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*At Nevada Physical Therapy, we are dedicated to providing the best possible care for our patients. This is built on both a strong hands-on approach and progressive research-based protocols. Not content with status-quo, we are constantly pushing our field forward and striving to create the highest standard of care possible.*

## AN IMPROVED MODEL FOR ACL REHABILITATION

Over the last year, in conjunction with several orthopedic surgeons, the University of Nevada Sports Medicine department, the University of Nevada Strength and Conditioning coaches and our staff, we have created, what we feel to be, an improved model for treating the anterior cruciate ligament repair (ACLR) athlete.

Current research shows less than 2/3rds of ACLR athletes return to their prior level of sports participation. Additionally, the rate of re-injury being up to 6x greater than a non-operative

group, suggests current protocols may be not be addressing the appropriate deficits required to return these young athletes to the playing field.

At Nevada Physical Therapy, we are not trying to re-invent the wheel; our protocol continues to use the tried and true methods of achieving early terminal knee extension, managing pain and inflammation, restoring appropriate quad activation, and normalizing patellar mobility. Where we differ is in the peripheral exercise prescription. We are big believers in

the Selective Functional Movement Assessment to address “non-painful, dysfunctional” movement, most notably in developing muscle and core activation consistent with our biological development (more on this later). Additionally, we implement a closed-chain, multi-joint progression built around appropriately-scaled deadlift and squat progressions.

The deadlift incorporates hamstring and quadriceps activation in a manner consistent with the needs of sport-specific strength with minimal (cont'd)

### Inside This Issue:

- An Update On Current ACL Rehabilitation.
- A better way to treat lumbar spine injury.
- An Introduction to Dr. Stuart McGill, Phd
- Headaches: Old school techniques for one of the oldest diagnoses in medicine.



## The Selective Functional Movement Assessment

“The SFMA is the movement based diagnostic system, designed to clinically assess 7 fundamental movement patterns in those with known musculoskeletal pain. The assessment provides an efficient method to systematically find the cause of symptoms, not just the source, by logically breaking down dysfunctional patterns and diagnosing their root cause as either a mobility problem or a stability/motor control problem.

Too often in physical therapy clinicians treat their patients either as a mobility problem, wherein they spend the entire session creating mobility with no follow-up with strengthening or reinforcing these new movement patterns. Or conversely, they are treated as a stability issue and have strengthening progression one after another layered on top of poor movement patterns.

At Nevada Physical Therapy, we recognize that patients are often a blend of mobility and stability deficits and the SFMA has been an exceptionally useful tool in creating a protocol progression that treats the individual patient presentation. Not only using a “joint-by-joint” approach but implementing a strengthening progression that goes far beyond merely firing the rectus abdominus. Instead, we approach core strength the way our bodies are designed: scaled progression from rolling patterns to quadruped movement, from quadruped movement to high kneeling progressions, and finally to standing patterns.

We have had excellent success with this model and believe it is one of the few that truly addresses dysfunctional movement patterns from the ground up (literally).



## ACL REHAB CONTINUED...

shear on the graft. Additionally, it has the added bonus of *true* core activation. Hamstring weakness has long been documented as a risk factor for ACL injury and we make the suggestion that conventionally prescribed, open-chain hamstring strengthening may be falling short.

Further, it is possible that current return to sport criteria may not be stringent enough to clear an athlete for sport participation. The strongest indicator appears to be the single and triple-hop tests, which we continue to incorporate into our protocol. We have also added objective measurements of lower extremity output in a closed-chain model (as opposed to single-joint open-chain testing). We have also added components of the Functional Movement Screen developed by Gray Cook, PT ([functionalmovement.com](http://functionalmovement.com))

which research suggests can more appropriately highlight functional deficits (scores of 0 or 1 in a movement) putting an athlete at increased risk of injury.

Finally, as Kevin Wilks, PT recently said, “we must do better.” Meaning these athletes (and the general population alike) must be restored to *better* than their prior level of function as that level may have possessed predisposition to injury. We believe, with the previously mentioned adjustments, we are creating a model that more appropriately addresses the patient’s unique presentation and establishes a strong, science-based protocol to return the athlete to *better* than their pre-surgical status. If you are interested in a hard copy of our new protocol (and the research with it) please contact our office and we would be happy to send you one!

## SMART SPINE CARE

Arguably one of the most-challenging diagnoses for patients is one of lumbar disc lesion. At Nevada Physical Therapy, we base our lumbar rehab model on two main principles: restore symmetry and kinematics of the lumbopelvic region and develop a strengthening protocol sensitive to the unique anatomy of the intervertebral discs.

The first of these we achieve using osteopathic techniques such as muscle energy, strain-counterstrain application, trigger point release etc. These systems have been around for



decades and continue to give the best clinical outcomes of any in the field today. They are subtle, rarely irritating, and long lasting.

The second part of our philosophy is based largely on the work of Dr. Stuart McGill, Phd., one of the most well-respected spine kinematic researchers around (see below). His research shows a progressive strengthening model that is able to achieve high-levels of core activation with minimal disc compression. We have, and continue to have, excellent results with his model not only in the rehab setting, but also in the education of the public on preventative care of their spines. We work tirelessly with personal trainers, Crossfit coaches, and the even the “office chair athlete” on how to save their spines.



### Cost-versus benefit: How to build core strength without destroying your spine.

*“it is becoming clearer that repeated spine flexion-even in the absence of moderate load-will lead to discogenic troubles” (McGill, 2007)*

Dr. McGill demonstrates clinically that while *no* herniations were observed with a compressive load of 260N and 85,000 flexion cycles, herniations were observed with *only* 867 N compression and 28,000 cycles and further, 1472 N and 5000-9500 flexion cycles. The average sit-up creates nearly 3300 N compression! This theory is applied to not only sit-ups, but also the detrimental posterior pelvic tilt many athletes demonstrate in the bottom of squat-type movements.

We use Dr. McGill’s research to facilitate high levels of core activation with minimal disc compression such as front and side planks, bird-dogs, and high-kneel chops to name a few.

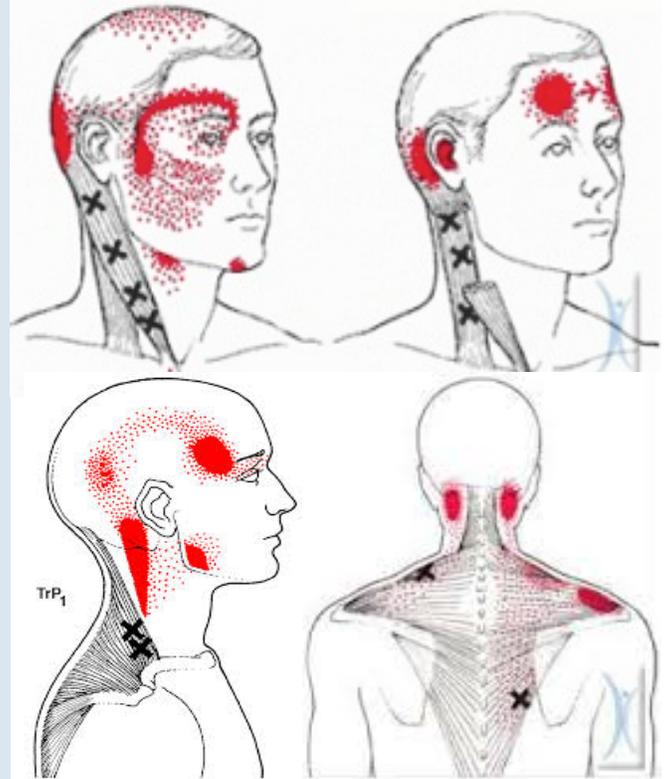
**Dr. Stuart McGill, Phd.** Professor of Spine Kinematics at the University of Waterloo, author of *Low Back Pain Disorders* (2002). He is considered by many to be the foremost authority on low back pain and rehab. Dr. McGill’s approach can be summarized in his treatment algorithm consisting of 5 steps:

1. Assess the patient to determine faulty movement patterns.
2. Correct the faulty movement patterns to sustainable movement patterns.
3. Build endurance in the muscle groups responsible for producing excellent quality movement.
4. Improve agility and strength in the good movement patterns.
5. Add power to the good movement patterns.

His work has been recognized with many awards including the R. Tait McKenzie Award 2005, the Canadian Society for Biomechanics Career Award 2004, the Stow visiting lectureship from the Ohio State University College of Medicine 2002, the Steven Rose Lectureship from the Washington University School of Medicine 2001, to name a few.

## Manual Therapy: An Effective Treatment Alternative for Headache Management.

Headaches are one of the oldest diagnoses in medicine, some dating back to 6500 BC and while we still only occasionally drill into the skull to relieve them, treatment options have come a long way. We use the work of Dr. Janet Travell, MD and her excellent breakdown of myofascial pain referral patterns. You know you put out good work when it is still as relevant now as it was in the 1920s. While it is rarely clear whether the facilitated muscle tissue creates dysfunctional joint movement, or vice versa, it is clear that these muscle groups create a huge headache potential. Using a combination of muscle energy techniques, joint mobilizations, myofascial release, postural re-education, and progressive posterior chain strengthening we are able to create an effective and long-lasting solution for many chronic headache patients.



Images reproduced from Dr. Janet Travell and Dr. David Simons' "Myofascial Pain and Dysfunction, The Trigger Point Manual" 2<sup>nd</sup>. Edition, 1999  
(Illustrations by Barbara Cummings)

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