Back In The Game

Rehabilitative Treatment Protocols Get Athletes Back Up And Running

By Kelle Walsh

Thirty-five years ago if a tennis pro damaged her rotator cuff, or if a basketball point guard tore his anterior cruciate ligament (ACL), it would have meant the end of a promising career. Today these athletes may be sidelined for a season — maybe less. And in some cases, they may come back to the game stronger than ever.

For example, following his “Tommy John” surgery in 1999, the Chicago Cubs’ ace pitcher Kerry Wood reported throwing harder than pre-injury, easily clocking pitches in the mid-90 mph range. The ulnar collateral ligament (UCL) surgery, named for the 1974 intervention created by orthopedic surgeon Frank Jobe for Los Angeles Dodgers’ pitcher Tommy John, revolutionized ligament reconstruction. The procedure replaces a ligament in the medial elbow with a tendon from elsewhere in the body, such as the forearm, hamstring, knee, or foot.

While surgical advances like the Tommy John have made previously career-ending injuries a lot less dire, sports-medicine experts also credit aggressive post-surgical rehabilitation protocols, centered on physical therapy, with bringing injured athletes back in the game faster and stronger than previously thought possible.

“Physical therapy is the cornerstone,” says Joseph Bosco, MD, vice chair of clinical affairs at New York University Hospital of Joint Diseases. “[An injured athlete] will do hands-on physical therapy and independent exercises sometimes five, six hours a day.”

Advanced healing protocols have developed with the goal of “returning [athletes] to sports as fast as safely possible,” says Paul M. Sethi, MD, an orthopedic surgeon with The Greenwich Sports and Shoulder Service, Orthopaedic and Neurological Specialists in Connecticut.

“When they first started doing ACL [surgery] they would put someone in a cast for a few weeks; or with a shoulder surgery, they would immobilize the person for weeks,” Sethi explains. “Today the trend is toward much earlier mobilization, and, instead of letting them rest, introducing [work] on their soft tissues and keeping their other tissues healthy, so you can get them back as soon as possible.”

Immediate and aggressive treatment is just one of the reasons that sports stars appear to heal more quickly from their injuries than the average person. To the weekend warrior who suffers the same injury as Kobe, Nomar, or the dexterous Terrell Owens, but is benched not for a weekend or even a week, but for months, these athletes’ speedy recovery may appear superhuman — or at least facilitated by some magic medicine not available to the average person. But doctors insist there is no secret weapon when it comes to injury recovery among pro athletes. “The perception is that athletes have this magical healing power, but it’s just not true,” Bosco says.

What is true is that professional athletes have several things going for them that help facilitate rapid recovery from injury. Professional athletes are at their peak level of fitness, making injuries typically less complicated and treatment protocols are more effective. “The difference with someone who is not all that well trained is that they will have to go through the whole process of slowly building strength and capacity in spite of that injury,” says Erik Moen, PT, CSCS, who works with competitive bicyclists and triathletes in Seattle. “Plus, the athlete has a much better-developed cardiovascular fitness system. If I’m treating someone who may not have that background, I can’t push them as hard as I can with someone who has that base.”

From the time the athlete is injured until his return to the game, he is working with a medical team focused on returning him to health. Mark DeCarlo, PT, MHA, SCS, ATC, is the chief operating officer of the Methodist Sports Medicine Center in Indianapolis, which coordinates medical care for the Indiana Colts football team. “For the Colts,” DeCarlo explains, “we have three orthopedic surgeons, two primary-care physicians, and a team of other specialists that can be called in — a neurosurgeon, an EMT, an ophthalmologist.” The team also employs its own athletic trainers, including a physical therapist athletic trainer. “Everyone works together and on the same page,” he says. “This team approach is very important to the success [of rehabilitating an injured athlete].”

Time and immediate access to rehabilitation

Professional athletes aren’t encumbered by the same economic constraints as members of the public. They don’t have to wait for approval from their HMO to start physical therapy, for example, or for diagnostic testing to determine the source of the problem. And they have nothing but time to focus on their rehabilitation — all day,

every day. “They are looking at an intensive, daily regimen, not just offering some rote rehab schedule that the general public would get. It’s customized and it’s focused and you have a very motivated patient,” Bosco says.

“Their livelihood depends on their getting better,” says Evan Ekman, MD, president of Southern Orthopedic Sports Medicine and medical director of Parkridge Surgery Center in Columbia, S.C. “Very few people are making their living with their knees and shoulders the way a professional athlete does.”

This also means that athletes seen returning to competition after injury may still be healing — and in pain.

“Lidocaine and cortisone [injections] are commonplace,” Bosco says. “Although many high-level athletes think more short term than long term, the vast majority of physicians and athletes would not do anything to jeopardize the long-term well-being of the patient/athlete.”

The treatment plan

The type of injury and its severity will determine the rehabilitation plan and the rate of recovery. Fortunately, the most common sports injuries don’t require surgery. “The vast majority of them are muscle strains,” Bosco says.
With these injuries, rehab focuses immediately on reducing inflammation, employing multimodal therapies, such as ultrasound, massage, electrical stimulation, stretching and strengthening, and a gradual return to activity.

“With acute injuries, physical therapists see athletes the same day as they see the physician to begin rehabilitation,” DeCarlo says.

For injuries that require surgery, the level of surgical invasiveness will determine how long an athlete is sidelined. “Minimally invasive surgeries create less soft-tissue trauma and less pain so the athlete can convalesce better,” Ekman says.

In almost all surgical cases, early mobilization and range of motion (ROM) is the goal, followed by strengthening. “We found that there is greater benefit from immediate range of motion and immediate weight-bearing that promotes healing; otherwise you are just delaying healing,” DeCarlo says.

“Take the scenario of an athlete with an ACL tear,” he continues. “He will lose range of motion and strength immediately; up to 50% of his quadriceps strength is lost within a couple of days. That’s why it’s crucial to get him into rehab immediately.”

Ekman credits the accelerated rehabilitation program used on the Dallas Cowboys’ Kevin Burnett following an ACL reconstruction he performed on the linebacker in early 2006, with Burnett’s readiness in time for the 2006 season.

This program, he says, includes “aggressive inflammation and edema control, early range of motion, strengthening exercises, accelerated plyometric exercise for specific activity, and agility training as soon as the patient has quadriceps control, full range of motion, and adequate strength.”

Ekman says that hamstrings’ strength and activity also play an important role in not only protecting the ACL, but in recovering from the intervention.

Other rehabilitation considerations focus on the physical demands of the specific sport and of the position played. “Rehab protocols that I respect and that I try to use, are those that consider sports specificity — understanding the level at which that person plays, and taking that into consideration and designing an individual protocol around that,” says Moen.

Sports medicine experts don’t discount the pain factor. Bringing an athlete back into the game may mean working through some pain in rehabilitation. However, the philosophy of “no pain, no gain,” has “gone by the wayside,” according to Bosco. “We know that if you stretch a muscle to the point of pain, the muscle will reflexively contract, rending the stretching ineffective. Although any post-injury therapy must involve some pain, we try to minimize it.”

Here’s a look at the most common injuries experienced by professional athletes, and the typical rehabilitation protocols:

Anterior cruciate ligament (ACL) injuries often recover with physical therapy alone, but tears require surgery, and sometimes a full replacement or reconstruction, using a section of the patient’s patellar tendon or hamstrings tendon (autografts) or even a cadaver graft (allograft) to rebuild the damaged one. ACL injuries require the longest

convalescence of sports-related injuries, with reconstructions requiring up to six months of recovery. DeCarlo says that ACL rehabilitation following surgery will be swift and focused: pain modulation, inflammation control, restoring ROM, and restoring a normal gait pattern or mobility. “Once their gait has normalized, then we start on strength training — that will be in a week to 10 days,” he says. “If they are ambulating well, then they get their strength back within three weeks or so.”

A complete tear in the medial collateral ligament (MCL) may require surgery to reattach the ligament to the bone. But most partial MCL sprains heal fully with physical therapy alone. “That’s a huge advancement,” DeCarlo says. “Now we know they can heal without surgery.”

Common shoulder injuries include **rotator cuff injuries, impingement and dislocations and acromioclavicular (AC) separation.** Grades I-III AC separations are treated with immediate icing, mobility therapy, and nonsteroidal anti-inflammatory drugs (NSAIDs). Grades IV-VI separations usually require surgery, and may take up to 10-12 weeks to heal. Minor rotator cuff tears respond to an aggressive strengthening program, while full-thickness tears require surgery, followed by ROM, strengthening, and a gradual return to activity. Recovery may take up to three months.

UCL injury rehabilitation includes rest, NSAIDs, ROM, and finally a progressive return to activity with increasing velocity. “When you rehabilitate a pitcher, you start by having them throw at a lesser percentage of their velocity and you start them on flat ground, not on the mound,” Sethi says.

Surgery may be indicated for acute UCL tears, followed by immobilization for up to 10 days, then active ROM, isometric strengthening exercises, and plyometrics.

Ankle sprains, the most common of all sports injuries, are graded from I to III depending on severity. Almost all sprains recover with rehabilitation, which includes the immediate use of the RICE protocol (rest, ice, compression and elevation), followed by passive ROM, active ROM, joint mobilization, and, finally, strength training.

“We used to think that keeping [the athlete with an ankle sprain] non-weight-bearing for a period of time was best. Now with grade I or II ankle sprains, we start them with immediate range of motion and immediate weight-bearing [exercises],” DeCarlo says.

Coming back too soon

Sports lore is rife with stories about the athlete who rushed — or was rushed — back into competition too quickly, and suffered further injury as a result. Managing rehab against an athlete’s urgency to return to play can be a fine line to walk for a sports therapist.

“Our way of dealing with that,” DeCarlo says, “is through functional progression. For every sport and for different positions, there are drills designed that an athlete has to be able to complete successfully in order to be able to return. So, not only will he have to have full range of motion, but he will have to be able to successfully complete a

“The ideal situation would be that the athlete would be able to complete that set of drills before he returns,” he continues. “Going back prior to successful completion of functional progression means that you are at risk of re-Injury.”

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