

HAND SURGERY

Q U A R T E R L Y

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VARGAS INTERNATIONAL HAND THERAPY TEACHING AWARD

Vargas: Return to Egypt and beyond



By Mary Nordlie, MS, OTR/L, CHT

As the 2008 Vargas International Hand Therapy Teaching Award recipient, I had the honor of accompanying Dr. Nash Naam to Egypt in November, 2008. Dr. Naam's aim was to share how surgeons and hand therapists work as a team in the USA and to plant the seeds of interest in hand therapy in the Egyptian medical community. Our successful trip was documented in the summer 2009 AAHS newsletter.

Interest grew in the following year and Dr. Naam was contacted by the Egyptian Hand Surgery Association to organize a full day pre-course workshop devoted to hand therapy this April at their meeting in Cairo.

Above: Desert camp under the stars. At right: (Left to right) Nash Naam, MD, Rebecca von der Heyde, MS, OTR/L, CHT, and Mary Nordlie, MS, OTR/L, CHT

Dr. Naam created his new therapist teaching team consisting of Rebecca (Becky) von der Heyde and myself. Dividing the topics was easily done using Becky's extensive teaching background and my years of clinical experience. I was incredibly excited to be asked to return knowing this was the beginning of a new field in Egypt as well as to see the friends I made there my first trip.

Our talks in Cairo at the Egyptian Hand Surgery Association Conference were

well attended by physical therapists, PT students and MDs who were eager to learn and apply the essential basics of hand therapy. The "splinting and treatment methods" lab was their most valued and needed topic. Their questions and desire

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The time has come to reform Workers' Compensation

There was a period of time in the not-to-distant past when a newly delivered mother would be "required" to take her baby home from the hospital on the day following delivery. The medical profession seemingly participated in this policy until the morbidity costs became a political issue requiring legislation to change the practice. The point is that physicians did not or could not change the practice in spite of the harm that was being rendered onto patients. I acknowledge this is a simplification of a complicated phenomenon but please bear with me. I worry that we in the Hand Surgery community are currently participating in policies and practices in the Workers' Compensation environment that will be changed in the future when the value of twenty-twenty hindsight reveals them to be harmful to the wellbeing of our patients. I believe that given what we experience and what we know, we have a responsibility to lead a change in the Workers' Compensation system of care to prevent continued harm to the public.

The Workers' Compensation system is a health care payment system set up within a legal system.(1) The need for care of the injured worker that protected the worker and employer from protracted legal conflict and financial risk has resulted in a high level of care and a predictable compensation system for the worker and employer. Although the care of the injured

worker carries an extra burden, the Hand Surgeon is assured of reasonable compensation for the work rendered. Unfortunately this system creates a series of complicated circumstances that have resulted in inferior outcomes for patients with upper extremity illnesses attributed to the workplace.

A recent meta-analysis showed a consistent, clinically important, and significant association between compensation status and poor outcome after surgery. (2) For example the odds ratio of having an unsatisfactory outcome for carpal tunnel surgery was 4.24 in the compensation patients.(2) Although we observe this in clinical practice and have our personal perceptions of why this might be, the problem has not been carefully studied. I submit that if we knew of some other characteristic that impacted the care of a patient resulting in greater than four times increased rate of a poor outcome we would be very involved in trying to understand and prevent that inferior result.

As hand surgeons we are called to interact with the injured worker at several stages of care.

We are required to make a determination if an injury occurred at the workplace.

When the injured worker is observed to suffer trauma at the workplace that is consistent with the later presentation of the injury, there is rarely a problem determining work attribution. When the patient presents with an upper extremity disorder that is not the result of a single observed episode of trauma or if the actual presence of an upper extremity disorder is in doubt, the surgeon may be asked to determine if the problem is related or caused by work. The patient has reasons to desire the problem to be covered by workers' compensation. If the patient has no health care insurance the attribution to the workplace improves access to care

and reduces out-of-pocket cost. At times the patients' private insurance and the workers' compensation will disagree about causation and the patient is left in the difficult situation having two insurance carriers with neither willing to cover the cost of care for an injury. The surgeon wants to be honest and fair but may be under pressure to deny the presence of a work related problem to ensure future referrals or alternatively may be swayed by guaranteed reimbursement when caring for a work related problem.

We are required to manage the patients' re-entry into the workplace.

The management of the patients' return to the workplace is an important aspect of their care and its close attention is vital in the work injured patient. We need to be sure this process is authentic and considers the best

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STEVE MCCABE, MD

HAND SURGERY QUARTERLY

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interest of our patients. If an employers' cost of insurance is linked to lost work days due to injury there is incentive to have an injured worker return to the workplace as early as possible. Similarly the employer has incentive to keep the severely non-injured worker in the workplace. When return to modified duty such as one-handed work is appropriate it seems like this is a useful tool to re-integrate the injured worker into the workplace. In addition if the worker can perform meaningful work it seems reasonable for the employer to pay for some productivity rather than wages that are paid out for lost time. The purpose for return to modified work can be warped however when injured workers are returned to meaningless or punitive tasks where there is no actual product from their activity. Patients who have had a recent injury and or surgery should not be required to report to work and made to sit in a room or lie on a stretcher to protect insurance rates. This is a form of presenteeism (3) by proxy and corrupts the purpose of using lost time to evaluate the safety of a workplace. It is a form of gaming the system in which we unfortunately are participants.

Patients are often reluctant to return to work for legitimate and illegitimate reasons and it is common to have conflict between the surgeon and patient when discussing return to work.

These are some suggestions. You may have more.

1. 24/7 coverage.

Since healthcare is largely paid for by the employer, a worker with a problem would receive the same care whether the injury was related to work or not. This would remove one source of complexity in the care of patients. There would be less incentive to feign an injury at work to gain coverage and patients would not be at person-

al risk for reporting an injury that truly did occur. Work causation would be an issue only if there were time off work due to injury or there was a permanent impairment.

2. Set guidelines for return to work.

It seems to me that this is the type of situation where guidelines would be helpful. We as an Association of expert hand surgeons should be making guidelines about return to work. We should stop presenteeism. I believe this is a large source of resentment and conflict between the injured worker, the workplace, and the surgeon that could be prevented.

3. Create criteria for work attribution.

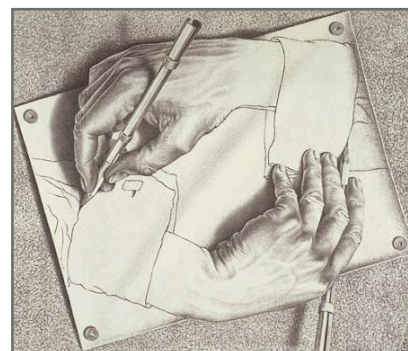
If there were 24/7 coverage this would become an issue only if there were permanent impairment or lost time from work. Is carpal tunnel syndrome caused by use of a keyboard for two hours per day? What about four hours per day or eight hours per day? What about trigger finger? It is clear that these questions cannot be answered in the individual patient with any scientific certainty. These are decisions that could be made by society based on evidence developed and analyzed by experts and subsequent guidelines put forward by our Association.

When you are seeing patients in the office and a worker asks you to keep them off work for another week when you think they could return the next day, or when an employer has a patient sit in a dull room when they are returned to work early after surgery, limited to one-handed duty, do you have the feeling that something is amiss? I believe that individual and professional associations of hand surgeons should address these problems through careful study, research, and subsequent intervention. Our goal should be a system of care where the injured worker has the same outcome as a patient

with the same injury or disorder not attributed to the workplace.

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3. Aronsson G, Gustafsson K, Dallner M. Sick but yet at work. An empirical study of sickness presenteeism. *J Epidemiol Community Health.* 2000;54:502-509 **H**



"My hands are drawing!"

(This is what patients tell us a lot)

Calling all artists and sketchers

In the great tradition of hand surgeons' drawing, we invite any readers to submit drawings they would like to share with members and friends via the *Hand Surgery Quarterly*. Cartoons, drawings of patients' hands, cases and other drawings are welcome. Please add a short caption or description. High rez PDFs or JPGs can be sent to me through the Central Office.

— Steve

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Sense of identity

Being President of the American Association for Hand Surgery is a true honor and for me, it represents acclamation by my peers that I have made contributions worthy of recognition. In many ways, it confirms my identity.

Currently medicine is experiencing an identity crisis. Rising costs and increasing demands in the healthcare system will force a transformation of the role of today's hand surgeon. More than just universal EMR adoption and iPad holograms of virtual wrist pathology, the hand surgeon is likely to face a different care delivery model, altered strategies of reimbursement and mandated certifications that he or she is practicing only the best scientific evidence. We are reminded daily in the media and in our offices about these challenges. How does the individual hand surgeon cope with such stresses? There are over 800 books on Amazon.com that deal with anxiety reduction and many more outlets to relaxation.

From a professional standpoint, one solution lies in defining one's social identity. The Canadian Institute for Advanced Research found that such a social identity may be tied to happiness as much as any other factor. A key finding of their work is the importance of belonging—to families, to church groups, to clubs, to sports teams, and to professional societies such as the AAHS. Robert Putnam in his pivotal work *Bowling Alone* noted that such social connectedness is enduring. This brings us to the reason to belong to the AAHS. It is an organization that identifies and represents hand surgeons. In a time when all organizations are challenged by cries of irrelevancy, by declining membership, and by

increasing costs, how healthy is your society?

Three areas that define a successful identity of a professional society are: performance, solvency, and relevancy. In each, the AAHS walks on solid ground.

The AAHS is viewed as a premier hand surgical association. While smaller than the American Society for Surgery of the Hand, the presence of two such strong organizations doubles our impact at any level, be it the public perception of hand surgery, or other advocacy issues in the medical and governmental arenas. The coordination and camaraderie between the two organizations has never been greater. Hand surgeons make up only 0.7% of all doctors in this country and yet we have two strong national voices.

Realigning our society under the management arm of the American Society of Plastic Surgery, we have added another level of national participation. This relationship has blossomed to include not only ASPS but the Plastic Surgery Education Foundation. In a time when research funding has declined, the PSEF, with its nearly one million dollars of annual research funding, has provided grant funding to the AAHS.

The annual meeting has never been more popular. Its balance of educational and social activities attracts hand surgeons and therapists of every generation, from millennials to boomers. The venues are desirable and the post-holiday timing makes for a relaxed learning environment. The topics are germane to clinical practice and practice management. This year's meeting at the Ritz Carlton in Cancun, January 12-15, 2011, is no exception. Jessie Jupiter and his Program Committee have raised the bar with innovative symposia and competitive debates. Our partnership with the American Society of Reconstructive Microsurgery and the American Society of Peripheral

Nerve has made the meeting the best week of multi-facet reconstructive surgical education currently existent. This year's combined Specialty Day will out-sparkle even the shells on the Mexican beach.

Starting in 2006, the AAHS, together with Springer, has published a valued journal, *HAND*. The first editor, Elvin Zook, MD, has passed the baton to Michael Neumeister, MD. The journal is listed in PubMed and the number of articles submitted is growing exponentially. Like the meeting, the journal is contemporary.

The Association has continued to emphasize our commitment to volunteer missions. Our new logo, with the world at hand, brands us as an organization that supports such efforts as epitomized by Nash Naam and his committee in their outreach to developing countries and by the Vargas Award. The outpouring of response not only to the Partners in Health Symposium at the Boca Raton meeting, but the response to the Haitian disaster itself, reflect the importance these issues have for us as individual hand surgeons and as a Society.

The Membership Committee has simplified the application process and made it online. Such an effort is in keeping with the AAHS mission to be inclusive. Hand therapists are critical to optimal hand care and are not only members of our Society but serve on the board.

Financially, even in these worst of economic times, the Association is viable. Thanks to the work of former treasurer, Mark Baratz, MD, and his successor Michael Neumeister, MD. The Hand Surgery Endowment, though devalued in the recent downturn, continues to support volunteer efforts like the Vargas and member research.

Finally, and most importantly, to



**A. LEE OSTERMAN,
MD, FACS**

FROM THE PRESIDENT

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relevance. The relevance of any professional society is measured by the meaningful impact it has on its members. For me, that impact can be simplified into social contact and collegiality. The face-to-face time spent with colleagues who became friends, the face-to-face time which became avenues of mutual assistance and shared expertise. It is face-to-face time that gives identity to what I do, no matter how uncertain the medical climate. Never has the AAHS been more relevant to me and the generation of new hand association members that will lead hand surgery into the future.

Putnam, Robert D., 2000, *Bowling Alone: The Collapse and Revival of American Community*, Simon & Schuster, New York, NY.

Brigham J: The Pursuit of Happiness. The National Post. Ontario Canada, 2007.

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WHAT'S NEW IN THE INDUSTRY?

An interesting Web site for surgeons

VuMedi is a Web site that is like YouTube for surgeons. There are over 15,000 surgeons registered on VuMedi and 750 contributed videos. Hand surgeon contributors include Tom Trumble, Will Geissler, Jesse Jupiter, and many others. The link is:

www.VuMedi.com

<<http://www.vumedi.com/>>

Erratum

Auxilium Pharmaceuticals wished to make a correction (**in bold**) to Spring 2010 article, "Non-surgical treatment for Dupuyen's contracture." The second bulleted paragraph should read:

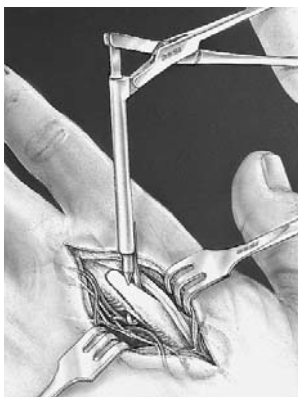
- Cord II primary endpoint: the reduction in contracture to 0-5 degrees of normal 30 days after the last injection was 44% for XIAFLEX and 5.0% for placebo (95% CI = 14%, 62%).

Cord I secondary endpoint results:

- Primary joint MP 0-5 degrees: 65.0%
- Primary joint PIP 0-5 degrees: **28.0%**
- Mean increase in range of motion (MP + PIP)
- 35° versus 8° placebo **H**

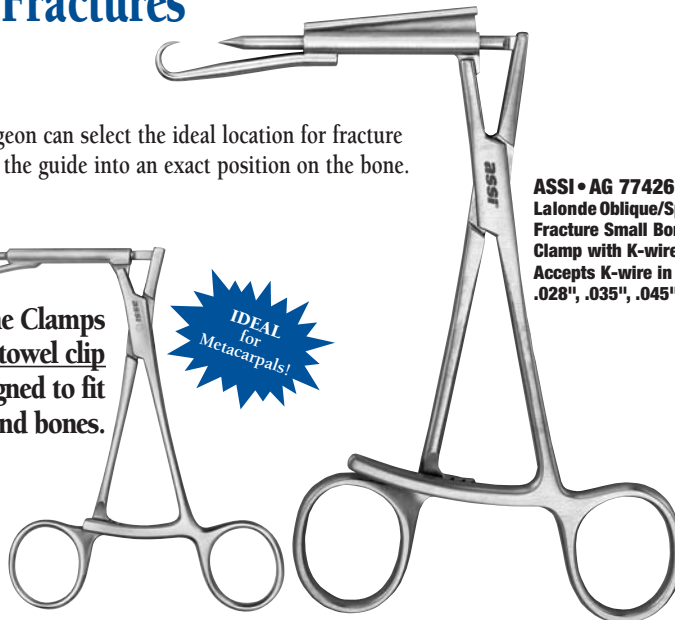
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RETURN TO EGYPT

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Our welcome in Cairo (top) and the participants at the Egyptian Hand Surgery Association Conference

to learn practicalities could have kept us there all night! Ideas provided in the lab for inexpensive, practical therapeutic application such as the simple creative use of a rubber band or ace wrap, for a finger flexion devise was seen as a very usable tool for them to immediately use in their practice.

Because there are only 10 OTs in Egypt and none treat hands, splinting created tremendous interest among the PTs. The specialized equipment, splints and conveniences we have in our clinics are not available in Egypt. It was difficult for us to imagine the challenges the physical therapist must face not having even the essential tools in their practice. We saw the need for more splint training as another area to address more thoroughly in future courses. We were thrilled to be asked to return for a week long course to teach more about splinting, protocols for spe-

cific diagnoses and related therapy techniques.

Before our speaking duties began, I insisted that Becky see and experience some of the same incredible sights and experiences I had my first trip that endeared me to the wonderful people and land of Egypt. Ask her and she'll enthusiastically expound about the incredible time we had camping in the Sahara desert under the stars Bedouin style, how she conquered the rigors of having just the basics in life (due a lost suitcase), seeing

the awesome ancient temples on our cruise up the Nile and, of course, riding a camel at the pyramids! (See photos)



Becky and Mary's daughter take a camel ride

Next stop...Saudi Arabia!

After my 2008 trip, I was contacted by an Egyptian OT living in Saudi Arabia who invited me to speak at the First Saudi Occupational Therapy Symposium in Riyadh. I was asked to also present a full day workshop on hand therapy at the National Guard Hospital. Knowing the dates for the Saudi OT conference were very close to the presentations in Cairo, I suggested having Becky join me as a speaking team. Getting our visas for Saudi became quite an ordeal for us as the date of departure approached. My passport and visa finally arrived the day before our departure!

Our entrance to Saudi Arabia was certainly different than in Egypt.

We were met at the airport in Riyadh by a representative of the National Guard and were whisked through the airport in VIP style. Knowing we needed the obligatory "abaya" black

gown and scarf required to be worn by all women in Saudi Arabia, we were worried that we weren't wearing one as we left the airport to be taken to the hotel in a

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black SUV. Once there, we were warmly met by Amany, our host OT, with our abayas which we donned for the rest of our activities out of the hotel. (See photo)

We arrived on the second day of the OT conference and were pleased to see it attended by therapists from Saudi Arabia and other surrounding countries. It was a new challenge for us, as females, to adapt to using a separate entrance into the large conference hall and having separate seating for men and women. It was very encouraging to have Prince Muteb Bin Abdullah bin Abdulziz sponsor the conference and officiate at the opening ceremony. That evening we were treated to a traditional Saudi meal where we sat on the floor to enjoy the delicious foods including camel! (See photo)

The next day we were taken by a driver (women are not allowed to drive) to the King Bin Abdulaziz National Guard Hospital where we spoke to a capacity group of 50 OTs eager to gain or improve their treatment skills. Our lectures were more



Mary and other international OT speakers in their abayas.



Mary deciding about eating camel in Saudi.



Mary and Becky with a future Saudi CHT

detailed due to their OT knowledge base. Again, the audience reaction during the splinting lab showed their eagerness to learn how to fabricate splints using techniques and materials that they haven't used before such as the "merit splint

We encouraged them to pursue their goal through courses in the USA or England. Again, as we were leaving, we were asked to return for a week long training course as soon as next year!

component' and Becky's favorite 2 piece resting hand splint. There are no OTs specializing exclusively in hands but we identified a few therapists who are prime candidates for CHT certification.

When I first applied for the Vargas Award, I knew I wanted to share my love of hand therapy but didn't expect it would create as many personally fulfilling relationships as it has and that it would branch out to other countries. There has also been an invitation to speak in Jordan. It is extremely rewarding knowing that even the smallest efforts made by those on the Vargas trips can result in significant changes in the host country and beyond! **H**

Post Operative Care and Recovery after Distal Radius Fracture

Moderating this discussion is **Joy Macdermid, PT, PhD**, Professor, Assistant Dean, School of Rehabilitation Science, McMaster University, Hamilton; Co-director of Clinical Research, Hand and Upper Limb Center, St. Joseph's Health Care, London, Ontario Canada. Our panelists are **Ruby Grewal, MD, MSc, FRCSC**, Assistant Professor, Division of Surgery, Hand and Upper Limb Center, St. Joseph's Health Care, London, Ontario Canada; **Christos Karagiannopoulos, MPT, MEd, ATC, CHT**, PRO Physical Therapy, North Wilmington, DE; **Sue Michlovitz, PT, PhD, CHT**, Associate Clinical Professor, School of Rehabilitation Science, McMaster University, Hamilton, Ontario Canada and Cayuga Hand Therapy PT, Ithaca, NY; and **David C. Ring, MD, PhD**, Director of Research, MGH Orthopaedic Hand and Upper Extremity Service and Associate Professor of Orthopaedic Surgery, Harvard Medical School, Boston, MA.

Dr. Macdermid: First of all, thanks to everyone for joining the call. To start off, what injury factors affect recovery after distal radius fracture?

Dr. Grewal: I think the energy of an injury plays a role, and I don't think we necessarily know how to capture that objectively. The degree of comminution, the degree of soft tissue injury, and other intangible things that relate to the energy of an injury. For example, we are not good at objectively capturing the difference between a standard FOOSH versus a high speed MVA or fall from a roof.

Dr. Ring: I agree. It's surprising when you look at the data. It goes against your intuition that even articular versus non-articular fractures has limited impact. Age has some impact, but many other things we would expect to have an impact do not. Injury factors that definitely affect outcome include associated compartment syndrome, acute carpal tunnel syndrome, open wounds, and associated injuries, for instance, if the elbow is injured as well. A lot of times the things that affect recovery relate less to injury than maybe other factors which we might get into.

Dr. Macdermid: Ruby, I know you recently looked at some data looking at whether both radius and ulna were involved. Do you want to summarize what your findings were on that?

Dr. Grewal: Sure. Looking specifically at younger patients, excluding patients over 65, younger patients did seem to have worse outcomes in the long term when their distal radius fracture was associated with either a middle or a basal ulnar styloid fracture. This data included both operatively and non-operatively treated distal radius fractures. The current literature has primarily focused on ulnar styloid fractures associated with distal radius fractures that have been treated with an ORIF.

Dr. Macdermid: I know one of the things I've found frustrating is that although soft tissue injury is a big component of the problem, there's not really any good way to quantify that or communicate with each other about it in a rigorous way. Does anyone have any comments on what aspects of soft tissue injury they think are most important or how they quantify that?

Dr. Ring: You know one thing that's interesting in terms of soft tissue injury, we focus on it and it relates to what Ruby was talking about with the ulnar styloid base fracture. If you have a displaced fracture of the radius you must have disrupted the linkage between the radius and the ulna. In other words, either the TFCC is torn, or you break the ulnar styloid at its base. We focus on the bone fracture because we see it on the X-ray, but in reality, there is an injury there no matter what.

Ruby also referred to the energy of the injury. I think we certainly see our older patients that have a fall from a standing height that do really well even with some residual deformity. Then we see younger patients that have a higher energy injury that may not do as well with less deformity. However, it doesn't seem to come out in the data and I don't know how to make sense of that.

Dr. Macdermid: I know certainly in some of the analyses that both Ruby and I have done, we've just put a simple variable in, energy of fracture, and quantified it as mild, moderate, or severe, and that's often a significant predictor. Obviously that's not a very sophisticated way to measure it, but it's sufficient to indicate that it is an important factor.

Dr. Michlovitz: I find that the patients who have underlying OA of the hand may be stiffer and don't do as well after this type of fracture. To answer the question about how you assess the soft tissue injury, I think

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...ALTHOUGH SOFT TISSUE INJURY IS A BIG COMPONENT OF THE PROBLEM, THERE'S NOT REALLY ANY GOOD WAY TO QUANTIFY THAT OR COMMUNICATE WITH EACH OTHER ABOUT IT IN A RIGOROUS WAY.

JOY MACDERMID, PT, PhD

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we may be able to use rehabilitative ultrasound imaging to look at soft tissue injury, and then look at the changes during the rehabilitation and recovery process.

Dr. Macdermid: Chris, do you do anything specific to measure the soft tissue injury, like volumetrics?

Mr. Karagiannopoulos: First of all, I agree that a lot of times the high energy level or the severity of the fracture plays a major role as an injury factor. We haven't had a lot of data on how frequent we see patients that have associated ligamentous injury which may lead to instability, and that can have a major role on outcome, especially with loss of proprioception. I am doing my dissertation on proprioception, since I feel this is a topic that needs more exploration of both conscious and unconscious proprioception loss due to intrinsic loss of stability in the wrist as a soft tissue injury. Now, answering the question, I don't do volumetrics. It's very time consuming. I usually take circumferential measurements of the wrist, typically peristyloid measurements to see the quantity of the volume or the swelling at the wrist.

Dr. Macdermid: How much difference do you think different surgical options make with respect to outcomes? David, why don't you start this one?

Dr. Ring: My bias is that the randomized trials will continue to show that, in the end, whether you use a percutaneous treatment method or an open treatment method, the outcomes are going to be similar. In fact, just like the discussion we just had, it seems that objective injury or treatment factors affect outcome less, at least when you measure it in terms of the patient's rating of their own disability or satisfaction. The only variations that treatment can introduce is complications, really, and I think that the randomized trials have shown and will continue to show that there's no difference in

outcome provided a reasonable alignment is obtained. It seems to me that the type of fixation is more style than substance. My patients hated the pins, hated the external fixators. They and I are much happier with an internal volar plate, and the volar plates, once you learn all the pitfalls, don't cause nearly the same problems with tenderness and stiffness that the dorsal plates did.

As Ruby and Joy said with the energy of injury, we just may not know how to measure that yet or quantify that in a meaningful way. I think if we did a study that looked at patient and surgeon satisfaction with fixation device or something other than outcome and DASH, we'd find that fixation method makes a meaningful difference, but I don't think it will make a meaningful difference in the function or ability of the patient.

Dr. Grewal: I agree with what David said, it's an issue of style. The key is to maintain alignment regardless of the method you use. The complication rates probably do differ, but in terms of the one method being vastly superior over another, that is not quite true. I do agree about the problem with dorsal plates. They definitely do get more stiffness and have more pain and problems than volar plates or external fixators and pins. Just as an aside, perhaps they have a different population base, but we've never had a problem with patients and external fixators. Patients particularly like the idea of having all their hardware out at the end of six weeks. That makes it more acceptable.

Mr. Karagiannopoulos: A quick comment. In my geographic area—I practice in Delaware—most of the physicians I see do use volar plate. From my experience I have seen better results with the volar plate, and I've seen physicians start earlier mobilization with the volar plate, which I think actually makes a big impact on the long-term functional outcome.

Dr. Macdermid: Chris, I think you've mentioned an important factor there. The primary rationale for fix-

ation is to start mobilization earlier, so I think that unless those two things are linked, you might not see the positive outcomes of having more stable early fixation.

Dr. Ring: We did a randomized trial regarding wrist mobilization, and when I presented it to my colleagues, it became clear that we needed to define what we meant by early mobilization. No matter which fixation technique therapists and surgeons use, we would want the fingers moving immediately—that's the top priority. We want patients to use their hand for light functional tasks.

Also, there's almost no reason not to move the forearm immediately. The fingers take precedence, but the forearm can be almost simultaneously, particularly working on supination, because pronation is where we live. With early mobilization, we are focusing on wrist flexion and extension. Our study showed no difference between starting wrist flexion and extension when you take the stitches out compared to six weeks later. Which means if a patient is ready to move the wrist and take their splint off after you get the plate on, including the day after surgery, that's reasonable. The plate won't rip out. But it also means if somebody's struggling to get their finger motion or is really sore, you can put them in the splint and probably in the end the wrist motion will be similar to that if they'd moved on Day One. That's been my experience prior to doing the trial, and that's what the trial showed.



**GENERALLY SPEAKING,
[PATIENTS OVER 65]
TOLERATE DEFORMITY
BETTER AND HAVE IT
IMPACT THEIR DAY-TO-
DAY FUNCTION TO A
LESSER DEGREE THAN
SOMEONE UNDER 65.**

**RUBY GREWAL, MD, MSc,
FRCS**

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Dr. Macdermid: Does anyone else want to comment on early mobilization?

Dr. Michlovitz: I think on some recent retrospective work that Kris Valdes did, it would support what you're saying, David. We're also about to embark upon a study looking at well-defined criteria for starting early motion, comparing it to later motion. We'll probably do it in a multi-centered trial in different therapy centers, because I believe that it's important to have more than one study that either supports or refutes the concept.

Dr. Macdermid: Let's move on to the patient factors that affect outcome after distal radius fracture. Sue, do you want to lead off?

Dr. Michlovitz: I think some of the patient factors are how the patient reacts to the trauma of injury, not necessarily from the psychological viewpoint, but from a physiological viewpoint. In my experience, the patients who I see who end up with prolonged problems are those who very early on have PIP joint pain and swelling more so than pain and swelling in other areas. Often times this is a red flag for me to make sure that the patient has more supervised therapy and instruction in what they can expect during their recovery period.

Dr. Macdermid: David, I'm sure you have something you want to say about this question.

Dr. Ring: Again, I like definitions and words. So that was a traditional biomedical illness framework answer where we tend to interpret impairment and disability—impairment being objective dysfunction and disability being what the patient feels they can't do—in terms of physical or physiological factors. When I see the same patient you just described, where the fingers are stiff, swollen, sore to stretch, and the patient is protective and avoids stretching their fingers, what I tend to see is not inflammation or any-

thing physical. What I tend to see, and I usually get this from the patient, is again, a protectiveness, a sense that that painful stretch will cause problems. If you ask them, they'll say, "I think I might rip the plate out," or "I imagine I'll never be able to play piano again."

Patients that do well with recovery and exercises are those that are adaptive, resilient and have a lot of self efficacy. They're active, not passive in their recovery, and they're optimistic. They know that this current situation stinks but that the future is going to be okay, and that they may not have the wrist they had before they injured it, but they'll have a wrist that'll work, and the patients that do poorly are the ones that tend to think the worst, misinterpret or over interpret pain, have trouble seeing the future as bright, wish their hand was like it was before. Mindset impacts ability to do what is a counter intuitive thing, which is to go ahead and hurt your own arm at a time when you're injured and feeling protective. But if you change the mindset to the athletic mindset, you'll be confident that a nice stretch can be good for you, that a post-workout pain means you've done the right thing. Patients that adopt this mindset the best do well.

Dr. Michlovitz: I agree with you in part, and we're all familiar with the work that you've written related to the psychological factors in recovery. In the time I spend with patients, which is probably about 45 minutes, a couple of times a week with some of my patient population, I feel I get to know them and their reaction to injury. I agree in part with you, but certainly not for all of the patients. I see many patients who I learn are very motivated, self-directed people who still have this complication, and I can't attribute it all to psychological issues.

Mr. Karagiannopoulos: From reading the literature, the strongest patient factor I think is age. There is a clear delineation between 65 and over or below 65 years of age. That brings along the issue of bone integrity

and maybe a previous or pre-existing OA for the patient. Along the research I'm doing I'm looking at wrist proprioception, and we theorized that people over 65 have more risk of losing proprioception and having less functional recovery than the younger population. There is a great study by Leone James published in *Archives, Orthopedic Trauma Surgery* in 2004 that delineated these age groups below or above 65 years, and there is another good study by Chung in *Journal of Hand Surgery* in 2007 that found that, after successful surgery and hand therapy, age and income were significantly associated with long term outcomes a year after surgery.

The other factor that we need to look at is patient socioeconomic status and compensation status. Joy, I thought that you had a great study in 2002 that actually found that the compensation of the patient at six months greatly contributed to functional recovery.

Dr. Macdermid:

Thanks, Chris. I have to say when I did that study in 2002, I labeled that "variable injury compensation." Subsequently, I've done another cohort analysis where we looked at how long it takes people to go back to work after distal radius fracture. In that study we not only measured whether they were compensated or not but what the job demands were, and again, at a very gross level, how much they had to use their hand at work, either mild, moderate or severe. We found that injury compensation was related to outcomes, but once you put job demands into the regression model,

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WE NEED TO SPEND MORE TIME AND MOVE THE PATIENT IN PROPRIOCEPTIVE RETRAINING, IN ADDITION TO ALL THE OTHER THERAPEUTIC ACTIVITIES AND EXERCISES WE PERFORM IN CLINIC.

CHRISTOS KARAGIANNOPOULOS, MPT, Med, ATC, CHT

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then injury compensation drops out. So I think there is an important potential consideration here. We always see that injury compensation is labeled as something that makes outcomes worse, and I think it's true, but you have to look into what the factors are that are underlying that. Sometimes it's that people need to use their hands more at work. Sometimes it may be other things. But that's called confounding when there's another variable that actually explains things, and so I myself regret that I used the word compensation, because I think it sometimes leads people to think that it was the compensation that caused patients to have a worse outcome. Of course when you're looking at associations, you never know whether that's true or not.

Dr. Ring: I just want to clarify that. You know it's not whether you are on compensation, because something like 85% of people that are injured and use worker's compensation get back to work as soon as they can and use it exactly as it's meant to be used. It's really a secondary gain thing. We shouldn't just say worker's compensation. We should say secondary gain where the patient is benefitting from their illness. It's often more a dispute with the worker's comp carrier or a lawsuit or a personal injury claim that is the psychosocial factor. In my practice, by and large, people that get injured on the job do just as well and want to get back to work as much as anybody else. Worker's compensation tends to be stereotyped and sort of stigmatized, but it's not the form of insurance that is the specific problem.

Dr. Macdermid: Chris mentioned the inflection point at 65. Ruby, could you share some data on that, and any other factors that you think are important?

Dr. Grewal: Sure, I agree with everything mostly that's been said up until now. I think, rather than compensation, it's more of a motivation

issue. If you have someone that is motivated, their recovery is usually better overall. In terms of the age issue, I would have to say I believe the opposite. I think that patients that are over 65 generally tend to do better with a similar injury to someone under 65. Generally speaking, they tolerate deformity better and have it impact their day-to-day function to a lesser degree than someone under 65.

Dr. Macdermid: How much do you think that's related to the physical demands of their life?

Dr. Grewal: It probably plays some role, but in preliminary work where we have asked patients to quantify their activity levels and demands, it doesn't appear to be a huge factor. Certainly someone that's still active in the workforce is going to have higher physical demands than someone over 65, even if they are active recreationally.

Dr. Macdermid: Right, and I know recently we've analyzed some of our data on social support and distal radius fracture. Do you want to summarize those findings that are just coming out?

Dr. Grewal: There has been some work from Taiwan where they looked at the role of social support and its influence on recovery after hip fractures. They found that social support did play a role, and we're starting to find trends about that with distal radius as well. I think that also relates to how patients cope with their injury and other intangible things that sometimes social support is part of. For example, if patients have support for physical tasks and emotional support, they seem to cope better and definitely do better in the long run.

Dr. Macdermid: Sue, I believe you wanted a follow up comment.

Dr. Michlovitz: I wanted to make two comments of factors that I think we haven't paid enough attention to during recovery. One of those Chris will be addressing in his dissertation work looking at proprioceptive factors following fracture. The other is, based on observation, how dif-

ferent patients move after injury. Not everybody is equipped with the same body awareness and motor control factors. In PT we have a tongue-in-cheek joke that says, "we have ways to make you move." There are many people that are unaware of their own body space and how to recover motion after an injury.

In addition to that, many patients don't know what's normal during the recovery process or what to expect. Some of the psychological factors that you've spoken so clearly about, David, have to do with the fact that the patient has been well educated in what normal recovery is, and it's okay to hurt at week six in certain areas, it's okay that you're going to have ulnar wrist pain for X number of months. So I believe that we've not done an excellent job in teaching patients what to expect during the different landmarks of recovery.

Dr. Ring: I like what you said, how patients can learn how to move better, and that's part of cognitive behavioral therapy. You have to get your thoughts and your behaviors optimized. If you wanted to get healthy physically, you would diet, get a personal trainer, work out and get fit. Cognitive behavioral therapy is getting your brain and your behaviors fit. It turns out that you can train your mind through your behavior. So if you smile, you feel happy. If you get up and walk around when you have back pain, then you unlearn pain avoidant behaviors, you learn to have less pain catastrophizing or interpreting of pain in the worst way. Your behaviors can train your mind, and your mind can train your behavior. It's all interlinked. So when a thera-

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**WELLNESS,
RECOVERY—IT'S
WHEN YOU SORT OF
MOVE ON, AND YOU
FEEL HEALTHY AGAIN.
THAT'S SUCCESS.**

DAVID C. RING, MD

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pist or anybody helping a patient recover from an injury teaches them how to do their exercises well and builds their confidence and comfort, as they do the exercises, and they do it for themselves, and they see the advancement, it changes the way they think about things for the positive. It's all interrelated.

Dr. Michlovitz: And also if they don't have that skill set of knowing body awareness and how to exercise, that's where I believe some of our instruction in improving their physical performance assists in their recovery in addition to the psychological support that we can give them.

Dr. Macdermid: This is a bit of an aside, but there's pretty good evidence in the pain world that pain, even acute pain, changes the brain, changes the sensory motor cortex. So how do you incorporate that into treatment planning, and what approach do you take in terms of pain management with your early fractures trying to prevent problems?

Dr. Ring: It's the same line of thinking. An example of this is graded motor imagery, one type of which is mirror therapy. The rationale behind it has to do with, again, affecting things on a physiological or motor level. These behaviors train your mind or get it out of the vicious cycle of interpreting pain in the worst way and begin to see that movements are safe, that they're beneficial. I like the idea of mirror therapy where you put your hand that doesn't move very well in a box and the other hand is reflected in a mirror. When you move the good hand, it looks like you're moving both hands. When your brain is fooled into thinking it's moving both hands that somehow changes your mind in a way that allows you to actually move better. That's just one example of how this can work, and I think it happens every time a surgeon or therapist teaches a patient who's protective,

who's worried, who's unhappy because they're injured how to move safely, comfortably—that it's an important part of their recovery. I think it changes their mind.

Mr. Karagiannopoulos: I have to comment on this. This is a great idea about the mirror therapy. As part of my future dissertation ideas, we need to look into this idea more closely. From my preliminary work, we looked at age populations over 65 and below 65. I started seeing that the over 65 population do have a little more trouble with performing proprioceptive tasks like a joint position sense reproducing a specific angle. As part of a therapy for post distal radius fracture, we need to spend more time and move the patient in proprioceptive retraining, in addition to all the other therapeutic activities and exercises we perform in clinic.

Dr. Macdermid: Okay, that's great. What are the most common complications of a distal radius fracture, and how can they be prevented?

Dr. Grewal: It is important that patients understand that general pain and stiffness is not a complication, which goes back to Sue's point about education and aligning patients expectations with the normal pattern of recovery. In terms of actual complications and things that I worry about as a surgeon, I would

say the most common ones are tendon rupture, infection, RSD, those types of things. Prevention plays a role in tendon ruptures. Although you can get EPL tendon ruptures even with a non-operatively treated distal radius fracture, intra-operatively it is important to emphasize technique, making sure that the drill doesn't plunge through to the other side and really being vigilant with correct screw length because that can contribute. To prevent RSD, there are some studies to show that vitamin C is beneficial, and I certainly recommend it to some of my patients, particularly the ones that look like they're going to develop RSD.

Dr. Macdermid: Okay, David, do you have something to add to that?

Dr. Ring: You've got to separate out some of the different types of adverse events or consequences. Once you fall and break your wrist, your wrist and arm are different in some important ways. You can have stiff fingers. We talked a lot about that. You could lose forearm rotation from malalignment or failure to stretch. You could have the ulna hit into the carpus (ulnocarpal impingement), which can be sore. You could have more extension and less flexion from dorsal angular deformity. You can rupture your

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AAHS Calendar

2010

October 1-6, 2010
ASPS Annual Meeting
Toronto, ON, Canada

October 7-9, 2010
ASSH Annual Meeting
Boston, MA

October 31-November 4, 2010
XIth Triennial Congress of
IFSSH
Seoul, Korea

2011

January 12-15, 2011
AAHS 41st Annual Meeting
Ritz Carlton Cancun
Cancun, Mexico

February 16-20, 2011
AAOS Annual Meeting
San Diego, CA

September 8-10, 2011
ASSH Annual Meeting
Las Vegas, NV

September 23-28, 2011
ASPS Annual Meeting
Denver, CO

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EPL with a minimally displaced radius fracture—it's just some odd thing that seems to happen. Of course you can have an acute carpal tunnel syndrome and occasionally a compartment syndrome. You might have an associated injury, might get arthritis down the line, things like that. Those complications are more injury-related adverse events. The tendon rupture and acute carpal tunnel would be more complications in my mind, but it's hard to draw those lines. Screws too long or in the joint, infection, or injury to a nerve with a pin, to me fit more with treatment-related complications.

Dr. Macdermid: I think you made an important distinction there, David, and you used the phrase *adverse event*. Adverse event is just something bad that happens after treatment and may or may not be associated with the treatment. Treatment-related complications are very specific, and I think you do need to divide those up and be very clear when you're talking or reporting in clinical research studies which one you're talking about, because they're very different. We did a study of complications after distal radius fractures, and we had both clinician-based and patient-reported "complications". When asked, patients think that pain and stiffness is a complication. They don't really differentiate symptoms from complications. You need to differentiate between an adverse event and a treatment-related complication. We should be better at recording those very specifically, because I don't think we have good rates in the literature.

Dr. Michlovitz: One comment related to adverse events: I believe that the clinical decision making capabilities, the treatment choices, and skill of the surgeon also can have a great impact on the recovery. I think that we haven't done a good enough job describing what happens to the patient from the time the OR suite

until they recover. Typically when I read an article, it will say that the patient had this procedure and that procedure, then they stayed in a cast for X amount of time, they had "some therapy", and then we measured the outcome. I think we need to somehow address the recovery period by better recording what the patient's activity level is and what their instructions are during that time. We need to couple the surgical result with the patient's activity and details of therapy (if given) prior to measuring the final outcome.

Dr. Macdermid: Chris, do you have any other comments?

Mr. Karagiannopoulos: From my perspective, the most common complication I see in the clinic following distal radius fractures is some kind of median nerve compression. In the literature it has been stated that median nerve compression is the most frequent neuropathy, with a frequency up to 17% at three months time. Also in the literature is that median nerve compression has become the strongest precursor to determine whether you develop RSD or any form of regional pain syndrome. The incidence of RSD post distal radius fractures has been determined to be somewhere between 4% and 37% depending on what article you're looking at. From my perspective, of the patients who have distal radius fractures treated non-operatively, the most common complication I see, especially with the people over 65 who may have pre-existing osteoarthritis, is hand stiffness. The best way to prevent that is early education and even start some kind of intervention with finger range of motion, even during the cast period to prevent that and improve outcome later with—especially with grip function.

Dr. Ring: That was a good discussion of complications, and I heard the recurring theme of RSD. First of all, we don't really use the term RSD anymore. We use chronic regional pain syndrome, mostly because we don't really understand what's going on. The most accurate descriptive term is disproportionate pain and disability. When a patient

gets stiffer or hurts more than we expect, calling it RSD leads to stellate ganglion blocks that don't work, and that's why they changed to chronic regional pain syndrome, in addition to other reasons. If you look at disproportionate pain and disability, and you really take a biopsychosocial view of it, you get into some of the other very helpful things that were discussed earlier in this talk, such as cognitive behavioral therapy.

Dr. Michlovitz:

David, I agree that some of the factors that you've addressed and published certainly affect recovery, but I also have patients who don't have pain complaints or minimal pain complaints now. I presently have a patient now who had a cast and mobilization for her displaced distal radius fracture, and her ulnar head is so prominent she could hang her computer bag from it, and she's really not having pain from that, but she's certainly missing a significant portion of wrist flexion and supination. I think that we also have to look at some of the mechanical factors that may come into play in this patient's ultimate outcome, causing a functional deficit. In this particular patient her impairment or body structure is certainly affecting her ability to function.

Dr. Ring: Humans, including health professionals, tend to make the mistake of dichotomizing, of saying that illness is either all mental or all physical. Every illness is a complex mixture of both the cognitive, emotion, behavioral, and the physical. If you have somebody let's say who is

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THE WAY TO PUT PATIENTS ON A HOME PROGRAM IS TO, ONE, TEACH THE PROGRAM AND TWO, FOLLOW UP WITH THE THERAPIST TO MAKE SURE THEY'RE DOING EXERCISES PROPERLY AND THEY DON'T NEED ANY MORE SUPERVISED THERAPY.

SUE MICHLOVITZ, PT, PhD, CHT

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very, very protective, very distraught over their injury, you still need to make sure they don't have a compartment syndrome or an acute carpal syndrome. You still need to make sure you didn't cut the radial sensory nerve with your external fixation wire. You have to think of both always. I seem to be one of the few hand surgeons that are confident to speak about the human that got injured rather than just the physical injury, and I often get the push back from more traditional biomedically minded surgeons that, "it's not all in their heads." That phrase reflects the false mind-body dichotomy and the stigma associated with talking about the cognitive, emotional, and behavioral aspects of illness.

Dr. Macdermid: I agree with you. That's a great point, David. The biopsychosocial model means sometimes the problem is in the bio, sometimes it's the psychosocial, and social and environment are all factors. They all play a part in every person's recovery from injury, but the proportion can be quite variable between people. It's our job to figure out which one is the major factor and which one's the minor factor in each case.

Let's move on to the next question. What outcome measures do you think reflect functional outcome after distal radius fracture?

Mr. Karagiannopoulos: The best measure I use from my research is, Joy, your scale, the PRWE. I think this is the most sensitive and reliable tool and has the greatest specificity to determine functional disability after distal radius fractures. It has been compared to DASH, which we use indiscriminately in my clinic for all patients, and I have been a proponent of moving away from that habit and using other scales like the PRWE for the wrist and the hand. I swear by the PRWE, it's extremely quick and patient-friendly, and I really have a great time using it.

Dr. Macdermid: Do you routinely measure other impairments as well?

Mr. Karagiannopoulos: For my dissertation I use the first part, which is pain outcome, as part of my inclusion criteria. For someone who has an extreme amount of pain, I will probably use that as an exclusion criteria. I don't want to really mix and match people who have extreme pain and present some kind of regional pain syndrome versus the people who have more regular pain or expected pain levels after their injury. This scale has been performing great for me. I think this is a great idea to utilize each subsection separately if you have a reason to, but combining pain and function/dysfunction as one score is a great idea for any wrist injury.

Dr. Macdermid: Ruby, what kinds of things do you look at to evaluate outcomes for distal radius fractures?

Dr. Grewal: We do tend to use the PRWE a lot here. I don't have a lot of experience with the other scales, but I think the PRWE has worked very well for us. It's a relatively short questionnaire, so it's not too onerous to have the patients complete it. I think it gives a lot of good information, particularly with the pain and function sub-scales and it is more sensitive than other typically used upper extremity scales like the DASH.

The other thing that I do like to look at is the recovery of grip strength in comparison to the contra-lateral side. That is useful as an outcome, but again, I think the patient-reported outcome is more important to me than what their final range is.

Dr. Michlovitz: I use the Patient Rated Wrist and Hand Evaluation. I've been using it since 1997, the year after it was published, to look at the patient's perception of their problems. I prefer to use that not only because of the psychometric properties of it, but because you can ferret out and individually look at the patient's pain component, and the DASH doesn't directly allow

you to do that. It's not a cumbersome measure. It's very quick to administer, and I haven't had problems with patients understanding it.

Dr. Macdermid: Are there other measures you use?

Dr. Michlovitz: Yes, I also use the ability of someone to weight bear. Joy and I have done some work together on a measurement that I had developed trying to quantify the ability to push off (when they're allowed to weight bear), and I also use grip strength as a measurement. The other measurement that I use is Paul Stratford's Patient Specific Functional Scale, which has the patient choose three activities that they have the most difficulty with related to their life. You take pre and post measurements, pre-therapy intervention and post-therapy intervention and look at the difference, the change scores in those.

Dr. Macdermid: David, what things do you look at for outcome measures for distal radius fracture?

Dr. Ring: It sounds like we're answering the question more what we would use as research tools. Is that how you intend it?

Dr. Macdermid: Well, I think people use these tools clinically and in research.

Dr. Michlovitz: I use them in the clinic practice on a routine basis.

Dr. Ring: I don't currently use questionnaires in clinical practice—I have used them almost exclusively for research. We are starting to develop short form questions that would be more useful in the care of individual patients. I would just emphasize the distinction between impairment and disability. Impairment is objective pathophysiology such as stiffness, arthritis, diminished sensibility. Disability is the individual's perception of what they can or can't do. The variation in disability for a given impairment is striking. On a simple level, some people go right back to the job without a hitch, even with substantial impairment. When the patient

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comes back six months after and tells me they don't even think about their fracture, we hug, give a high five and feel good about it, even if they have restricted motion and other things. Wellness, recovery, it's when you sort of move on, and you feel healthy again. That's success. Perfection, that's elusive, but we do get that sort of "I don't think about it", and that's where we really feel like we won.

Dr. Macdermid: My next two questions are kind of at opposite ends of the spectrum. First, which patients or sub-groups of patients do you think would do well after fracture when provided a home program and minimal supervision? Which can you send off on their own and be fairly confident they'll do well?

Dr. Grewal: Patients that have some history with exercise or therapy in the past undoubtedly do very well with the home program. Patients that are motivated and have a clear goal of what they're trying to achieve will also do well, as well as patients that don't have a lot of issues with digital stiffness, swelling or complex regional pain.

Dr. Macdermid: I noticed you didn't mention any sort of displacement type of fractures. Are there any

types of fractures that you think are particularly prone to do well in a home program?

Dr. Grewal: I think perhaps the more restrictions that you have to put on their therapy program, maybe because of the complexity of the underlying injury, the harder it is for patients to do on their own at home. If they have a fracture which allows full range with no restrictions, they will do well. If you have someone with a DRUJ injury or something and you're trying to limit rotation, that sometimes doesn't translate over as well. Those people will do better with more supervision.

Dr. Macdermid: Sue, can you characterize who you think would do well in a home program?

Dr. Michlovitz: I think someone who understands their body function, as Ruby discussed, and have had some ability to exercise in the past, but also patients who have had minimum-to-no complications with a non-displaced fracture, who come out of the cast and are ready to move and go. I also believe that the way to put them on a home program is send them for a two-time therapy episode, one to teach the program and the other to then have them follow up with the therapist to make sure they're doing exercises properly without supervision.

The other type of patient who would benefit from a home program

is the one who has high performance expectations. I've treated some musicians who have been casted for a number of weeks and really need a good supervised home program, not necessarily to regain wrist motion, but to look at upper extremity endurance to be able to carry out their activities required when they play their musical instruments.

Dr. Macdermid: David, how about you? What do you think?

Dr. Ring: I think this is something where shared decision-making comes in for me. I usually tell the patient how to work the fingers and things after the surgery, and we may have them get an orthoplast splint within a few days and work with the therapists a bit when they do that. When they return to get the sutures out, I'll show some more exercises and I ask them "do you feel like this is something you can do on your own, or would you like some help?", or "would you like someone to coach you and help get you through this?" Some patients think, "I need therapy," or "my wrist won't turn out well if I don't have therapy." And if you say, "look, you need exercises, but not necessarily therapy," they say, "okay, I can do the exercises on my own." Some people don't want the inconvenience of having to go in somewhere, and they're happy to know that they can do it on their own, and some people would never go without the coaching and the teaching and the camaraderie that a therapist provides, and they really want to get in there even if they're doing well. So I sort of follow the patient's preferences. I think Mark McQueen and some others have shown that for minimally displaced fractures therapy overall on average doesn't make any difference—formal therapy, opposed to just exercises. As long as patients know that it's an option to do exercises with or without formal therapy, I tend to follow their preferences.

Dr. Macdermid: You know you point out a great thing about the litera-

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ture. Most of the studies looking at therapy home programs have been done on patients who had non-displaced fractures treated in casts. Unfortunately, we haven't been able to define the optimal dosage for therapy in more complex fractures, because there just aren't those kind of studies out there. So we have a need for better dosage trials in the area.

Dr. Ring: We're doing a trial with operatively treated fractures including articular fractures—anything you treat with just the volar plate—and we're about two thirds, three quarters of the way done. It's probably going to show no difference, but I'll tell you, there have been 1 or 2 patients along the way that are assigned to no therapy that call up or email me and say, "you know, I'd really like to go see the therapist, I feel alone", and I say, "sure". It's an intention to treat or pragmatic trial, and I cannot deny them that. So they go in. Other people are assigned to therapy and they really hardly ever go once they get confident with it. So it's a very interesting thing to try to sort out.

Dr. Macdermid: There's something as I'm sure most of you are familiar with called clinical prediction rules, and they can help with defining who needs what dosage or who needs what pathway when it should be defined by a combination of the factors we've been talking about. If you could develop a sort of pathway for combinations of factors that indicate people might need more or less therapy, that would be really useful. I think we're just starting to get there, but we haven't got the complex rules defined yet.

Mr. Karagiannopoulos: From my perspective I agree completely with Sue on the least complicated fractures. Maybe the younger population really fit the criteria of probably having the freedom of doing the home program more than needing supervision. The best place to look at evi-

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AAHS 2011 Research Grants

Annual Research Awards will be made by the AAHS Research Committee. These 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

Up to three (3) grants in the amount up to \$5,000 each will be made for a one year period. Grants are available to AAHS members, residents, fellows, and therapists. Up to three (3) investigators may be included on a single application. One of the co-investigators must be an AAHS Active or Affiliate member.

Application

The application consists of three (3) parts: 1) Investigator(s) demographic information; 2) Description of Research; and 3) Curriculum Vitae for each Investigator.

The application can be obtained from: www.handsurgery.org

The application must be received no later than **November 3, 2010** in order for judging to be completed in time for the recipients to be announced at the 2011 Annual Meeting.

Guidelines

The facility for research must coincide with the Principal Investigator's location for one (1) year following the receipt of the award.

AAHS and the Research Committee are required by the IRS to document disbursement of funds, as well as maintain annual reports on the funded programs. Award recipients will be asked to provide both financial and progress reports.

AAHS must be acknowledged as the source of funding in any presentation or publication.

It is expected that the work supported by this grant be submitted for presentation at the AAHS Annual Meeting within two (2) years of receipt of the award.

Yearly progress reports are requested. The final progress report should list publications which resulted from the initial seed funding.

If the research is not started within twelve (12) months of the receipt of the award, the funds must be returned to AAHS.

Failure to follow these guidelines will disqualify recipients from future research grant cycles, as well as from presenting any papers at the AAHS meetings for three (3) years following such default.



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dence is the 2007 Systematic Review by Handoll et al. This review brings together all the studies that have been published on this issue, and they found that there is very weak evidence on determining clinically significant differences in outcomes between people who do receive formal rehabilitation compared to no intervention. Clearly, I think that we lack the evidence. Most of the studies that have been published have very small sample size, and when they do compare the group who does get therapy versus the group who go to home program, they lack subclassification. They sum up all the people in one group or the other in a random fashion. They don't account for types of patient factors. I think that we need to subclassify patients by gender, age, or maybe the severity of their injury or type of treatment, such as surgery com-

pared to closed reduction, so we can have more specific evidence on who may need therapy and who may benefit more from a specific home exercise program. Personally I believe we also need to be looking at who does provide the therapy. Is there any difference between a regular PT versus a certified hand therapist? This can be another important factor on the final outcome. I do believe that no matter what, at least one or two visits, even for the patients who do qualify for doing only the home program, is a great idea at least to familiarize them with the appropriate way to execute exercises and to check if they actually are compliant and are performing well with the home program.

Dr. Macdermid: I think you made an excellent point and point out fatal flaws in many current studies. You wouldn't give a drug to people who didn't need it but we do not have good screening in most trials to say is this person really a potential can-

didate for therapy. Part of the problem in the issues that we discussed already is that you can't really predict who needs therapy just based on the type of fracture they have. There are a multitude of bio-psychosocial factors that contribute to whether somebody needs therapy or not, and we don't have those defined. So what you end up doing in a clinical trial is randomizing everybody into two groups, usually very underpowered, and then half of the people in both of those groups won't need therapy anyway, so you're going to have very limited ability to detect differences between groups.

Dr. Ring: Another way to say that is that every study can only answer one question, and the question we're asking right now is does everyone need therapy. That's probably the wrong question.

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HAND THERAPY PROFILE

Georgette Fogg, OTR/L, CHT

Personal: My hometown is Pittsburgh, Pennsylvania and I continue to live here with my husband, Dale, of 11 years and our 5 year old daughter, Gabrielle. My husband works as a sales representative for a fitness equipment manufacturer, but has a sports medicine background. Our daughter is approaching on Kindergarten in the fall, which has come way too quickly.

Education: BS in Occupational Therapy from the University of Findlay. I became a CHT in 2006.

Employer: I have worked for Allegheny General Hospital as an occupational therapist (OT) in hand therapy for 9 years. I currently job share a full-time

position with a wonderful colleague at a satellite office on the north side of town.

AAHS Involvement: I am an affiliate member of AAHS. I had my first opportunity to speak at the annual conference in 2004. I am honored to have been recently elected as the Junior Affiliate Director for the AAHS Board of Directors. Being a part of this organization has encouraged my professional and educational growth.

Best Part of My Job: I love to help people "get better". I like to see progress, which not only occurs physically through objective measurements, but also on an emotional level. In my work setting I see a lot of acute trauma, having some mental health educational background helps me




to provide support to those patients who are in need of the emotional support as well.

Major Accomplishments: Becoming a CHT.

Clinical Specialties: Acute trauma. I like to

work with complex hand injuries. Often times, these injuries will require some sort of splint. Splinting is enjoyable for me because each splint tends to be unique to the patient's specific need. When I am splinting I feel as though I am creating an original piece of art.

Greatest Professional Challenge: Public speaking.

Three Words That Describe Me: Willing to try. 

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Dr. Macdermid: It's probably the wrong question, because I think intuitively we all believe that not everybody does. So if we try to define the other end of the spectrum, who are the people that we're confident do need to go to regular therapy? What are the things that would indicate that to you?

Dr. Ring: Just to build on my comments before, I think *need* may be a strong word. I think it's a preference. It helps people feel comfortable. Maybe they don't feel as confident with their body motion and feedback, and so they could definitely benefit from a lot more guidance than the average person. The other thing is that—here's where I guess I might be a bit provocative—sometimes there's a certain patient who needs guidance and support to do painful exercises that are counterintuitive. Plus, there are some therapy dictums or ideas that tend to reinforce pain catastrophizing rather than reassure patients and help them change mindset to that healthy athletic stretch mindset. Some therapists will tell patients to work to pain but not beyond, as pain can cause inflammation. What that does is reinforce the misinterpretation or over interpretation of pain that says they are going to cause harm if they cause hurt—it's actually counterproductive. Unless I know the therapist and feel comfortable that they understand the need to avoid reinforcing maladaptive coping strategies such as pain catastrophizing, I do worry about how doctors and health providers and therapists sometimes reinforce those things right at the worst possible time. By the same token, therapists in general spend a long time with the patient, listen to their story, legitimize their concerns and really provide a lot of support. In general I think one of the best things the hand therapists do is to give patients that support, and so in general I think that's a perfect indication to get somebody to a therapist.

So you can see I have mixed feelings.

Dr. Macdermid: Sue, do you want to go next on that one?

Dr. Michlovitz: David, I want to address a bit your issue of pain during therapy. I think that patients need to learn to appreciate that they will have pain during recovery, and sometimes I will give the analogy that you've just had a procedure where your wrist has been not moving for six weeks or so, and of course you're going to have pain. We can teach you what pain is good pain to have or appropriate pain. I make the analogy that if you've been sitting on your foot working at your computer for an hour, of course you're going to have pain and you're going to be stiff, so think about if you sat on that foot for six weeks what it would feel like. I think it's really how you approach the patient and how you, the therapist, feel comfortable being able to ferret out what's appropriate pain to have and what's not.

Dr. Macdermid: One thing I noticed we haven't really talked about in this call is edema. Patients who tend to have a lot of edema are ones that I've found have difficulty in regaining motion. Are there specific strategies you use?

Dr. Grewal: I certainly do refer all those patients to therapy. Personally I don't have a lot of things I do for them, but I think certainly the therapists do, for example coban wraps or contrast baths.

Dr. Michlovitz: We really aren't sure about the contribution of edema to recovery after the fracture. I found that there is a study that's presently going on looking at the influence of swelling on recovery. The intervention that they're using is compression gloves very early on to see if that makes a difference in outcome and helps prevent some of the complications following displaced distal radius fracture.

Dr. Macdermid: Okay, Chris, do you have any comments on which patients you think need regular therapy?

Mr. Karagiannopoulos: Absolutely, I think that the psychosocial part of the patient is going to play a major role. In addition, I think that the initial presentation of edema and stiffness the physician first observes in the first post op visit should determine therapy referral and it's a major factor for later outcomes that needs to be addressed immediately. Also, pain is a factor that needs to be taken for consideration. Some of these things can be easily measured at the physician's office by utilizing the PRWE pain subsection to see at what level people respond to pain, and using it as a precursor on determining whether someone needs a little more support and guidance as they are in a greater risk for stiffness or lack of functional return.

I think that everybody needs at least a start in therapy and maybe the therapist should be empowered to communicate with the physician to determine the length of therapy based on the severity of the injury and initial response. Some people probably will not need as much as others. Mostly the people who are less cognitively strong, maybe older people who may not understand and don't have that psychosomatic ability to perform exercises, may need more support and guidance in the longer term. The literature needs to do a better job defining what's regular therapy versus not regular therapy so we can compare apples to oranges. They're comparing therapy to a home exercise program, but the therapy is only four or five visits, while some other studies utilize the definition of regular therapy as 17 to 20 or maybe more visits.

Dr. Macdermid: I agree with you. Dosage is an incredibly important issue, and all therapy is not the same. I mean sometimes therapy can be counter-beneficial to people progressing, and sometimes it can be very beneficial. It depends what you're doing and if you're staging it correctly to the person's status, and so unless it specifically described what people are doing and how they're progressing patients, we

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Distal Radius Fracture Surgery

Given that the topic for this issue is “Post-operative Results and the Results of Distal Radius Fracture Care,” we will look at distal radius fracture surgery codes in this edition of the Coding Corner.

For many years, distal radius fracture surgery code descriptors included the phrase “with or without internal and/or external fixation.” This phraseology had been identified as a gross oversimplification by the hand surgery community at large, and a few years ago, the code descriptors and associated RVU’s were reorganized to more accurately represent the spectrum of difficulty in treating distal radius fractures. The relevant codes now

are differentiated from each other based upon the number of “fragments,” or discrete, significant fracture pieces. While still not a perfect system, this is perhaps a better way of distinguishing the work required to manage a more complicated fracture from the work need to treat a fracture that is less complicated. Note that the number of incisions used (or the need for separate incisions) does not factor into the code descriptor. While some complicated distal radius fractures might require more than one incision, these fractures would typically be of multiple fragments, and therefore the work required would be reflected by using a code that corresponds to more fracture fragments.

There are six codes that deal specifically with distal radius fracture care. Code 25600 refers to closed treatment without manipulation, and code 25605 corresponds to closed treatment of distal radius fracture (with or without an ulnar styloid component) that does involve manipulation. Code 25606 refers to surgery that involves percutaneous pinning of a distal radius fracture. This would also be the code used in situations when the distal radius fracture is treated with an external fixator.

The next three codes represent the core of distal radius fracture surgery, and they differ only by the number of fracture fragments present. Code 25607 corresponds to surgery performed for an extra-articular fracture (theoretically a “one part” articular fracture) of the distal radius. Code 25608 would be used for treating a two-part articular fracture, and code 25609 is for treating a distal radius fracture with three or more articular segments.

The current distal radius fracture codes are designed to account for the work involved in the surgical treatment of distal radius fractures of varying difficulty; this is why the 25607,

25608 and 25609 codes specify how many “parts” are present in the fracture being treated. While these codes have increasingly higher RVU values which correspond to increasingly more difficult fracture patterns (and the increasing amount of work required to treat these fractures), some aspects of surgery, when performed, might be considered as warranting additional codes. Examples of this might include tendon or nerve releases or transfers. While the distal radius fracture codes have in general been intended to account for all the work involved in treating the specified fracture, some surgeon discretion is required in considering whether it is appropriate to add any additional codes for a given procedure.

As a final note, three codes corresponding to ulnar styloid fractures are added into the table below because ulnar styloid fractures commonly occur in conjunction with distal radius fractures. Code 25650 corresponds to closed treatment of the ulnar styloid fracture; code 25651 is used for percutaneous fixation of the ulnar styloid; and code 25652 would be used in those circumstances in which the ulnar styloid fracture is treated with open reduction and/or internal fixation. Be sure to note, though, that in coding for all fracture care of the distal radius, closed treatment of ulnar styloid fracture does not warrant an extra code. In other words, using code 25650 is specifically excluded from being paired with the distal radius fracture codes — because the work involved in treating the ulnar styloid fracture via closed methods has already been factored into the RVUs assigned to codes 25600 through 25609. If the ulnar styloid fracture is managed with pinning or with open surgery, then an additional code reflecting this work may be added on to the distal radius procedure codes. **H**



LEON S. BENSON, MD

Distal Radius Fracture Codes	
25600	Closed treatment of distal radius fracture (eg. Colles or Smith type) or epiphyseal separation, includes closed treatment of fracture of ulnar styloid, when performed; without manipulation
25605	As above, with manipulation
25606	Percutaneous skeletal fixation of distal radius fracture or epiphyseal separation
25607	Open treatment of distal radius extra-articular fracture or epiphyseal separation, with internal fixation
25608	Open treatment of distal radial intra-articular fracture or epiphyseal separation; with internal fixation of 2 fragments
25609	Open treatment of distal radial intra-articular fracture or epiphyseal separation; with internal fixation of 3 fragments
Ulnar Styloid Fracture Codes	
25650	Closed treatment of ulnar styloid fracture
25651	Percutaneous skeletal fixation of ulnar styloid fracture
25652	Open treatment of ulnar styloid fracture

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don't really have a sense of where they are along that continuum. Does anyone else have any comments on that?

Dr. Michlovitz: I have a final comment I'd like to make, related to

who goes into the therapy and who doesn't. We as therapists need to do a better job determining that. To that end, Joy, Chris and myself and 31 other therapists will be getting together for a study group at the end of the summer to address these issues, to look at criteria, look at the literature and try to develop algorithms to determine who may be

best candidates for supervised therapy versus home exercises.

Dr. Macdermid: Everyone had some really thoughtful comments about how people recover after distal radius fractures, and I thank you for your time. **H**

AAHS Mentoring Program Volunteers

Below is a list of AAHS members who have generously offered to teach their expertise in specific areas, letting our members continue to learn the way we were

taught, as residents and fellows, in the clinic and operating room with a surgical mentor. For more information, please contact the AAHS Central Office. **H**

NAME	EMAIL	PROCEDURE(S)
R. D. Beckenbaugh, MD	beckenbaugh.robert@mayo.edu	Technique of pyrocarbon arthroplasty of the thumb carpometacarpal; and metacarpophalangeal and PIP joints of the digits
Richard Berger, MD, PhD	berger.richard@mayo.edu	Wrist surgery
Kyle Bickel, MD	kbickel@sfland.com	Vascularized bone graft reconstruction for carpal pathology; complex fracture management in the hand and wrist; and arthroscopic wrist ganglion excision
Allen Bishop, MD	bishop.allen@mayo.edu	Brachial plexus reconstruction; carpal vascularized bone grafts; and microvascular free tissue transfers
James Chang, MD	changhand@aol.com	Dupuytren's Contracture; thumb reconstruction; flexor tendon surgery; trapezial excision arthroplasty; and medial epicondylectomy
Kevin Chung, MD	kechung@med.umich.edu	Rheumatoid and congenital
Tyson Cobb, MD	tycobb@mchsi.com	Endoscopic Cubital Tunnel Release
E. Gene Deune, MD	egdeune@jhmi.edu	Congenital hand anomalies; upper and lower extremity reconstruction for deficits due to trauma; cancer resection; and neurological disorders (i.e. brachial plexus)
Scott H. Kozin, MD	SKOZIN@shrinenet.org	Pediatrics
Don Lalonde, MD	drdonlalonde@nb.aibn.com	Wide awake approach to hand surgery
W. P. Andrew Lee, MD	leewp@upmc.edu	Post traumatic hand reconstruction; mini incision carpal tunnel release
Susan Mackinnon, MD	mackinnons@wustl.edu	Ulnar nerve surgery
Nash Naam, MD	drnaam@handdocs.com	SLAC wrist reconstruction; vascularized bone graft in treating scaphoid nonunions; ulnar shortening & radial shortening; PIP & MP joint arthroplasty; LRTI; arthroscopy of the CMC joint of the thumb
Daniel J. Nagle, MD	OOGIEN@aol.com	Wrist arthroscopy; endoscopic carpal tunnel release
Michael Neumeister, MD	mneumeister@siumed.edu	Basilar joint arthroplasty; peripheral nerve decompression
Jorge Orbay, MD	jlorbay@aol.com	Wrist fractures
A. Lee Osterman, MD	loster51@bellatlantic.net	Advanced wrist arthroscopy and small joint arthroscopy. Can also mentor a topic such as DRUJ problems, or wrist fracture.
Julian J. Pribaz, MD	jpribaz@partners.org	Soft tissue reconstruction; microsurgical reconstruction; spare parts surgery and extremity reconstruction
Michael Raab, MD	mikeraab1@earthlink.net	Corrective osteotomy (volar or dorsal) of distal radius malunion with iliac crest bone grafting
Jaiyoung Ryu	jryu@adelphia.net	Wrist reconstruction; distal radius fracture; and scaphoid fracture/nonunion
David Slutsky, MD	d-slutsky@msn.com	Use of volar wrist portals for wrist arthroscopy and arthroscopic repair of dorsal radiocarpal ligament tears; nonbridging external fixation of intra-articular distal radius fractures; nerve conduction studies for hand surgeons; and comparison of NCS and PSSD for the diagnosis of CTS
William Swartz, MD	william.swartz@verizon.net	Tendon transfer and ulnar nerve
Thomas Tung, MD	tungt@wustl.edu	Brachial plexus and nerve transfers
Joseph Upton, MD	jupton3@earthlink.net	Congenital hand surgery
Elvin Zook, MD	ezook@siumed.edu	Fingertip reconstruction

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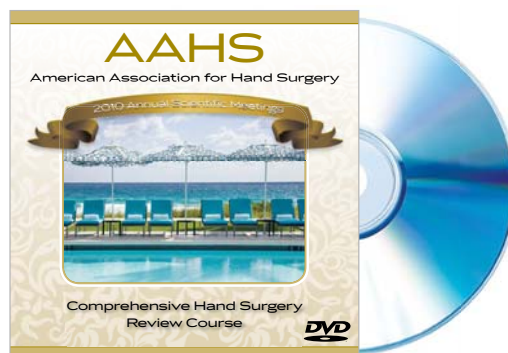
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