to ensure quick and accurate reimbursement from CPT coding.

**Chat Rooms / Bulletin Boards** — members will be able to post text and images for public viewing and hold discussion groups with colleagues.

**Library** — this database will contain a comprehensive database of neurological and neurosurgical journals, AANS and CNS Annual Meeting Abstracts, images and the Medline® database.

**Meetings and Courses** — detailed information on the AANS, CNS and Joint Section meetings, other neurosurgical society meetings, as well as regional Professional Development Continuing Medical Education Courses can be obtained here.

**Membership and Foundation Information** — AANS and CNS membership applications and benefits can be found in this area of the site. Research grant applications and information donating to the AANS Research Foundation and THINK FIRST is also available.

**\* Reminder \***

The 1996  
Spine Section Meeting  
will be held  
February 28–March 2.

See the  
Program Schedule  
on pages 4–5 .

continued on page 2

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# BIOMECHANICAL BITS

## The Instantaneous Axis of Rotation and Bending Moment

*Bradford B. Mullin, MD*

Instrumentation of the spine involves the application of forces that are designed to either correct a deformity or counteract predicted future forces in order to prevent deformities. It is therefore critically important to understand the basic forces that the instrumentation construct is attempting to counteract. Two important concepts that are interrelated and underlie these forces are those of the instantaneous axis of rotation (IAR) in the bending moment.

The IAR is essentially a fulcrum (1). It is the segmentally fixed axial point about which the spine has a tendency to rotate when a bending force is applied to it (1,2). It is usually found in the vertebral body but will change in location based upon the pathological state of the spine (1).

When a force acts on the spine, it acts on an imaginary level that extends from the IAR to the point of force application. It is perpendicular to the force application. This is termed the moment arm. Therefore, a bending moment is produced which is directly proportional to the force applied to the lever arm and the length of the lever arm. This relationship is given by the equation  $M = F \times D$  ( $M$  = bending moment,  $F$  = force applied to lever arm,  $D$  = length of the lever arm) (1,2). The spine will then bend around the instantaneous axis of rotation (1).

One must have a concept of the type of forces that are trying to be counteracted in order to appropriately place instrumentation. Understanding these forces will also aid in understanding how instrumentation may fail. This will allow a construct to be optimally designed and positioned in relation to spine pathology.

For example, these concepts make it easier to understand why an anterior plating system, such as that placed in a cervical spine, is not optimally positioned to prevent the development of kyphosis or the prevention of spondylolisthesis. An anterior plate is intended to counteract axial forces. A posteriorly placed system would be much better suited to counteract in these types of deformities because the deforming force (or bending moment) would tend to favor kyphosis.

In using a pedicle screw construct, the maximal bending moment occurs at the distal screw-plate interface (1). This is the point at which the screws tend to fracture.

### BIBLIOGRAPHY

1. Benzell EC. Biomechanics of Spine Stabilization, Principles of Clinical Practice. McGraw-Hill, Inc. Health Professional Division. 1995.
2. White AA, Panjabi MM. Clinical Biomechanics of the Spine, Second Edition. J.B. Lippincott, Co. Philadelphia, Pennsylvania. 1990.

[continued from page 1](#)

**Marketplace** — a wide range of AANS and CNS products may be purchased on-line including neurosurgical books, videotapes, self-assessment exams, patient education brochures. A product information section will allow companies who provide neurosurgical related equipment to post information on their products.

After the opening in April, a number of additional **NEURO** features will begin development, including:

**On-Line Journal** — will provide the site with original science in a peer-reviewed, fast-track publication format. This electronic format will allow members an outlet for their research which will be produced and distributed in a short time-frame.

**Outcomes Database** — will allow users to enter medical data into the database, edit the data, search and browse the data relationally, and perform some limited statistical analysis of the data. The system compares your data to other in the database.

**Patient Education** — will provide the general public with patient education information, including brochures and information on hot topics.

**Case of the Week** — interesting x-rays and case discussions.

# SELECTED ABSTRACTS FROM THE CONGRESS OF NEUROLOGICAL SURGEONS ANNUAL MEETING San Francisco, California—1995

## A Biomechanical Evaluation of Occipitocervical Fixation Devices

Chester E. Sutterlin, John R. Bianchi, Andrew J. Rapoff, David N. Kunz, Timothy Bassett, Thomas A. Zdeblick

**Introduction:** This project determined the stiffness of spines with and without occipitocervical implants under 3 different modes of loading, and determined the failure mechanisms when loaded in flexion.

**Methods:** Cadaveric specimens with and without fixation were subjected to 3 types of loading followed by failure testing. Three different occipitocervical devices were tested. Data were analyzed as a randomized complete block design with analysis of variance followed by Fisher's protected least significant test.

**Results:** To the best of our knowledge no plate and screw system may be labeled by manufacturers for use as internal fixation devices for posterior occipital or cervical fixation. Statistical differences were shown between specimens tested with implants and the same tested without implants under axial compression, flex/ext, and torsion. When tested in flex/ext, the stiffnesses of the plating systems showed similar results. The rod/wire performed equally well with the plating systems in flexion, but not extension. The torsional stiffnesses of the devices showed the widest mean variation with the plating systems performing significantly better than the rod/wire. The Axis Fixation System rendered the spine the most stiff in each case. All the plating systems failed by one or both of the C2 pedicles fracturing. There was no evidence of failure of screw fixation to the occiput.

**Conclusions:** The tests revealed a trend showing the Axis Fixation System to be stiffer in all modes of loading. These tests showed the Luque rectangle performed worst in all modes of loading except flexion. The Luque rectangle and cable constructs were not as stiff as plate and screw constructs in axial loading, extension, or torsion. Ultimate failure testing in flexion exposed the weakest fixation point of plate and screw systems to be the thin dorsal mass of bone of the C2 pedicle surrounding the C1-2 transarticular screws.

## The Results of Halter Cervical Traction in Treating Cervical Radiculopathy: A Retrospective Review of 81 Patients

Scott C. Dulebohn, William C. Olivero

The usefulness of halter cervical traction in the treatment of cervical radiculopathy has been debatable, some advocating its use, others feeling it is useless or even contraindicated. To better delineate the usefulness of cervical traction, we retrospectively reviewed the records of those patients over the past 4 years who were seen with a cervical radiculopathy to determine response to halter cervical traction. The diagnosis of cervical radiculopathy was made if the patients had radiating arm pain made worse by neck movement and at least one of the following: reflex loss, dermatomal numbness, and/

or myotomal weakness. Patients with neck pain alone or arm pain without neurological deficit were excluded from analysis. Ninety-six patients made up the study group, 61 males and 35 females. The average age was 47 years; 55 patients presented with a C7, 37 with a C6, 2 with a C5, and 2 with a C8 radiculopathy. Those patients who were not in excruciating pain, did not have severe weakness or evidence of myelopathy were offered a course of halter traction before considering surgery. Eighty-one patients underwent a trial of traction which consisted of home halter cervical traction of 8-12 lbs 15 minutes duration 3 times a day for 2-4 weeks. The average duration of symptoms prior to neurosurgical evaluation was 43 days. There was no correlation between the prior length of symptoms and response to traction. Sixty-three patients (78%) responded to traction with significant or total pain relief, 3 could not tolerate the traction, and 15 patients failed traction. Of the 81 patients undergoing traction, 78 had MRI's prior to being seen and 3 were treated without imaging studies. MRI's revealed herniated discs at the appropriate level in 71 and foraminal stenosis in 7. Three of the 63 patients who initially responded to traction had recurrence and had surgery. We feel that halter cervical traction is a safe and effective treatment for patients with cervical radiculopathy.

## Prevention of Recurrent Laryngeal Nerve Palsies in Anterior Cervical Surgery

Ronald I. Apfelbaum, Joel O. Johnson, Richard J. Sperry

Unilateral vocal cord paralysis after anterior cervical spine surgery is presumed to be due to injury to the recurrent laryngeal nerve in the course of the neck dissection. Recurrent laryngeal nerve palsies also occur after endotracheal intubation without concomitant neck surgery. This nerve is most vulnerable in its endolaryngeal submucosal course.

We have hypothesized that the nerve might also be injured in anterior cervical spine surgery when the trachea is retracted, displacing the larynx against the unyielding endotracheal tube. If so, releasing the cuff pressure when the anterior cervical retractor system is in place should allow the tube to reposition itself centrally in the larynx and prevent such pressure.

To test this theory, in all anterior cervical spine procedures, we have been releasing the endotracheal cuff and then re-inflating it to "just seal" pressures. The results show a decrease in recurrent laryngeal nerve palsies. Utilizing our data base of consecutive anterior cervical plating, we found an incidence of recurrent laryngeal nerve palsy of 6.4% in 250 cases. After initiating the above maneuver, only one additional case of recurrent laryngeal nerve palsy occurred in the next 116 cases (0.9%)  $p = .008$ . We recommend close monitoring and adjustment of cuff pressure during anterior cervical spine surgery.

continued on page 6

# 12TH ANNUAL MEETING PROGRAM SCHEDULE

## WEDNESDAY, FEBRUARY 28, 1996

- 12:00 NOON–6:30 PM     **Registration**
- 2:00 PM–5:00 PM        **Special Course — Entrapment  
Neuropathy**  
Co-Directors: *John E. McGillicuddy,  
David Kline*
- Special Course — Anterior  
Thoracolumbar Instrumentation**  
Director: *David Cabill*
- 6:30 PM–9:00 PM        **Opening Reception**

## THURSDAY, FEBRUARY 29, 1996

- 6:30 AM–7:15 AM        **Continental Breakfast —  
View Exhibits and Posters**
- 6:30 AM–4:15 PM        **Exhibits and Posters**
- 7:15 AM–7:25 AM        **Joint Section Chairman's Welcome**
- 7:25 AM–7:30 AM        **Scientific Program Chairman's  
Welcome**
- 7:30 AM–10:00 AM      **SYMPOSIUM I**  
Co-Moderators: *Vincent Traynelis,  
Charles L. Branch, Jr.*
- BONE**
- 7:30 AM–7:50 AM        **Biology of Bone Healing**  
*Perry A. Ball*
- 7:50 AM–8:10 AM        **Bone Trophic Factors and Proteins as  
an Adjunct to Bone Fusion**  
*Scott D. Boden*
- 8:10 AM–8:30 AM        **Bone Substitutes**  
*Regis W. Haid, Jr.*
- 8:30 AM–8:40 AM        **Panel Discussion**
- 8:40 AM–9:00 AM        **The Role of Electromagnetic  
Stimulation in Spinal Fusion**  
*Hansen Yuan*
- 9:00 AM–9:20 AM        **Smoking, Bone Healing, and Spinal  
Fusion**  
*Mark N. Hadley*
- 9:20 AM–9:40 AM        **Autograft and Allograft**  
*Nevan G. Baldwin*
- 9:40 AM–9:50 AM        **Panel Discussion**
- 9:50 AM–10:05 AM      **Chairman's Address**  
*Arnold H. Menezes*
- 10:05 AM–10:30 AM     **Break — View Exhibits and Posters**

- 10:30 AM–12:36 PM     **CONTRIBUTED PAPERS**  
Moderators: *Stephen Papadopoulos,  
Brian G. Cuddy*
- 12:40 PM–1:30 PM      **LUNCH**
- 1:30 PM–3:30 PM        **SYMPOSIUM II**  
Moderators: *Gary Rea,  
Paul McCormick*
- CLINICAL TOPICS IN  
MALIGNANCY**
- 1:30 PM–1:50 PM        **Metastatic Spinal Tumors —  
Nonoperative Management**  
*Thomas N. Byrne*
- 1:50 PM–2:10 PM        **Metastatic Spinal Tumors —  
Surgical Decision Making**  
*David W. Cabill*
- 2:10 PM–2:20 PM        **Panel Discussion**
- 2:20 PM–2:40 PM        **Irradiation Brachial Plexus and  
Malignant Brachial Plexopathy:  
Evaluation and Management**  
*David G. Kline*
- 2:40 pm–3:00 PM        **Primary Spinal Tumors**  
*Richard G. Fessler*
- 3:00 PM–3:20 PM        **Sacral Tumors**  
*Ziya L. Gokaslan*
- Panel Discussion**
- 3:20 PM–3:30 PM        **Break — View Exhibits and Posters**
- 3:30 PM–3:45 PM        **CONTRIBUTED PAPERS**  
Moderators: *Allan H. Friedman,  
Robert B. Snow*

## FRIDAY, MARCH 1, 1996

- 6:30 AM–7:30 AM        **Continental Breakfast —  
View Exhibits and Posters**
- 6:30 AM–1:30 PM        **Exhibits and Posters**
- 7:30 AM–10:00 AM      **SYMPOSIUM III**  
Moderators: *Richard Saunders,  
Randall Chestnut*
- CONTROVERSIES**
- 7:30 AM–7:35 AM        **Unilateral Cervical Facet Dislocation:  
Case Presentation**
- 7:35 AM–7:45 AM        **Aggressive Reduction**  
*Richard A. Balderston*
- 7:45 AM–7:55 AM        **Nonaggressive Reduction**  
*Dennis J. Maiman*
- 7:55 AM–8:05 AM        **Discussion**

# 12TH ANNUAL MEETING PROGRAM SCHEDULE

8:05 AM–8:10 AM Thoracic Outlet Syndrome: Case Presentation

8:10 AM–8:20 AM Thoracic Outlet Syndrome: Operative Management  
*James N. Campbell*

8:20 AM–8:30 AM Thoracic Outlet Syndrome: Nonoperative Management  
*Russell W. Hardy, Jr.*

8:30 AM–8:40 AM Discussion

8:40 AM–8:45 AM Thoracic Disc Herniation: Case Presentation

8:45 AM–8:55 AM Thoracic Disc Herniation: Posterolateral Approach  
*H. Louis Harkey III*

8:55 AM–9:05 AM Thoracic Disc Herniation: Transthoracic Approach  
*Russell W. Hardy, Jr.*

9:05 AM–9:15 AM Thoracic Disc Herniation: Thoracoscopic Approach  
*Curtis A. Dickman*

9:15 AM–9:25 AM Discussion

9:25 AM–9:30 AM Thoracic Burst Fracture: Case Presentation

9:30 AM–9:40 AM Thoracic Burst Fracture: Operative Management  
*David W. Cabill*

9:40 AM–9:50 AM Thoracic Burst Fracture: Nonoperative Management  
*Patrick W. Hitchon*

9:50 AM–10:00 AM Discussion

10:00 AM–10:30 AM Break — View Exhibits and Posters

10:30 AM–12:00 NOON CONTRIBUTED PAPERS  
Moderators: *Richard H. Tippets, Nancy Epstein*

12:00 NOON–12:10 PM Joint Section Spine Fellowship Award Presentation  
*Dennis G. Vollmer*

12:10 PM–12:20 PM Mayfield Award Presentation  
*Dennis G. Vollmer*

12:20 PM–12:35 PM Basic Mayfield Award Talk

12:35 PM–12:50 PM Clinical Mayfield Award Talk

12:50 PM–1:00 PM Discussion: Mayfield Presentations

1:00 PM–1:30 PM Annual Business Meeting

2:00 PM–5:00 PM Special Course — Spinal Biomechanics  
Director: *Edward C. Benzel*

2:00 PM–5:00 PM Special Course — Cervical Stabilization  
Director: *Curtis A. Dickman*

6:30 PM–11:00 PM Annual Reception and Banquet

## SATURDAY, MARCH 2, 1996

6:30 AM–7:30 AM Continental Breakfast — View Exhibits and Posters

6:30 AM–11:00 AM Exhibits and Posters

7:30 AM–10:00 AM SYMPOSIUM IV  
Moderators: *Volker K.H. Sonntag, Gerald Rodts*

NEW FRONTIERS IN SPINAL SURGERY

7:30 AM–7:45 AM Practice Guidelines  
*Richard M. Toselli*

7:45 AM–8:00 AM Outcome Research in Spinal Surgery  
*James N. Weinstein*

8:00 AM–8:15 AM Cost Analysis for Lumbar Fixation  
*Thomas A. Zdeblick*

8:15 AM–8:30 AM Panel Discussion

8:30 AM–8:45 AM Thoracoscopic Approaches  
*Dan Rosenthal*

8:45 AM–9:00 AM Foraminoscopic Approaches  
Maurice Smith

9:00 AM–9:10 AM Panel Discussion

9:10 AM–9:25 AM Artificial Disc Replacement  
*Thierry Marnay*

9:25 AM–9:40 AM Cervical Stereotaxis  
*Kevin T. Foley*

9:40 AM–9:55 AM Lumbar Interbody Fusion Devices  
*Robert A. McQuire*

9:55 AM–10:10 AM Panel Discussion

10:10 AM–10:45 AM Break — View Exhibits and Posters

10:45 AM–1:00 PM CONTRIBUTED PAPERS  
Moderators: *James P. Hollowell, Richard K. Osenbach*

2:00 PM–5:00 PM Special Course — Image Guided Sterotaxis  
Director: *Iain H. Kalfas*

2:00 PM–5:00 PM Special Course — Lumbar Pedicle Screw Fixation  
Director: *Regis W. Haid, Jr.*

2:00 PM–5:00 PM Special Course — Thoracoscopic Spinal Surgery  
Director: *Noel I. Perin*

## Chondrosarcoma of the Spine: 50-Years Experience at a Major Cancer Center

Rasim H. Berk, Ziya L. Gokaslan

The primary chondrosarcoma (CS) of the spine is an extremely rare tumor. Over the past 50 years at the M.D. Anderson Cancer Center, 23 patients with primary CS of the spine were seen. The purpose of this study was to review the effectiveness of the various treatment modalities.

Of these, 21 patients' medical records were available for review. The mean age was 48.5 (15-75) with equal sex representation. Five of 21 had radical excision with clean margins. Four of 21 had attempted radical excision with residual tumor at the margins. The remaining 12 of 21 patients had intralesional debulking. Thirteen of 21 patients received XRT in addition to surgery, 5 of 13 with attempted radical excision and 8 of 13 with intralesional debulking. Four of 21 patients received chemotherapy.

The 5-year survival rates for patients with attempted radical excision (with or without clean margins) and those with intralesional debulking were 77% (7/9) and 33% (4/12), respectively. Of those patients who received intralesional debulking and CRT (8/13), 1 was alive at 5 years. Of those who had intralesional surgery but no XRT (4/12), again, only 1 was alive at 5 years. Five of 13 patients who received XRT in addition to the attempted radical resection, all were alive at 5 years. Of the remaining 8 patients who did not receive XRT in addition to their radical surgical treatment, again 7 out of 8 were alive at 5 years. All of the patients who received chemotherapy in addition to other treatment modalities (4/21) died at 5 years.

Our results indicate that attempted radical resection even with residual margin disease would offer the best chance for overall 5-year survival. Intralesional debulking should be avoided whenever possible since it is associated with a poor outcome. Addition of XRT does not improve the overall survival.

## Tracheostomy with Anterior Cervical Instrumentation

Andrew S. Zelby, T.C. Origitano

Anterior cervical instrumentation has greatly evolved over the past several years through the development of new devices and the application of these devices to more disease processes. Larger numbers of neurosurgeons have become familiar with their use. Many of these cases are performed for traumatic spinal instability associated with spinal cord injury. These patients are frequently intubated for prolonged periods of time and require tracheostomy. A tracheostomy associated with anterior cervical fixation raises great concern for infection, which would require long-term antibiotics as well as removal of the instrumentation devices.

In an effort to assess the risk of infection with anterior cervical instrumentation associated with tracheostomy, we retrospectively reviewed our records of patients with acute spinal cord injury. Over the past 4 years, 81 patients were treated with anterior stabilization.

Seven (8.6%) underwent either tracheostomy or elective surgical cricothyrotomy after a prior anterior cervical plating procedure. Tracheostomy incisions were both horizontal and vertical. No patient had an infection associated with their tracheostomy and no instrumentation was removed. All patients were eventually decannulated and the tracheostomy scars healed without complications.

Our data show that tracheostomy following anterior cervical instrumentation is not associated with an increased risk for infection. Tracheostomies were performed with careful attention to tissue planes. If an anterior approach is preferable to treat a specific patient, tracheostomy following instrumentation is safe and concerns regarding prolonged intubation and tracheostomy should not dissuade the surgeon from an anterior procedure. Anterior cervical instrumentation remains a safe and effective method of decompressing and stabilizing the spinal canal without increased risk for infection associated with tracheostomy.

## Surgical Management of Cervical Spondylitic Myelopathy in Patients with Cervical Dystonias

Russ P. Nockels, Lawrence H. Pitts, Ellen Mack

Cervical dystonias (CD) are known to be associated with accelerated cervical spondylosis. Decompression along in patients with progressive spondylitic myelopathy and CD has led to cervical instability and worsening symptoms in long-term follow-ups. Efforts to provide perioperative fixation utilizing bone grafting and external orthoses have resulted in failure of bony fusion due to persistent postoperative patient movement. We describe the course of 3 patients with such a syndrome who were successfully treated with a combination of decompression, posterior stabilization utilizing lateral mass plates, and perioperative injection of cervical musculature with botulinum toxin (BOTOX). The patients ranged in age from 34-51 years, had protracted chronic dystonias due to cerebral palsy (2 patients) and kernicterus (1 patient), and had developed significant functional impairments resulting in a diagnosis of progressive myelopathy.

Preoperative imaging demonstrated multisegmental spondylosis resulting in severe cervical spinal cord compression in all patients, and cervical instability in 2 patients. All 3 patients underwent decompression, 1 from anteriorly and 2 from posteriorly, and all underwent lateral mass fusion spanning the motion segments involved in the decompression and/or preoperative instability. Approximately 3 weeks prior to the operative procedure all patients underwent injection of botulinum toxin into spastic cervical muscles. This resulted in a significant reduction in neck spasms beginning an average of 1.5 weeks following injection and obviated the need for a postoperative halo device. Two patients required repeated injections to control recurrent cervical dystonias at an average of 3.5 months following surgery. All patients were eventually discontinued from their external orthoses at 6 months, and none experienced dislodgment of the posterior instrumentation despite recurrence of the dystonias in an average follow-up of 36 months. We recommend the following: (1) a high degree of clinical suspicion for cervical spondylitic myelopathy be considered in deteriorating patients with dystonias, (2) preoperative evaluation includes MRI and flexion/extension plain radiographs to guide the number of segments for decompression and fusion, (3) BOTOX injection into symptomatic muscles should occur at least 2 weeks prior to the planned operation, (4) the choice of decompression, whether anterior or posterior, should account for the predominant compressive pathology, and (5)

The Joint Section of Disorders of the Spine and Peripheral Nerves has set aside a fund to provide grant money for one to two grants per year in the range of \$15,000 to \$30,000. The intent of these grants are to: (1) provide seed money to help initiate clinical projects related to the spine and peripheral nerves, (2) provide a means of peer review of clinical research projects to help improve the quality of the proposal and, therefore, enhance its competitiveness for National Institutes of Health (NIH) or other funding, and (3) continue funding on a yearly basis to establish the "Joint Spine Section" as a known funding source for quality clinical research to answer questions in the treatment of disorders of the spine and peripheral nerves.

Grants under this program would be directed to individual neurosurgeons who are the principle investigators of planned clinical studies requiring national level funding in order to be completed. Planning funds would be intended to support preparation of the grant proposals, external consultations (i.e. biostatistical consultation) to assist in the development of the proposal, planning meetings, and the collection of pilot data. Work that can be completed

The Ninth Annual International Intradiscal Therapy Society (IITS) meeting will be held May 8–12, 1996, in Amsterdam, Holland. The IITS designates this educational activity for 20 credit hours in category 1 of the physician's Recognition Award of the American Medical Association.

At this meeting, the IITS will award the Eugene J. Nordby, MD, Research Award, which is available to residents, fellows, interns, or registrars who are in training. Any applicant in training who wishes to compete for this award should submit to the program committee a research paper dealing with a personally conducted study which may be either clinical or experimental but must be pertinent to the anatomy, physiology, pathology, or some other scientific aspect of the intervertebral discs.

Deadline for this application is January 30, 1996. The winner shall present their paper at the meeting in

without such support (such as literature review and preliminary protocol design) should be completed prior to applying for such a grant. Evidence that this work has been completed will be a primary factor in assessing the quality of the planning grant. The actual work of the proposed study should not be supported by this grant.

The format of the proposal should follow that of the NIH grant package. Specifically, applications should not exceed five (5) single-spaced pages. Within these pages should be included the specific aims, pertinent literature review and prior studies review, a brief summary of the proposed study, a plan for utilization of the funds, and a detailed budget and budget justification.

Please send proposals and questions to:  
Richard G. Fessler, MD, PhD  
Department of Neurological Surgery  
Box 100267, JHMH  
University of Florida  
Gainesville, Florida 32610

Amsterdam and will receive round-trip coach airfare to Amsterdam, four nights hotel accommodations, and the \$1000 award.

The International Intradiscal Therapy society is a medical education society made up of over 340 members with a focus on research, education, and treatment of disc diseases. It is an international, multi-disciplinary organization including orthopedic surgeons, neurological surgeons, radiologists, anesthesiologists, rheumatologists, and other health care professionals.

Questions regarding this award should be addressed to:  
Michael J. Jerva, MD  
Program Committee Chairman  
P.O. Box 679  
Grayslake, Illinois 60030-0679  
Phone: (708)-223-2684

*(area code will change to 847 on January 20, 1996)*

## BOOK REVIEW

### Essentials of the Spine

Reviewed by: *Gunwant Mallik, MD*  
Editors: *James N. Weinstein, Bjorn L. Rydevik, Volker K.H. Sonntag*  
Publisher: *Raven Press*

There is an ever growing body of literature concerning biomechanics and pathophysiology of the spine. Several books that have been published to date are written for the specialist in spinal disorders.

*Essentials of the Spine* is a paperback volume that filters the current body of literature into eleven (11) concise chapters covering topics from epidemiology and pathophysiology to the treatment of spinal disorders. Every chapter has key points outlined at the onset that clearly summarize the chapter. Illustrations are ample and aid in the understanding of basic concepts presented. The authors emphasize the role of the history and physical exam and clearly put into perspective the role of diagnostic modalities in the evaluation of patients.

The chapter "Diagnosis and Management of Cervical and Lumbar Disease" is well written and the treatment algorithms provide a clear summary of the chapter. Two chapters are devoted to management of syndromes related to spinal stenosis and herniated disc. The chapter on deformities of the spine has an excellent discussion on the management of scoliosis. There are thirty (30) case presentations at the end with questions and answers that reinforce some of the concepts and facts presented in the book.

The author falls short in covering topics such as spinal tumors, infections, and trauma management. The pathophysiology and management of spinal cord syndromes are only briefly mentioned.

This book is an easy to read text that provides a bridge from basic to more advanced concepts of spinal disorders designed as an introductory text for the use of medical students, residents, internists, emergency medicine physicians, and anyone who is interested in getting an understanding of spinal disorders.

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**Joint Section on Disorders of the  
Spine and Peripheral Nerves  
of the AANS and CNS**  
22 South Washington Street  
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