From the Program Chair

The 26th Annual Meeting of American Association for Hand Surgery will be held January 11 - 13, 1996 in Palm Springs, California. It will be hosted by The Marriott Desert Springs Resort and Spa, a spectacular desert oasis with man-made lagoons and gardens, golf courses and tennis courts, and a full-service spa. Imagine taking a boat at sunset to the dining room! There will be two free afternoons for meeting participants to enjoy their surroundings.

The scientific program will emphasize the practical issues encountered daily by hand surgeons. New facets will be featured in every aspect of the program. The popular expert panels, bioskills workshops, and instructional courses have been expanded, with topics selected from member surveys. A record number of abstracts were submitted to the Program Committee this year, which labored to select a group of outstanding papers and posters on the latest clinical studies and basic research in upper extremity surgery.

A series of stimulating speeches from distinguished authorities has been planned. Among the speakers is J. Greg Ganske, MD, an active AAHS member. Dr. Ganske had been a hand surgeon in Des Moines, Iowa for ten years when he was elected to the US House of Representatives in 1994. A member of the Congressional Health and Environment Subcommittee, Congressman Ganske will address his colleagues on Is There a Doctor in the House?

Please join us in what promises to be a superb meeting in Palm Springs!

W. P. Andrew Lee, MD
Program Chair

Peter C. Amadio, MD
Forst E. Brown, MD
Richard S. Idler, MD
Jesse B. Jupiter, MD
Susan E. Mackinnon, MD
Christine B. Novak, PT
Rod J. Rohrich, MD
Miguel J. Saldana, MD
Allen L. Van Beek, MD
Nicholas B. Vedder, MD

(Scientific panel and instructional course listing on page 4)

July Board meeting agenda aimed at progress

Educational programs and association policies were the focus of the AAHS July Board of Directors meeting. AAHS President James W. May, Jr., MD began the meeting by presenting a new program developed by the Association of Academic Chairmen in Plastic Surgery (AACPS) PREPS — Positive Resident Education in Plastic Surgery.

“The project is focused on allowing residents who are currently engaged in active residency to attend all teaching activities sponsored by national organizations at no educational tuition cost,” explained Dr. May in his report to the Board. “This excludes programs which are for residents only and excludes costs incurred by the national organizations related to social activities or direct costs of educational equipment such as cadaver specimens, operative tools, etc.”

The program would be offered to residents only, not fellows, on a first come, first serve basis, and is suggested not to exceed 15% of total meeting attendance. Board response was positive. However, given the composition of the AAHS membership, it was suggested that a similar program be offered for general and orthopedic residents as well.

(continued on page 6)
The coming crisis

Few American physicians are aware that most raw materials, e.g. silicone and Teflon®, are no longer available for use in the manufacture of implantable medical devices. As an aftermath of the silicone gel breast implant crisis, product liability suits have expanded to include the raw materials manufacturer and the manufacturers, in turn, have made the only prudent business decision — get out of the marketplace.

The problem

Let’s put this impeding crisis in perspective. The raw material supplier was brought into the courtroom along with the manufacturer. To illustrate how onerous this burden has become consider E. I. Dupont, Inc., the manufacturer of Teflon®. In 1993, Dupont realized approximately $385,000 in profits from the sale of Teflon® fabric for medical usage. In the same year, the legal fees for defense preparation exceeded $8.5 million! They withdrew the sale of Teflon® for “end” medical device purposes on January 31, 1995 unless the “end-product” manufacturer agreed to “hold DuPont harmless” for all liability.

DOW Chemical, supplier of silicone, took the same action two years ago.

To the best of available knowledge, medical device availability in the United States is currently limited to available stock supplies. The “best guess” estimates placed supply availability at 6 to 18 months. The products at risk for supply exhaustion are used in almost all medical specialty areas with a seemingly endless list. In hand surgery, joint implants, tendon rods and vascular prostheses are likely to be affected.

The current solution

The short term solution is obviously torte reform. Each body of the US Congress has passed a product liability torte reform package which leave slight variations.

The House bill (HR 956) has the following provisions stated simply:

- Limiting liability of biomaterial suppliers.
- Establishing FDA defense which eliminates punitive damages against manufacturers who comply with FDA rules.
- May not apply where information is withheld or where fraud is proven.
- Establishes punitive damages cap set at 3X amount of economic damages or $250,000 which ever is greater.
- Elimination of joint liability of non-economic losses, i.e. pain and suffering.
- Now raw material manufacturers are only responsible for that portion of damages caused by their conduct (preventing “deep pockets” law suits).
- Establishing a $250,000 cap on non-economic damages in medical malpractice.

The Senate bills (SR 565 & 303) provided:

- Language establishing a modified punitive damage cap set at 2X economic damages and non-economic damages combined or $250,000 which ever is greater.
- Judges could order higher damages if they determined conduct was “egregious” and cap damages would neither deter or punish the defendant.
- Punitive damages would not exceed $250,000 for small business (25 or smaller) or individuals who’s net worth was less than $500,000.
- Elimination of joint liability for non-economic losses in pain and suffering awards.
- Manufacturers would only be responsible for that portion of the damages that their conduct actually caused.

Resolutions of these subtle difference await a Joint Conference Committee which is not scheduled to meet until late Fall, 1995. Actual passage may not occur until early 1996.

Both the American Medical Association and the American College of Surgeons have issued statements calling upon the Congress and the President to expedite passage so the raw material supply stream can be restarted.

The Health Industry Manufacturers Association (HIMA) has formed a task force of interested medical specialties including plastic surgery, orthopedic surgery and general surgery representatives, to monitor the severity of the problem and to assist in lobbying efforts in Congress. But the most effective lobbying comes from you, practicing hand surgeons and direct patient advocates, directed to your Senators and Representatives. If you have direct contacts, tell them of the potential crisis in patient care that looms on the horizon. Emphasize the “lag time” that will exist in re-establishing the supply stream. If you need substantiating documentation of this major issue, contact me: I’ll be happy to provide it for you.
Educational activities for the future

On July 15, 1995 the Board of the AAHS met in Chicago to finalize plans for the 1996 Palm Desert Annual Meeting, in addition to reviewing the agenda for educational activities for the future.

The 26th Annual Meeting to be held in Palm Desert, January 11-13, 1996, has received a record number of abstracts. From those abstracts received, 74 papers have been selected by W. P. Andrew Lee, MD for presentation. This meeting also promises to be an outstanding educational experience in that a record number of instructional courses are being given, ranging from managed care negotiations to wrist arthroscopy. In addition to the Keynote Lecturer, Michael Harrison, MD from the University of California at San Francisco speaking on *Frontiers in Fetal Surgery,* and the President’s Invited Lecturer, David Evans from England, presenting *Management of Congenital Malformations,* Congressman Greg Ganske, a member of the AAHS, will be speaking on the functioning of our federal government as it relates to hand surgery, a view from within.

Dr. Lee has arranged the program in such a way that there will be ample free time to enjoy the beautiful Palm Desert area. We are expecting a record turn-out for this meeting.

At the summer board meeting, the Board reviewed the Cumulative Trauma Disorder symposium to be held in Cincinnati, OH, August 11-13, 1995, and heavily subscribed. We also reviewed the hand trauma symposium entitled *Tissue Loss and Its Management,* to be held in Breckenridge CO, March 21-24, 1996.

Allen T. Bishop, MD reports an exciting faculty with a promise from Dr. Bishop for excellent skiing conditions.

The Board also decided to form a 501(c)(3) corporation. This will allow contributions, bequests, and gifts to the Hand Association in the proposed form of an endowment to foster the educational goals of the organization and to provide a mechanism for members and other contributors to give to our organization. At the annual meeting, members will vote whether a formal giving campaign should be pursued. The meeting was adjourned to a lovely dinner at Rico’s and the Executive Committee and Board are indebted to Robert R. Schenck, MD for his assistance in organizing a most productive summer board meeting.

We look forward to an outstanding scientific meeting in Palm Desert, and I look forward to seeing all of you on January 11, 1996.
### 1996 AAHS Instructional Courses

#### Thursday, January 11, 1996

**Bioskills Workshop: Internal Fixation of Small Bones in the Hand (Sponsored by AO/ASIF)**
- Jesse B. Jupiter, MD
- W. P. Andrew Lee, MD
- Peter J. Stern, MD
- Mark S. Cohen, MD

**Bioskills Workshop: External Fixation of the Hand and Upper Extremity (Sponsored by EBI)**
- William F. Blair, MD
- Brian Adams, MD

**The Fundamentals of Coding for Hand Surgery**
- Laurel Ferris, MA

**Managed Care and the Hand Surgeon - How to Thrive, Not Just Survive**
- Charles A. Hergreuter, MD
- David Yarin, MBA

**Management of Complex Peripheral Nerve Injuries**
- Susan E. Mackinnon, MD
- Allen L. Van Beek, MD
- Christine B. Novak, PT, MS

**Advances in the Microsurgical Management of Brachial Plexus Injuries**
- Julia K. Terzis, MD, FRCS(C), PhD

**Wrist Surgery in Rheumatoid Arthritis: Current Concepts**
- Robert H. Brumfield, MD
- Robert D. Beckenbaugh, MD
- Forst E. Brown, MD
- Jules S. Shapiro, MD

**Carpal Instability and Wrist Arthritis**
- Mark E. Baratz, MD
- Allen T. Bishop, MD
- Richard A. Berger, MD
- Joseph E. Imbriglia, MD

**Athletic Injuries in the Hand and Wrist**
- Ronald E. Palmer, MD
- William J. Morgan, MD
- Lance G. Warthold, MD
- Thomas F. Breen, MD

**Management and Rehabilitation of Hand Fractures**
- Alan E. Freeland, MD
- David A. Fenno, MD
- Edward M. Campbell, MD
- Maureen A. Hardy, MS, PT

**Soft Tissue Coverage of the Upper Extremity**
- William M. Swartz, MD
- Robert C. Russell, MD

**The Hand in Art: Through the Ages**
- Benisse Lester, MD, BFA

#### Friday, January 12, 1996

**Bioskills Workshop: Internal Fixation of Small Bones in the Hand**
- Jesse B. Jupiter, MD
- W. P. Andrew Lee, MD
- Peter J. Stern, MD
- Mark S. Cohen, MD

**Bioskills Workshop: External Fixation of the Hand and Upper Extremity**
- William F. Blair, MD
- Brian Adams, MD

**Finessing the Financials: Getting Paid for What You Code**
- Laurel Ferris, MA

**Practical Wrist Arthroscopy**
- Richard S. Idler, MD
- A. Lee Osterman, MD
- Douglas C. Ross, MD, FRCSC
- Bing Siang Gan, MD, PhD

**Cumulative Trauma Disorders: Current Issues**
- Peter C. Amadio, MD
- Morton L. Kasdan, MD
- Peter A. Nathan MD

**Reconstruction of the Burned Hand in Children and Adults**
- Roger L. Simpson, MD
- Bruce W. Brewer, MD

**Surgical Repair and Rehabilitation of Extensor Tendon Injuries**
- Miguel J. Saldana, MD
- Jimmy Chow, MD
- Cynthia D. Alexander-Garrett, MS, OTR, CHT

**Dynamic Traction for Treatment of Intra-articular Fracture Dislocations**
- Robert R. Schenck, MD
- Laura Kearney, OTR, CHT

**Sympathetically Maintained Pains: Reflex Sympathetic Dystrophy and Causalgia**
- Mark E. Fogleosong, MD

**Infections of the Hand and Upper Extremity**
- Mark H. Gonzalez, MD
- Norman Weinzweig, MD

**Pathogenesis, Diagnosis, and Management of SLAC Wrist**
- Nash H. Naam, MD
- Richard Brown, MD
- Mark Greaming, MD

**Digital Lengthening Through Distraction**
- Norman J. Cowen, MD
- Mary K. Sorenson, RPT
- Nancy A. Calabrese, RN, BSN

**External Fixation in the Hand and Wrist**
- Douglas M. Rothkopf, MD
- Duffield Ashmead, MD
- William J. Morgan, MD
Why an endowment now?

Until now it has not been possible for those wishing to make gifts to the American Association for Hand Surgery, to do so and have them tax-deductible. Sensing this need, the AAHS Board of Directors has established the Hand Surgery Endowment under Section 501(c)(3) of the Internal Revenue Code. Now members and others will have the opportunity to make gifts and receive tax deductions. The earnings from these gifts will be used to further the educational purposes of the American Association for Hand Surgery.

Why is an endowment needed?

In the changed landscape of hand surgery today, we are bombarded with managed care, capitation, PHOs, HMOs, health care reform, malpractice litigation, corporate practice of medicine, fee reduction, mergers, and loss of autonomy. All these translate into diminished financial returns, giving rise to one more new term we must now acknowledge — it is called prioritization.

Until now most of us had adequate resources to attend several, if not many, national society meetings each year. But some surgeons have already had to limit the number of meetings they can afford to attend each year. The AAHS has always had an informative and stimulating annual meeting that was well-attended. However, if these outside pressures continue to mount, this scenario could quickly change.

What will the endowment do?

Individually, each member can only do a limited amount to change the landscape described above. The Hand Surgery Endowment offers members the opportunity to act collectively to ensure our future educational endeavors. For the majority of Association members, our annual meeting serves as their primary opportunity to learn new developments in hand surgery. Residents often have inadequate sources for registration fees for our meetings and courses, and the endowment can help fill this need. A number of other organizations have already identified the threat to their viability and taken steps. The AAHS Hand Surgery Endowment is an idea whose time has come.

How will the funds be used?

The Hand Surgery Endowment has been rather uniquely designed so that no less than 90% of the principal generated from gifts will be kept in perpetuity and can never be spent. The earnings from this 90% or more will be used to further the educational aims of the Association. This means that only 10% or less will be expedited on administration and fund raising costs, which is in marked contrast to some other medical foundations that spend nearly 50% of their receipts on administration and fund raising costs! The low overhead of the Hand Surgery Endowment will encourage donors as they realize that nearly all of their gifts will be added to the principal, and that maximal earnings generated from their donations will be used to ensure the economic viability of our Association’s educational endeavors.

Will this endowment conflict with others?

Viewed superficially, any request for funds could be considered competitive with other endowments, such as the National Endowment for Plastic Surgery. However, the AAHS membership consists of general, orthopaedic and plastic surgeons. In addition, the Hand Surgery Endowment’s purpose is educational, and not research as for example that of the ASSH’s American Foundation for Surgery of the Hand.

How will the endowment grow?

There will be two basic ways to increase the Endowment: contributions and wills and bequests. Individual contributions will be the most successful way to quickly build-up the principal in the Hand Surgery Endowment account. Already one donor has pledged $20,000 to get the Endowment started.

Through a provision in their will or by specific bequest, Association members or their families, and other interested individuals can specify funds be donated to the Hand Surgery Endowment. This mechanism predicates a time delay, of varying length, before these funds would be available to the Endowment, however the sums of money generated through wills and bequests could become quite large.

Who will govern the endowment?

There will be a five-member Endowment Board of Governors, approved by the Association Board of Directors, with at least one being a Past Association President.

How can I get more information?

The Hand Surgery Endowment has been established, and the endowment campaign will be presented to the members for discussion and approval at the Annual Business Meeting in Palm Springs, January 13, 1996. Please remember to attend this meeting. Your input will be valuable in giving guidance for the future development of the Hand Surgery Endowment. To obtain more information now, please direct your suggestions and questions to:

Robert R. Schenck, MD
Professional Building Room 263
1725 West Harrison Street
Chicago, IL 60612
Telephone (312) 738-3426
Fax (312) 738-7298.
(continued from page 1)

**Education Committee**

Education Committee Chair, Allen T. Bishop, MD, reported that meeting plans beyond the 1996 Palm Springs Annual Meeting include the 1996 winter trauma meeting in Breckenridge, a 1996 Cumulative Trauma Symposium in Pittsburgh, a trauma meeting planned for 1997, and developing ideas for the 1998 IFSSH post-congress meeting.

Most significantly, Dr. Bishop reported on continuing talks with the AAOS Skills Lab committee to pursue a wrist skills lab course within their course format. The course would be directed specifically toward hand specialists rather than general orthopedic and plastic surgeons. New advances in arthroscopic surgery, vascularized bone grafting, etc. could therefore be presented, along with basic exercises. The course would be run by the AAHS, with proposed joint sponsorship by the AAHS and AAOS, and use of the AAOS skills lab facility in Rosemont, IL. The Board was extremely receptive to this type of course.

**Annual Meetings**

1996 Annual Meeting Program Chair W. P. Andrew Lee, MD noted plans for Palm Springs are developing well, and that a record 201 abstracts and 22 offers for instructional courses were received. (See pages 1 and 4 for more information.)

Although Annual Meeting plans for 1996 are not yet complete, future annual meeting sites are already under consideration. Time and Place Committee Chair Robert D. Beckenbaugh, MD, reported that the Boca Raton Resort and Beach Club in Boca Raton, FL, was selected as site for the 1997 Annual Meeting. Proposed sites approved by the Board for subsequent years are as follows: 1998, Phoenix, AZ in a combined meeting with the American Society for Reconstructive Microsurgery; 1999, Hilton Waikoloa Village on the Big Island of Hawaii, HA; and 2000, Caesar’s Park Hotel and Resort, Cancun, Mexico.

**25 year history**

AAHS Historian, Alan E. Freeland, MD presented plans to publish a 25 year history of the Association. Current options being investigated include the use of an outside publisher. The history would serve as database for future reference and publications as well as a historical instrument in documenting the Association’s growth and progress.

**Hand Therapy Committee**

The Hand Therapy Committee reported that applications for the Vargas International Hand Therapist Teaching Award will be mailed in the near future to AAHS Affiliate Members. Based on applications received, a recommendation for the award will be made to the Board prior to the 1996 Palm Springs Annual Meeting.

Also addressed was the issue of decreased attendance at the Hand Therapy Pre-Conference Seminar in Marco Island. Although Affiliate Member attendance at the Annual Meeting remains constant, pre-conference attendance has sharply reduced. In an effort to better accommodate the Hand Therapy Seminar, it will be conducted during the last day of the 1996 Annual Meeting; the topic — Peripheral Nerve Update.

Also, the Hand Therapy committee requested and received assistance to provide travel expenses for invited speakers to the Hand Therapy Conference during the Annual Meeting. It is hoped that by providing travel expenses, invited speakers will be more agreeable to presenting at the meeting.

**Finance Committee**

Robert R. Schenck, Finance Committee Chair, provided a detailed report recommending the establishment of an AAHS foundation and development of an endowment. The foundation would serve as a means for the Association to receive tax deductible gifts and contributions, as well as wills and bequests, to further the goals of the Association. The establishment of a foundation for the AAHS was approved by the Board. (For more on endowment plans see page 5.)

**Marketing and Membership**

The marketing and membership committees have embarked on a cooperative effort to expand the membership of the Association, and to specifically interest residents and fellows in the Association and it’s programs. The initiative has been made to introduce fellows and residents to Hand Surgery Quarterly and offer complimentary subscriptions to the publication.

The Central Office also proposed that a Corporate Membership category be established, as well as formation of an Industrial Relations Committee to allow vendors to make suggestions and voice opinions. Also, a corporate sponsorship program was presented to allow sponsors to receive benefits including greater exposure and access to the membership. Both were approved by the Board.

The Board also approved several policies proposed by the Central Office to clarify issues related to complimentary registration and research grant reporting.

**Hand Surgery Quarterly**

HSQ Editor, James G. Hoehn, MD reported with pleasure that Forst E. Brown, MD accepted the role of Associate Editor for the Around the Hand Table panel. Dr. Brown will select and field suggestions for panel topics, as well as invite moderators and
collaborate with those moderators to secure panelist for participation.

**Primary care outreach**

Topics for primary care educational courses on the hand and wrist were presented by Robert D. Beckenbaugh, MD, Chair of the Ad Hoc Committee, Educational Outreach to Primary Care Physicians. Core subjects indentified for the slide presentation courses include:

- Algorithm for the management of wrist injuries
- Management of Colles’ fractures
- Assessment and management of burns of the hand
- Assessment and treatment of tendon and nerve injuries of the digits
- Management of fractures and dislocations of the digits and thumb
- Fingertip injuries
- Assessment of lumps and bumps around the hand
- Diagnosing and treating arthritis of the hand and wrist
- Evaluation and management of repetitive stress syndrome

The slide presentation courses will be available through the AAHS Central Office for members planning lectures to their local primary care physicians. Plans are progressing for a three-hour symposium to be presented in September at the annual meeting of the American Academy of Family Physicians. Dr. Beckenbaugh reported that the Hand Society has expressed an interest in a cooperative effort with the Association in this outreach effort.

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### 1997 Application for Research Grants

Annual research awards will be made by the Research Committee of the American Association for Hand Surgery. Awards were established to further the purpose of the Association as stated in its Bylaws and to foster creativity and innovation in basic and/or clinical research in all areas pertinent to hand surgery.

#### Awards and Eligibility

Grants will be made for a one year period to three investigators. Grants are available to all AAHS members. One of the investigators must be an active or affiliate member of the association.

#### Grant Application

Applications must be obtained from:

American Association for Hand Surgery  
444 East Algonquin Road, Suite 150  
Arlington Heights, Illinois 60005

Applications (original plus four copies) must be received by the committee chair no later than Friday, September 13, 1996, in order for the judging to be completed in time and the recipients to be announced at the Annual Meeting.

The AAHS and the Research Committee are required by the IRS to document disbursement of grant funds. Award recipients will be required to sign a letter of acceptance and submit a progress report once a year. The AAHS must be acknowledged as the source of funding in any presentation or publication. A final report must be submitted at the completion of the study. It is expected that the results of the funded research be submitted for presentation at an Annual Meeting within two years of the receipt of the award.

Funds must be returned to the AAHS if the study is not undertaken within twelve months of the receipt of the award.

Failure to follow these guidelines will disqualify the recipient from any further grant opportunities and from presenting any papers at the AAHS Annual Meeting for a period of three years following such default.

#### Mail Grant Proposals to

Peter J. Stern, MD  
Cincinnati Hand Surgery Consultants  
2800 Winslow Avenue, Suite 401  
Cincinnati, Ohio 45206
The hand and the upper extremity in sports medicine

Amy L. Ladd, MD

Advances in the diagnosis, treatment and the understanding of injuries to the hand and upper extremity mark recent trends in sports medicine.

Several techniques have furthered our understanding of the functional anatomy of the hand, shoulder, and elbow. Magnetic resonance imaging and arthroscopy visualize structures implicated in sports injuries in more detail than previously recognized. Subtle tears of the ligaments and triangular fibrocartilage complex of the wrist may be identified in gymnasts and tennis players. Posterolateral impingement and osteophytes of the elbow associated with medial instability are now well described in baseball pitchers and overhead athletes. Tears of the glenoid and attenuation of the glenohumeral ligaments in the shoulder may be found in other overhead athletes.

Biomechanical studies have emphasized the interrelationship of the movements of the upper extremity with that of the trunk and back. Specific swimming strokes, ball throwing in football and baseball, and the golf swing rank among athletic movements analyzed by electromyographic studies and computer reconstruction. The injured athlete analyzed by these methods reveals muscle imbalance or improper firing sequence, which underscores the need for proper conditioning.

Training techniques for athletics emphasize general conditioning and sports specific training. This is particularly true for the weekend or aging athlete, who is more prone to repetitive injuries resulting from improper technique or poor conditioning. Changing a clenched golf grip, for example, may be as important for one as is strengthening forearm muscles for another. The older tennis player particularly benefits from forearm and shoulder conditioning, to avoid the common problems of tennis elbow and shoulder impingement.

We now better understand the pathoanatomy of such repetitive injuries. Histology of the injured tissue describes the pathology, cadaver experiments provide information for the mechanism of injury, and animal models provide information on response to treatment. Each provides information to researchers about injury prevention.

Advances in splinting and surgical techniques permit an earlier return to sport. Splinting or rigidly fixing scaphoid fractures and hand fractures are such examples. Bone anchors provide more reliable fixation of sutures to bone particularly in the shoulder, the wrist, and the fingers. The anchor has replaced the external button in many instances, allowing for faster recovery. Injuries treated arthroscopically, particularly synovitis or impingement, also permit rapid rehabilitation.

We now know more about the mechanics of particular sports and the common injuries that are associated with them. In addition, we have better tools to treat the injuries, and more importantly, better means of prevention.
Treatting "spaghetti" wrist

James G. Hoehn, MD

A 29 year old, right hand dominant male machinist presented with complaints consistent with median nerve compression in the right carpal canal. EMG's were confirmatory.

His past medical history was significant: in 1973 he cut his right wrist on window glass and required repair of the median nerve and six flexor tendons. With post-operative hand therapy, he regained full functional range of motion and essentially normal sensation.

In 1984, he underwent a release of the right transverse carpal ligament for carpal tunnel syndrome.

In 1995, he presented with recurrent symptomatology consistent with CTS. Electrodiagnostic tests confirmed CTS. At operation, dissection uncovered the median nerve with a large neuroma. Further dissection revealed the course of the medial nerve to spiral around a flexor tendon. The tendon proved to be the index flexor digitorum sublimis (FDS) tendon. The twenty-one year old tenorrhaphy ranged in direct contact with the median nerve. Ranging the tendon demonstrated an area of abrasion contact on the surface of the median nerve of approximately 1 cm.

A tenotomy allowed relocation of the FDS to the proper relationship and a tenorrhaphy was performed. The median nerve's abnormal configuration was more apparent after the tenorrhaphy. Right synovectomy and extensive internal and external neurolysis completed the procedure.

Moral: In treating the "spaghetti" wrist (especially at 3 a.m.), be sure that proper anatomic relationships are restored.

Greenleaf Medical technology update

Hand Surgery Quarterly received the following response to the article provided by Greenleaf Medical, published in the summer edition.

"Sure looks like advertising to me. And I'm sure Greenleaf is thrilled and considers it as advertising too!"
Susan E. Mackinnon, MD

As stated in a note from the Editor concluding that article, the publication of the information was simply to enlighten and inform readers of Hand Surgery Quarterly, and was not an endorsement of Greenleaf by the Association or the publication.

Further, the Editors of Hand Surgery Quarterly requested this article from Greenleaf Medical in an effort to identify new technology specific to hand surgery. Unsuccessful efforts were made to provide an objective review of this type of technology, including contacting members of the Association who perform computer-assisted hand examinations and additional manufacturers.

The Editors invite any member of the Association or reader to submit their experiences with new technologies and new applications in hand surgery for publication. All are encouraged to contact James G. Hoehn, MD, Editor or Marie Kuechel, Executive Editor.
Sprains, strains and dislocations

Raymond V. Janevicius, MD

Injuries about the joints are very commonly seen in hand surgery practice. CPT and ICD-9 coding for the management of these injuries can be quite confusing, as nomenclature in ICD-9 coding often does not correspond to clinical practice and numerous inconsistencies can be found in the CPT book. This column will attempt to dispel some of the commonly encountered difficulties in coding for procedures and diagnoses of periarticular and articular injuries.

Procedures to treat dislocations can be open or closed, with or without fixation. Not all permutations of these procedures for all hand joints are clearly described in the CPT book, and one must be familiar with CPT conventions which occasionally do not correspond with clinical practice.

Dislocation CPT coding choices often inconsistent

Table I summarizes CPT coding for hand dislocations. Note that in some areas the CPT book makes the distinction between performing closed reductions with or without anesthesia, yet in others it does not. Use the table to select a code which most accurately describes the procedure performed.

For example, a closed reduction of an index finger metacarpophalangeal dislocation requiring anesthesia is coded 26705. If a percutaneous pin is required here, code 26706 is used. If the dislocation must be treated by open reduction, code 26715 is used, regardless of whether any fixation is required.

A Bennett’s fracture-dislocation follows the same logical sequence:

- 26645 Closed reduction
- 26650 Percutaneous pin fixation
- 26665 Open reduction (with or without fixation)

A separate code is available for a closed reduction of a thumb carpometacarpal dislocation, 26641. No codes, however, are available for the same dislocation treated by open reduction. In fact, codes for other CMC dislocations specifically exclude the thumb (26670, 26675, 26676, 26685, and 26686). Here one must use “poetic license” to find an appropriate code. If an open reduction of a thumb CMC dislocation (without fracture) is performed, it is appropriate to use the fracture-dislocation (Bennett) code with a “-52” (reduced services) modifier to indicate that “less” than a fracture-dislocation was treated, 26665-52. No, it does not exactly correspond with clinical practice, but this is the closest description available in the CPT book.

Dislocation ICD-9 coding straightforward

ICD-9 coding of dislocations is relatively simple: one must describe the joint involved and distinguish between closed and open dislocations. Table I summarizes the appropriate codes describing dislocations. For example, an open dislocation of the proximal interphalangeal joint of the middle finger is coded 834.12.

Remember that ICD-9 codes describe diagnoses, whereas CPT codes describe procedures. Thus an open reduction internal fixation of a closed dislocation of the MP joint of the index finger is coded:

- 26715 Open reduction MP dislocation (CPT)
- 834.01 Closed MP dislocation (ICD-9)

Ligamentous injuries grouped together

Periarticular soft tissue injuries are described globally with ICD-9 codes, creating much confusion when one attempts to look them up in the book. All these injuries are listed under “Sprains and strains.” In ICD-9 nomenclature, sprains and strains include:

- avulsions, hemarthroses, lacerations, ruptures, sprains, strains, tears
- ligaments, joint capsules, muscles, tendons.

Understanding this ICD-9 “convention,” one then knows to look under “sprains and strains” to describe a gamekeeper’s thumb, 842.12.

Note also that ICD-9 nomenclature does not distinguish between open and closed injuries or acute and chronic injuries. A volar plate avulsion of the PIP joint is coded 842.13 whether it is open or closed. A dorsal dislocation which results in a volar plate avulsion is coded 834.01 if it is closed and 834.11 if it is open. Yes, it can be confusing, but one needs to know ICD-9 conventions and read the “fine print” to code accurately. The accompanying tables should help alleviate many of the problems encountered in trying to accurately code injuries and procedures about the joints of the hand.

You-code-it

A construction worker falls and suffers bilateral hand injuries. A closed carpometacarpal dislocation (without fracture) of the left thumb requires an open reduction. A closed dislocation of the right distal radioulnar joint is treated by closed reduction and percutaneous pin fixation. An open PIP dislocation of
the right ring finger is reduced closed, requiring anesthesia and percutaneous pin fixation.

**Procedures**

26665-52 Open reduction internal fixation left thumb CMC dislocation (ICD-9 833.04)

25675-51 Closed reduction percutaneous pin fixation right distal radioulnar joint (ICD-9 833.01)

26776-51 Closed reduction percutaneous pin fixation right ring finger open dislocation (ICD-9 834.12)

Closed injuries can be treated by open reductions and open injuries can be treated by closed reductions; these distinctions must be described in the operative dictation, then described by accurate CPT and ICD-9 coding.

*Sprains, strains, avulsions, ruptures, lacerations, tears of articular structures*

Raymond V. Janevicius, MD is an HSQ Associate Editor and a member of the AMA CPT Advisory Committee.

### Table II

**ICD-9 CODES**

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### Table I

**DISLOCATIONS, CPT CODES**

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<th>JOINT</th>
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*complex, multiple, or delayed reductions
HAND THERAPY PROFILE

NANCY E. BUCKLEY, MA, OTR, CHT

Personal: Have lived and worked in Tampa since 1973.


Employer: Rehabilitation Management Systems Tampa Clinic, formerly Tampa Hand Rehabilitation Center.

AAHS Involvement: Affiliate member since 1985. Current liaison from ASHT to AAHS.

Best part of my job: Patient care which is enhanced by my diverse clinical experience which includes counseling.

Worst part of my job: Wasted time and increased overhead costs associated with managed care.

Major accomplishment: Development and operation of private hand therapy practice with Judie Johnson and Shirley Pearson for 13 years.

Clinical specialties: Flexor tendon repairs, complex trauma.

Greatest challenge: Patients who are sent late for therapy.

Three words that best describe me: Honest, caring, humorous.

Annual Hand Therapy Seminar
Peripheral Nerve Update
January 12, 1996

Anatomy and Physiology of the Peripheral Nerve
Susan E. Mackinson, MD

Evaluation of Nerve Injury
Christine B. Novak, PT, MS

Surgical Management of the Nerve Gap
Michael E. Jabaley, MD

Rehabilitation Following Nerve Repair or Graft
Susan C. Jimenez, OTR

Therapist’s Management of Pain Following Nerve Injury
Mallory S. Anthony, PT, CHT, MMSc

Surgical Management of the Painful Nerve Injury
Alan E. Freeland, MD

Reflex Sympathetic Dystrophy
Maureen A. Hardy, PT, MS
Lateral epicondylitis

There is a multitude of literature written on the "Overuse Syndromes" of the upper extremity. Although treatment theories are many, definitive conclusions are few. Conservative management for lateral epicondylitis is no exception. Traditional conservative treatment for lateral epicondylitis includes:

- Reducing pain and altering circulation with ice, superficial and deep heat and interferential electrical stimulation.
- Attempting to decrease inflammation with superficial medication, phonophoresis and iontophoresis.
- Attempting to stimulate tendon tissue healing with friction massage.
- Promoting normal muscle length and efficient muscle contraction with stretching.
- Deferring contractile forces at the extensor origin with forearm straps over the extensor muscle mass.
- Resting the wrist extensors intermittently with a wrist cock-up splint.

These treatment techniques may assist in the relief of the immediate problem, but often kinesiology is overlooked in pursuit of effective long-term symptom relief. Simple alternative methods of lifting, more specific stretches, and an appropriate "rest" period can increase long term symptom reduction.

1. Change lifting to a supinated forearm position:
   - biceps and wrist flexors become the primary movers

2. If lifting must be done pronated, use an elbow flexed position. Tension is increased at the lateral epicondyle with a fully extended elbow.

3. Use isometrics and isokinetic exercise cautiously. Isotonic exercise is better tolerated and controlled by the patient allowing a gradual tension increase at the tendinous origin.

4. Stretches should be approached in a progressive sequence, minimizing pain and gradually achieving maximum muscle length. Although stretching the extensor muscles have been traditionally emphasized, the flexor pronator group should be included to promote balanced forearm muscle length and function. Tightness is usually noted in one or both muscle groups.

Quick tests include:

**Extensor-Supination Length Test:**

(Elbow fully extended, forearm pronated, wrist flexed, and fingers fisted)

**Flexor-Pronator Length Test:**

(Elbow fully extended, forearm supinated, wrist extended, and fingers extended)

A logical progression can include the following:

**Extensor Stretch**

**Flexor Stretch**

Initial therapy visits must be thorough, conclusive and "user friendly" for follow-up at home. The basic biomechanics of lateral epicondylitis must be addressed to achieve long-term success and minimize recurrence. In the past, many patient visits may have been used to evaluate the effectiveness of various modalities and exercise for lateral epicondylitis pain. As managed care continues to mandate the number of reimbursed visits, the firsts visit may also be the last!

Ann Compton Kammien, PT, CHT
Christine B. Novak, PT, CHT
Treatment of Athletes' hand injuries

Treating hand injuries which result from active participation in sport are unique not only in the way these injuries occur and the approaches to treat them, but most significantly in the actions and decisions of players, coaches and trainers. This panel examines not only the surgical means of treating commonly identified injuries, but also the means of managing athletes who often first choose to continue playing rather than to treat their injuries.

William M. Swartz, MD eloquently moderates a balanced discussion of injury and patient variables among Alan E. Freeland, MD, Ronald E. Palmer, MD and Robert C. Russell, MD. Most sincere thanks to all for their participation and for sharing experienced insight in the treatment of sport injuries of the hand.

Dr. Swartz: Let’s begin by discussing the problem of sports injuries in general. For those of us who treat worker’s compensation patients, the sports injury patient appears to be a totally different patient. He has a different mindset. Dr. Palmer, how would you characterize patients who are athletes with hand injuries?

Dr. Palmer: Athletes are certainly more highly motivated than the worker’s compensation patient to return to activity. But, I do like to think of the two groups of patients as being in the same framework. Our job with the worker’s compensations patient is to do the best we can to recover them from injury and get them back to the level of job performance that they were prior to injury, and as quickly as possible. The same thing really holds true for the athlete. We are asked to return the athlete in the most reasonable time to the level of performance he was at, prior to injury. In doing so we need to try to best protect the patient from reinjury. Our goals with athletes are very much like our goals with the worker’s compensation patient, except the athlete is often more anxious to return to his sport.

Dr. Freeland: We see hand injured athletes at the University of Mississippi who are highly motivated to get back to their activities. This is very helpful in terms of their rehabilitation. We want to restore anatomy, and make sure the restoration is stable by virtue of a reduction, or by virtue of stabilizing that reduction when necessary. We want to respect the blood supply so that we don’t devascularize anything that we shouldn’t and also that we minimize any scar formation in the hand. By restoring anatomy and stability and controlling pain we help the patient to regain early active range of motion and subsequently strength, power and endurance. And, as Dr. Palmer said, we need to protect them so that they may continue participation at a high level.

One thing we see is the injured, non-skilled (i.e., non-ball handling) player who, because of fear or concern for losing their position, will protect the injury first and then come in to have that injury looked at after the season. The skilled (i.e., ball-handling) player or position is often unable to perform his job unless he comes in and is treated immediately.

Dr. Russell: I would agree with Drs. Palmer and Freeland that athletes are well motivated patients. I have also seen cases where the athlete continues to play despite pain when in fact, he or she may have sustained a fracture or dislocation in the hand but continued to use it during a game or subsequent practices. I also have seen players who present with fractures or avulsed tendons after the season is over which makes the job of reconstruction much more difficult. In general, if a player can continue to play, the local trainer may continue to attend the injury until such time as it becomes such a problem it hinders the player’s performance and only then are they sent to a surgeon.

Dr. Swartz: The role of the physician in treating the sports injury can often be pressured by coaches and agents, and even the players themselves, to perhaps make compromises in care in order to quickly return the athlete to the playing field. Have you ever been pressured to compromise what you believe is the best care for the high level athletic player?

Dr. Russell: I practice in a small town setting and as a consequence most of the injuries I see are in high school or small college athletes. To date, I am happy to report I have not received much pressure to allow the athlete to compete when I felt it was not indicated. Often times the athlete themselves, especially a high school senior, for instance, will be the most disappointed of all when they have to have a surgical procedure which takes them out of competition.

What I do is simply present the options to the athlete and/or their family and discuss with them how difficult it may be to repair an
injury at a later date or the risks involved, if any of not treating it acutely. On the other hand, I believe that patients with non-displaced fractures or relocated dislocations can usually continue to play if properly splinted.

**Dr. Freeland:** It doesn't even take the high level athlete. When someone is playing professionally and there is a lot at stake in terms of team victory and money, this is important. But it happens at every level, even with young children and adolescents who are playing. You have to be firm and fair, and you have to point out that you will get the player back to the game as early as is safely possible. But, you don't want to jeopardize his long-term career or welfare by compromising care or outcome.

**Dr. Palmer:** The better and closer relationship that a physician has with the coaches and coaching staff the less pressure coaches try to impose to get a player back too prematurely. We employ a number of athletic trainers who visit all of the colleges and high schools in Central Illinois. The trainers establish a very close working relationship with the coaches. Coaches will generally follow your advice if they understand the injury and believe a conscientious effort is being made to protect the athletes and return them as soon as possible. But that has to do with communication, education and understanding that you really are concerned about getting the athlete back into sport activities at the earliest and safest possible time.

**Dr. Swartz:** Dr. Palmer, do you use any special splinting or bandaging techniques with a sport hand injury?

**Dr. Palmer:** I have a great deal of interest in protective sports equipment and protecting sports injuries. Last year I published an article in the Autumn *Hand Surgery Quarterly*, about sports casting, what a sports cast is and how it can be used to protect injury. We did a multi-center study last year with 6 sports centers and studied sports casting primarily in the contact athlete, primarily in football. We have a significant amount of experience and have found with appropriate protection athletes can return to their sport without fear of reinjury, worsening of their injury or injury to other players.

**Dr. Swartz:** One of the frequently requested actions for a physician treating his patients is to just give the athlete a shot of cortisone or a shot of marcaine in order to get them through the season. I mention this only because this is one way in which the athlete can further injure themselves by the actions we provide. Would you all agree?

**Dr. Freeland:** I do agree, but I think perhaps there is one place for this type of treatment, I.e. in the Olympic athlete or the very high level world class athlete who is in a particularly important event. You hope that they would not injure themselves further and you use the local anesthetic very judiciously. But certainly for most athletes, that should never be done.

**Dr. Swartz:** I can remember Jim Nicholas, one of the early pioneers of sports medicine, being asked that very same question when he was taking care of the New York Jets. He said that maybe for a Super Bowl, but certainly nothing else. It would have to be a very high performance, world-class athlete in a championship event.

**Dr. Swartz:** Let's move on to some specific injuries, namely "coaches finger". So many times an athlete will jam a finger during a game when hit by a ball, and the coach will pull on it to straighten it. Is there any damage a coach can do to a dislocated proximal interphalangeal joint in impairing traction in an effort to reduce it?

**Dr. Freeland:** Sometimes it is very easy to reduce a dislocation or fracture dislocation of the proximal interphalangeal joint right after it occurs. If a coach tries that once and it doesn't work, they should stop. Repeated attempts that are unsuccessful could add to swelling and cause additional soft tissue damage. The damage is done when the finger pops back in and then is neglected, or the player continues to play and does further damage to it. This has to be evaluated on an individual basis. If a player can continue, he should be examined immediately after the game, both clinically and by x-ray. If he is not able to continue, and the finger can't be put back immediately, he should be taken for medical care at that time.

**Dr. Swartz:** Dr. Palmer what are the structures that are damaged in a typical dislocation of the proximal interphalangeal joint?

**Dr. Palmer:** The issue of the jammed or coaches finger is what is really better called a hyperextension of the PIP joint. I classify these in three types of injuries. Type 1 is the hyperextension injury of the PIP joint where the volar plate avulses off the middle phalanx. There are relatively minor longitudinal splits in the collateral ligaments. The patient normally comes in with a tender or swollen PIP joint, x-rays are normal, they are stiff and sometimes even locked in a little bit of flexion. These can generally
be treated with buddy taping alone until the symptoms subside.

Type 2 has an avulsion of the volar plate, which is accompanied by rather major splits in the collateral ligament. That’s the complete dorsal dislocation of the PIP joint and those are the ones that coaches pull on. I agree with Dr. Freeland that there is very little danger in most people relocating those fingers. More dislocated PIP joints have been reduced by coached and players themselves than by doctors, and rarely is the injury made any worse. But again, I agree wholeheartedly with Dr. Freeland that its the neglect of those injuries that can lead to the real problems.

Dr. Swartz: What would prevent such a dislocation from being relocated by the coach?

Dr. Palmer: Dorsal dislocation rarely are a problem with the PIP joint. The volar dislocations tend to be more troublesome, where either the collateral or volar plate gets buttonholed or hinged in some way between the bones. You get an irreversible or irreducible dislocation. But, at the PIP joint that is much less common than at the MCP joint.

Dr. Freeland: The coach may only put traction on the finger rather than hyperextend and align the dorsal surfaces of the phalanges and not perform the flexion maneuver which would reduce the joint. This might prevent the finger from going back into place. Peter Stern, MD has stated that there are occasions when a collateral ligament will get lodged between a tear of the extensor slip and the lateral band and create a Steen type lesion of the proximal phalynx. Even when you reduce the finger it may not quite line up right. It still has an angulation. If that happens and the finger does not go back into alignment and there is not a symmetrical reduction on the x-ray, you may suspect the lesion will require operative intervention to alleviate soft tissue interposition in the joint.

Dr. Swartz: Dr. Palmer you alluded to a third type of injury. My understanding of these injuries would put that third type as a fracture dislocation. Is this particularly troublesome for the relocation and treatment of the PIP joint injury?

Dr. Palmer: It can be a particularly troublesome injury. Perhaps the worst neglected problems that I have seen in athletes are the type 3, unstable fracture dislocations that have been neglected. Those are the troublesome ones. You are correct that the type 3 is the fracture dislocation where a volar fragment off at the proximal portion of the middle phalynx occurs, and that can be of varying sizes. The type 3 can be classified as a stable or unstable fracture dislocation.

I happened to be in a meeting in Bulgaria, and listened to 2 papers where 150 fractures of essentially stable dislocations were treated operatively. They reported good results. I was surprised, and came home and reviewed 100 cases of my patients that had stable fracture dislocations. Stability is determined by the initial lateral x-ray. If there is any evidence of dorsal subluxation of the middle phalynx or the proximal phalynx, it is unstable. If there is no evidence of dislocation or subluxation, it is a stable fracture dislocation. I treat the stable fracture dislocations with buddy taping alone, and start very early motion. Probably the most popular treatment has always been extension block splinting which my partner has done for many years. We have reviewed these and found that some had significant stiffness and symptoms in the PIP joint, even years later.

Dr. Russell: I believe unstable fractures of the PIP joint are the most difficult fractures to treat in the hand. If I can’t reduce the fragments closed, I usually try an open reduction to try to get the fragments anatomically reduced. I use one or two lateral incisions and standard reduction techniques for these fractures with small K wires or Keith needles on a hand held, battery operated drill. Interarticular fractures which involve 30-40% of the joint surface which are not reduced anatomically, in my experience, may go on to nonunion and create painful joints. I believe anatomical reduction of unstable fractures is the best treatment. If the fracture appears very comminuted on x-ray, I then try skeletal traction devices.

Dr. Swartz: Dr. Freeland do you use extension block splinting or buddy taping when treating Type 3 stable fracture dislocations?

Dr. Freeland: We begin by using extension block splinting for 10 to 21 days, followed by buddy splints until the patient is asymptomatic. On the playing field we would like to have them at least protected by buddy taping, if they are a skilled player. Non-skilled players wear some type of protective glove. This may be a mitt-type glove, where they still can be taped inside the glove. The glove protects the finger from snagging.

Dr. Swartz: For the unstable fracture dislocations are there indications for open reduction and some form of fixation of the fracture fragment? Dr. Palmer what is your preference?

Dr. Palmer: In those cases I check the dislocations under fluoroscopy, reduce them and put them in flexion. Many of these will be stable in flexion. I treat these with
extension block splinting usually for 10 days to 2 weeks and really don't allow a lot of motion at that point. I put them in the amount of flexion necessary to keep the patient reduced. You can tell this on fluoroscopy — as you extend, they will tend to sublux, and as you flex they will tend to stay reduced. So, they are placed in as much flexion as is needed to keep them reduced. After about 10 days to 2 weeks I allow more active flexion and extension block, and check with fluoroscopy to see that they are still stable. Over the next few weeks I increase the amount of extension allowed.

A lot depends on the volar fragment — if the volar fragment is over 40% of the articular surface, the collateral ligaments tend to be in such a position that they make it unstable. There is just no attachment and so those tend to be more unstable. But, even fractures that involve less than 40% of the articular surface can be unstable. I like to follow this particular type of injury with lateral x-rays. However, I have never seen a fracture dislocation that did not have subluxation and went on to sublux later. If these come in as stable dislocations, they normally will remain as such if protected from hyperextension. This is why I buddy tape them, and warn the patient against hyperextension. The unstable cases are the real problem. If they are not stable in flexion, then they have to be opened, anatomically reduced and flexed and/or fixed.

**Dr. Swartz:** Dr. Freeland do you have any different technique for treating these unstable fractures?

**Dr. Freeland:** The unstable type fracture is an extremely difficult fracture to treat, by any method. The testimony to this is the number of techniques available for treatment. There are a number of dynamic skeletal traction devices that have been used, including the Agee dynamic skeletal traction, the dynamic force couple that he has described. There is a s-quattro that has been advocated, by Fahmy in England, which is a dynamic external fixation devise. There is a similar external fixation device that Hill Hastings has described. Robert Schenck, MD described a phalangeal-type traction, which is another type of dynamic traction device. Buttress pinning has also been used as an internal splinting devise.

I don't have much luck with external splinting on the unstable fractures. You can reduce the dislocation to the point where the joint is congruent and then use dorsal buttress pinning as an internal splint allowing the finger to have further flexion. If you have a single large piece, you can do an open reduction and internal fixation or sometimes a percutaneous fixation by putting a small mini or micro-screw dorsally, into the reduced fragment. In addition there is a new technique that has been describe by Peter Weiss, MD to be published quite soon, where he has made a volar, or v-shaped incision radially based, and opening the PIP joint — somewhat like breech-loading a shot gun — and reconstructed the fragments and used circumferential wiring to put these back together. Then any depressed fragments are supported with bone graft when necessary. No single technique has been found that is completely reliable and predictable for getting a good result.

One thing that we must do when these injuries are first presented is to prepare the patient, and inform them, that it is very difficult to get a complete restoration of motion. There is a high frequency of secondary procedures that have to be done.

**Dr. Swartz:** Certainly the concomitant fracture of the middle phalynx has a high risk for late arthritis and stiffness, simply because it is a joint injury rather than a ligament injury. We must, if fact, advise our patients that this is going to be a long-term problem. Probably a more rare injury is the volar dislocation, in which case the middle phalynx subluxes volarly on the proximal phalynx.

What are the anatomic structures of this injury that are usually injured Dr. Freeland?

**Dr. Russell:** I would also agree that an acute laceration of the central slip should be opened and repaired. I often advise the residents that if the PIP dislocates volarly, the central slip is more often torn than in the more common dorsal dislocation, which is more likely to tear the volar plate.

**Dr. Freeland:** Two things often happen and have to be watched very closely. Dr. Palmer alluded to these. One, the distal portion of the proximal phalynx will buttonhole between a lateral band in the central slip. Efforts at reduction work somewhat like a Chinese finger trap and reduction cannot be obtained. This necessitates an open reduction to restore the anatomy. The second thing which is extremely important is that the central slip can be ruptured. Where it is completely ruptured, this can be a devastating injury and lead to a boutoniere deformity. The longer this goes without diagnosis, the more devastating the results can be.

**Dr. Swartz:** Is that an indication for an open reduction or an open repair of the extensor slip?

**Dr. Freeland:** If, with certainty or even in question the slip is disrupted, then operative dissection would be indicated.

**Dr. Palmer:** I agree.
**Around the Table**

**Dr. Swartz:** I had such a patient within the last few weeks, and the volar dislocation involved a burst injury to the volar skin. This is clearly a situation where open reduction is necessary, not only for fixing, but for irrigating out the wound and eliminating any foreign materials. This is also an opportunity to replace and repair not only the extensor tendon central slip, but also the volar plate. Would any of you have repaired the volar plate under such a condition, where you are opening the wound because of the open injury to begin with?

**Dr. Freeland:** The open injury usually occurs with a dorsal dislocation. If you see a volar wound, it is usually an oblique one, just adjacent to the flexion crease of the proximal interphalangeal joint. These may look clean when they come in, but they almost always have been on the playing field and they are all soiled, taking in dirt and debris that can be quite dangerous in terms of infection. They must be opened, irrigated and adequately debrided, and tetanus prophylaxis must be appropriately applied or updated. In terms of the volar plate, I would still use the same indications as the closed injury. I would only repair the volar plate if it were necessary to restore the buttress of the type 3, unstable fracture dislocation. I don’t think it’s necessary on the type 1, 2 or 3A injuries which are inherently stable.

**Dr. Palmer:** I agree. The key to a good result in either the dorsal or the volar dislocation is an anatomic reduction and adequate protection. Supporting structures including the volar plate will normally heal.

**Dr. Freeland:** The only thing different about the open injury is the wound itself, and the key is appropriate wound care.

**Dr. Swartz:** What is the usual prophylactic antibiotic that you prefer in treating open injuries of the hand?

**Dr. Palmer:** I use a first generation Cephalosporin, usually Keflex, and I prescribe 500 mg for approximately 10 days.

**Dr. Freeland:** I use the same thing. If I believe there may be grave negative organisms involved, I may add Gentomycin to the equation.

**Dr. Swartz:** Are there any other issues with the PIP dislocation?

**Dr. Palmer:** So often, a dislocated finger that is reduced is not protected, and I like to protect the dislocation. These must be watched because occasionally marked stiffness will develop if therapy is not initiated. Significant losses of motion can then result. I like to protect the dislocated joint in a splint for as short a period as possible in the amount of flexion that the patient is comfortable in, and then I buddy tape them for 3 weeks, really for protection in sports. I do allow them to return to sports with buddy tape, and make sure that the patient has a full range of motion. If they don’t get it early, it can result in substantial losses of motion from a simple dislocation.

**Dr. Russell:** When you have volar plate tears, I like to get these people moving early and block them dorsally so they can’t extend fully, to allow them to begin flexion. For small fragment fractures of the PIP joint I use small Keith or Bunnel needles with a really sharp point so they won’t split the fragment. Sometimes you can take small fragments that you can’t pin with an ordinary 28 guage pin, and actually put the needle through the fragment and then reduce it. That needle fits in a tiny, hand-held, battery-operated drill. Then with the drill you can piece the small fragments together to make a bigger fragment, which can then be reduced.

**Dr. Freeland:** Complete collateral ligament tears that have instability in lateral stress testing may usually be treated closed, provided that you have symmetric movement and congruent reduction. They only require open reduction when you have a Steiner lesion of the interphalangeal joint of the finger.

**Dr. Swartz:** The two injuries that are typically seen on athletes at the distal interphalangeal joint are the flexor profundus tendon avulsion, often seen with a football player who grabs a jersey. The second is a mallet finger with a rupture of the extensor tendon terminal insertion. Dr. Russell, as a former Rose Bowl player yourself, how do you handle the athlete who has ruptured his flexor profundus tendon in the middle of the season?

**Dr. Russell:** The problem is that if you try to fix this, you are going to have to immobilize his hand, which will take him out for the season. If you wait, then you may not be able to get the tendon back to length. Sometimes, these are held and they don’t pull through the chasm back into the palm. But I have seen a couple that actually went back into the palm. I discuss this with the patient and tell him that if I go ahead and try to fix the tendon he will probably have to stay out for the rest of the season. It’s different if you are dealing with a high school athlete versus some major college athletes and professional athletes where there is a lot of money involved. I tell them, “If I fix it now, there is a good chance I can put it back together and make it work again, but if I wait, I don’t have a very good chance of being able to do it, and you are going to end-up with a sublimus finger.”

**Dr. Palmer:** A rare complaint I see for the athlete who does not have a flexor profundus repaired is pain. Usually, it is just weakness. They have some weakness in the hand in full flexion, and the digit tends to get in the way. That doesn’t seem to be a particular problem to them.
Dr. Swartz: Are there occasions when we can advise our patients that it is acceptable to wait to repair the tendon until the end of the season. And that we will expect a good result?

Dr. Freeland: Interestingly, we see a lot of late injuries where patients wait until after the season to come in. There is a classification for profundus tendon ruptures, a type 1 is actually in the palm and is a more severe injury. Here, you have 7 to 10 days to reattach the tendon and get optimal results. Level 2 is at the level of the PIP joint and you may have more time, perhaps up to 3 months, especially if the long vincula to the flexor digitorum superficialis is intact. Type 3 is at the level of the A-4 pulley, and these may have a bone fragment with the rupture. This emphasizes the importance of getting a true lateral x-ray.

If you have a bone fragment which you can restore, you can operate on the patient and get them back fairly quickly. But at the other levels, particularly with neglected injuries, I find that we have had to debride the flexor profundus creating a superficialis finger. We then stabilize the distal interphalangeal joint by arthrodesis. We have had quite excellent results and sometimes wonder if it isn’t so meritorious and good fortune that they have waited because I’m not so sure they would have had as good of results with initial tendon restitution.

Dr. Swartz: Do you find they are weaker in their grip with a subluxed finger?

Dr. Freeland: In the surveys we have done over the past 10 years, they get back to 90% strength, on the average, with the superficialis finger and an arthrodesis of the distal interphalangeal joint. This is almost always of the ring finger, ultimately, if they will work hard for up to a year to get back strength, they may closely approximate the normal power and strength of their grip.

Dr. Russell: Many times, if the patient does come in late, and the tendon is pulled back through the chasm where it can’t reach anymore, you have to fuse the DIP joint which is a well tolerated procedure.

Dr. Palmer: Most reports state the type 2 injury is the most common, but that has not really been my experience. Type 1, avulsion of the profundus tendon, is more common in my practice. Usually the football player comes in well after the season with a rupture. They have until then put up with it and then decided there is something really wrong with the finger. They come in to have it looked at and at that point you don’t have many options. Making the sublimis finger is a very good option. I have performed tendon transfers in young people, and 18 year old athletes, trying to restore a more normal finger. I almost universally end up with stiffness in the finger, although most all of them feel that their grip strength is improved. But, there is not significant improvement in range of motion in the DIP joint. A sublimis finger can be a very good finger with fusion of the DIP joint.

Dr. Freeland: After you perform surgery it is almost an instant fusion. Full motion of the proximal and middle joints come back very quickly. We have been using a Herbert screw whenever we can on the interphalangeal joint, and this creates an almost instant fusion.

Dr. Palmer: The pain issue is often tenderness in the palm of the hand where the flexor tendon has retracted. It coils-up and is tender to the touch. When you debride that and excise it, if you are going to make a sublimus finger, that pain goes away.

Dr. Swartz: The core of athletic hand injuries clearly require an appreciation of the altered anatomy and a sensitivity for the needs of highly motivated patients. Thank you for your insights.

References


10. Weiss, AP: Proximal interphalangeal fracture dislocation treatment by circlage wire fixation. CORR, accepted for publication.
American Association for Hand Surgery Calendar

1996
January 10 - 13
26th Annual Meeting
Marriott Desert Springs Resort
Palm Springs, CA

March 21 - 24
Ski Meeting: Tissue Loss in the Upper Extremity: Reconstruction and Rehabilitation
The Village at Breckenridge
Breckenridge, CO

June 1
Abstracts due for 27th Annual Meeting

August 23-26
Cumulative Trauma
The Westin William Penn
Pittsburgh, PA

1997
January 8-11
27th Annual Meeting
Boca Raton Resort
Boca Raton, FL

1998
January 7-11
28th Annual Meeting
The Phoenixian
Scottsdale, AZ

May
IFSSH Post-Congress Tour

1999
January 13-16
29th Annual Meeting
Hilton Waikoloa Village
Kamuela, HI

2000
January 12-15(T)
30th Annual Meeting
Caesar’s Park Hotel & Resort
Cancun, Mexico

Other Meetings
American Society of Plastic and Reconstructive Surgeons Annual Meeting
October 7-11, 1995
Montreal, Canada

Impairment and Disability in the Upper Extremity: The Workers’ Compensation Milieu (AAOS)
October 13-14, 1995
Chicago, IL

American College of Surgeons Annual Meeting
November 21-27, 1995
New Orleans, LA

American Society for Reconstructive Microsurgery Annual Meeting
January 14-17, 1996
Tucson, AZ

American Academy of Orthopedic Surgeons Annual Meeting
February 22-27, 1996
Atlanta, GA

Problems from the Elbow to Hand: A Comprehensive Update (AAOS)
May 1-4, 1996
San Francisco, CA

Limb Salvage and Reconstruction: A Multidisciplinary Approach (ASRM/PSEF)
May 9-11, 1996
Seattle, WA

Common Hand and Wrist Problems (AAOS)
December 6-8, 1996
Rosemont, IL

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