

progress in

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HAND SURGERY

Advances Support Prompt Specialty Care for Hand and Wrist Problems

*Important Medical
News from Bryn
Mawr, Lankenau,
and Paoli Memorial
Hospitals*



Wrist-ligament reconstruction procedures can prevent long-term problems and are supported by improved technology. Injuries to the ligament connecting the scaphoid and lunate, for example, may appear to respond well initially to immobilization but then cause significant disability. *Image* shows the wrist of a patient who suffered post-traumatic arthritis. MLH hand surgeons treated him with a partial wrist fusion, using a specially designed implant and a coral bone graft.

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The public often sees hand or wrist conditions as benign and routine, *or* intractable. But left untreated, these problems can lead to long-term damage or years of unneeded disability. Experts in hand and wrist care have increasingly observed that injuries that do not respond rapidly to conservative care often involve tendons or ligaments. In addition, they have been able to offer appealing and effective surgical treatment to patients with such chronic conditions as arthritis and overuse syndrome.

In comprehensive hand and wrist programs, such as that at Main Line Health (MLH), early care leads to relief of symptoms and return of function. Recent studies have shown that best results come from exact restoration of hand and wrist anatomy early.

When a "Sprain" Is Not a Sprain

Sprains are great mimickers of more serious conditions, especially in the wrist. Such conditions can be difficult to diagnose and do not necessarily correlate with severity of pain.

"'Wrist sprain' is a vague term that we hardly ever use," explains Marwan Wehbé, MD, hand surgeon at Bryn Mawr Hospital. "Our job is to identify the specifically injured structure."

Wehbé and his colleagues support conventional steps used by most primary practitioners for sprains. However, they recommend a specific work-up for patients whose symptoms don't resolve within a couple weeks.

"Family physicians and their patients are increasingly recognizing that symptoms which persist despite simple treatment may need to be referred to a specialist," says William Kirkpatrick, MD, also a hand surgeon at Bryn Mawr Hospital.

In fact, evaluating wrist pain in patients with no obvious fracture can be challenging

One of Region's Most Experienced Team of Hand Surgeons

Last year, the orthopedic specialists of Main Line Health performed more than 6,000 procedures, including: 1,796 hand and wrist procedures; 1,260 hip and knee arthroscopic procedures; 490 knee replacements; 430 shoulder procedures; and 425 hip replacements; and 300 spine procedures.

Quality surgery and care for hand and wrist problems require a high level of training and experience. MLH hand surgeons are board and subspecialty certified. They conduct research and have academic appointments in which they teach orthopedic residents and medical students. They have helped to advance or make available such improved approaches to care as early mobilization, bone grafting, and other techniques.


even for experienced hand surgeons. "Our task is to discern which injuries are self-limited and will resolve on their own, and which require surgery to prevent a lifetime of problems," says Stephen Cash, MD, a hand surgeon at Lankenau Hospital.

The specialist may need to supplement history, exam, and x-rays with CT or arthroscopy. (MRI has not proven valuable in these cases.) Treating the patient early allows the hand surgeon to perform highly preventive anatomy reconstructions and realignments. Surgeons have been able to steadily minimize the invasiveness of these procedures.

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Triangular fibrocartilage complex (TFCC) repairs and partial carpal-ligament injuries, for example, lend themselves to arthroscopy. With this approach, the hand surgeon can debride the area and place sutures across the ligament.

Diagnosing damage months or years later often magnifies the needed work-up and treatments. Malunions or additional scarring may have occurred and ligaments have usually shrunk. Late-stage treatment can mean salvage procedures, involving fusions or joint resections that can restore wrist function but sometimes not all motion and strength.



Today, specialists can replace any hand, wrist, or elbow joint. The procedures are well established. *Photos* show hands of an MLH patient who has received silicon-rubber implants to replace knuckles destroyed by rheumatoid arthritis. Surgery corrected the deformity and restored mobility in this patient's hands. Wrist-joint replacement has also been successful for patients with severe arthritis.

PROGRESS IN HAND SURGERY is one in a series of newsletters published by Main Line Health to provide physicians, and other healthcare professionals, with information useful to them in helping their patients.

Carpal Tunnel, other Nerve Entrapment

Understanding of peripheral nerve entrapment has also improved. In contrast to popular belief, for example, carpal tunnel syndrome is due primarily to inherent predisposition and to confined anatomy in the carpal tunnel. Repetitive motion, trauma, or metabolic problems

can also contribute.

Patients with the syndrome may have a wide range of symptoms. Numbness, pain, weakness, and clumsiness are not all present in all patients. For those with significant problems, conservative steps (including steroid injection) rarely have long-term effectiveness.

An EMG study may also fail to elucidate the problem. For this reason, the test should be ordered by a hand surgeon with experience interpreting it and integrating it into a comprehensive evaluation. Other sites of peripheral nerve entrapment in the upper extremities can cause symptoms similar to carpal tunnel syndrome and are often missed. Carpal tunnel surgery serves to release pressure on the nerve and is curative in more than 90 percent of cases. The procedure can also be effective endoscopically – usually for early-stage cases.

MLH surgeons operate successfully on a significant number of patients who have failed surgery elsewhere. Success of surgery is not necessarily related to the severity of the condition; however, delaying surgery may mean less satisfactory results. Pressure on nerves can cause permanent damage.

Replacing Arthritic Structures

The range of care that hand and wrist specialists offer patients with rheumatoid or osteoarthritis is not common knowledge.

Broader Options for Fractures

Fractures that can be clearly identified are almost universally referred to orthopedists for immediate treatment.

Very often these are wrist fractures caused by a fall or other trauma. With an aging population and increasing popularity of certain high-risk sports, incidence of such fractures is only increasing.

But by virtue of their better appreciation of these injuries and of expanded treatment approaches, specialists can use greater discretion about the type and duration of immobilization, about identifying injuries that require initial surgery, and about a range of other therapeutic options. Radial head and neck fractures call for special attention because of their association with TFCC tears, interosseous ligament (IOL) incompetency, and other problems that can lead to later instabilities and complications. Fractures

of the distal radius can be especially complex and often involve carpal bone misalignment.

"It's important to have a full range of surgical options available," says Wehbe. "We take advantage of all of the various approaches to reduction and to internal and external fixation."

Scaphoid fractures are also common. "Compression of these with headless screws, via a small incision has proven effective," notes Kirkpatrick. "We can sometimes do this arthroscopically."

Radiographic templating helps to determine appropriate size of implants. And intraoperative, real-time fluoroscopy (with new low-radiation equipment) can help to determine implant position. This permits the surgical team to check placement of grafts, plates, and pins during the operation rather than after.

Specialists can recommend a plan tailored to the patient's abilities and goals. Programs may involve activity modification; exercise or hand therapy specially targeted to the involved joints; splinting and other joint protection; medication; or steroid injection.

Surgery may include joint realignment, reshaping, and restabilization; fusions; tendon transfers; soft-tissue arthroplasty; or joint replacements. "Surgery can be highly effective," says Cash. "Many patients who might be candidates for interventions remain unaware of choices that can improve their quality of life."

Right Care at the Right Time

Only a small percentage of hand and wrist patients at MLH undergo surgery. For those who do, outpatient procedures in the modern MLH surgical facilities, regional anesthesia (for most cases), and expert postoperative pain control make care and recovery easier.

Customized range of motion and strength exercises are especially important in hand and wrist care. Follow-up x-rays or recasting may be necessary, but most surgical patients return to activity and function within a few days.

Treatment steps are often less intensive if they take place early. Delaying care may mean additional loss without potential gain, and usually a protracted recovery.