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For people who LOVE triathlon

IRONMAN

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Get to know the world's greatest endurance athlete – he's homegrown!



KNOWING YOUR LIMITS

If you want to push your body to the next level, first you have to know what's holding you back. **BY NATHAN KOCH, PT, ATC**



Everyone has limiters – whether known or hidden – in his or her body: muscles that aren't firing or developed; asymmetrical movement; restricted mobility; or impaired coordination and balance. One of the keys to success in triathlon is pushing limits and learning from failures instead of avoiding them.

Identifying and exposing these limits in an athlete's body is the beginning of this process. Enter the physical therapist. Why a PT? They have the perfect skill set to identify these limiters and create a program to address them. A PT studies anatomy, physiology, musculoskeletal function, neurological function and biomechanics.

A PT graduates with a Doctor of Physical Therapy degree that emphasises critical thinking and evidence-based care. Physical therapy assessments are like solving a puzzle; they focus on the causes of injury, not just the diagnosis. This is the reason assessments are useful even when no injury is apparent: PTs help predict future injuries by identifying limiters within the athlete's body.

Keys to a good assessment of limiters are a review of injury history and training, observation of posture and alignment in static and dynamic positions, gait analysis, palpation, functional testing, muscle testing and assessing range of movement, joint mobility, balance and coordination.

Recognise that as in any profession, not all PTs are created equal. A good PT must be able to bring all this information together, apply it to the athlete's sport and devise a proper corrective plan.

Athletes who undergo physical or musculoskeletal assessment will experience "failures" in some areas or movements that reveal limiters in their body. Failure may be a harsh word, but competitive athletes are just that – competitive – and don't like to show signs of weakness. Yet, if the failure emphasises the limiter then hopefully a light bulb goes off. Gaining this understanding and how it relates to sports performance and injury prevention is crucial to success. At times these assessments are borderline

demoralising, leaving athletes wondering how they even got out of the car and walked into the building without falling over.

Limiters obviously cause injury but they can also decrease performance. Limiters will affect everything: the ability to maintain an aerodynamic position on the bike, the ability to maximise power output, stride length and foot strike on the run, and ability to rotate and reach in the water. Information on the athlete's limiters can be extremely valuable to an athlete's bike fitter, run coach and swim coach. Commonly, athletes who have gone through the assessment process set PRs at races without speed training or increased volume. Because they have increased their stability, functional strength and mobility, they can go faster without building fitness.

In the chart to the right, see some common limiters in triathletes (note: this is only a small sample).

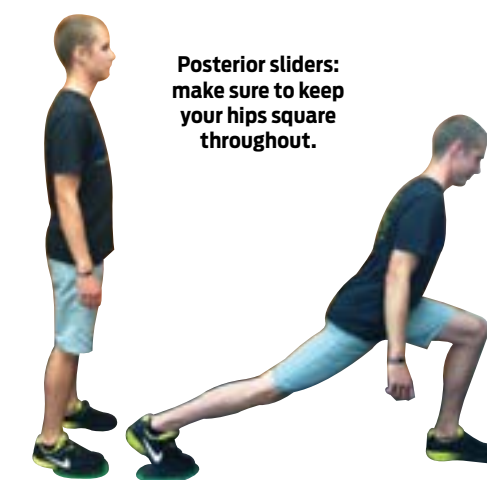
A targeted individualised assessment is a training tool, like a power metre or heart rate monitor, that provides valuable information and feedback allowing for more efficient and productive training. Think of this assessment as you would your yearly medical physical, yearly blood work or dental checkup. It's a musculoskeletal and biomechanical checkup. Just as a dentist can detect early signs of tooth

PT ASSESSMENT	LIMITER	HOW TO ADDRESS
Joint mobility	Ability to rotate to the right 50% restricted compared to left	90-90 stretch; lunge with rotation
Isolated muscle strength	Unable to lift L/R leg the same height and repetitions during reverse plank (hamstring and gluteal weakness)	Gym ball hamstring curls eccentrically; reverse planks
Functional test	Excessive hip drop and inward movement of the knee during single-leg squat	Side steps; gym ball hip hikes; if excessive movement is coming from the foot, consider orthotics
Palpation	Achilles tenderness	Eccentric calf raises; ASTYM
Range of motion/flexibility	Unable to extend hip past neutral position: tight hip flexor/quad	Reverse lunge; Thomas stretch
Balance	Single-leg balance is 20 seconds less on one side	Single-leg medicine ball twist
Run gait video analysis	One-sided early liftoff during loading phase due to decreased ankle dorsiflexion	Calf stretching; ankle joint mobilisation; increase run cadence

decay and prevent it from getting worse, a PT can detect limiters within your body that can cause future injury and inhibit performance. Predicting future injury and reducing injury risk through a good physical assessment is often the difference between a successful race season and a season of frustration.

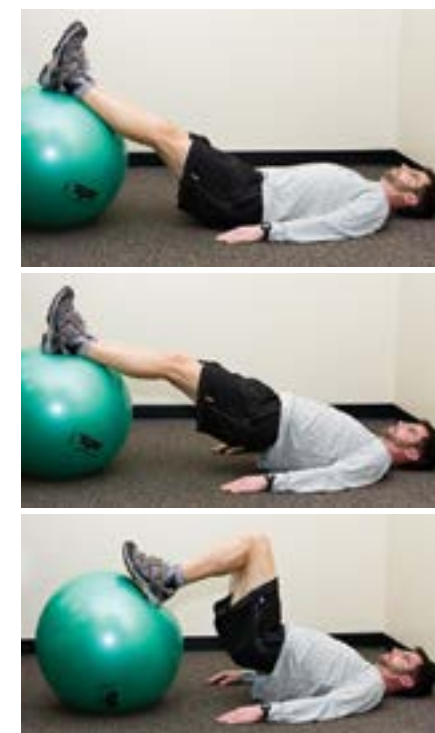
"As a coach I've always required the athletes I train to get a complete and thorough examination by a physical therapist at the start of each season. I know that this helps to avoid injuries and maximises performance. I've seen it pay off many times over the years," says Joe Friel, author and cofounder of TrainingPeaks.

Elite IRONMAN triathlete Tim O'Donnell echoes Friel's sentiment regarding the importance of an annual exam by a PT. "In the never-ending search for more power, aerodynamics and sustainability with my riding position, I've found PT evaluations to be an important part of the successful solution. No position is effective unless it's sustainable over the entire ride, especially if that ride is 180km in an IRONMAN! While working on optimising my position, generating power and staying aerodynamic I noticed my body



wasn't wanting to stay where it should be."

Not only are the world's best triathletes put together well genetically, they are also "engineered" by a wide range of experts to enhance their genetic gifts. Physical therapy has been and remains at the forefront of this process, where a PT uses thorough examinations to identify all areas where interventions can occur. Whether your goals this year include a trip to the Big Island, or you're just looking to step it up to the next distance, an annual visit to a qualified PT is a must this time of year. 🌟



Gym ball hamstring curls: be sure to keep your core tight throughout.

"PT ASSESSMENTS ARE LIKE SOLVING A PUZZLE ... THEY HELP PREDICT FUTURE INJURIES BY IDENTIFYING LIMITERS WITHIN THE ATHLETE'S BODY."

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