

Rehabilitation in a Different Light

Robb Rogers

Case Study – Sgt. Tim Brigham

bulletin

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bridging the gap between science and application
As the worldwide authority on strength and conditioning, we support and disseminate research-based knowledge and its practical application, to improve athletic performance and fitness.

Down, but Not Out

Master Sergeant Tim Brigham and his unit were just days away from returning home after a long tour in Iraq. Brigham's unit had not encountered any snags in their mission and thoughts of home began to feel so real. That is, until an unexpected ambush changed all of that.

In May 2005, Brigham and his unit were stationed just north of Baghdad, Iraq patrolling a small town. The unit split into three squads to cover more area during the patrol. Brigham and three other troopers manned a vehicle and moved through the center of town when they unexpectedly encountered gun fire that disabled their vehicle.

Brigham acted quickly, turning the vehicle to the side to provide cover. Through a haze of flying bullets, the four troopers scrambled out of and behind the disabled vehicle. Iraqi insurgents had dug up a ditch in the vehicle's path and pinned down Brigham and his troops. The attack was obviously planned as the insurgents seemed to know exactly when and where Brigham's unit would be. Being pinned down without any suppressive fire, Brigham sprung into action.

"My gut reaction was to get up and protect the guys that were behind me," said Brigham. "So I needed to get to higher ground in order to get their heads back down into the ditch."

Considering that they had been ambushed in the middle of the road, the only vantage point available to Brigham was the vehicle itself. He decided that it was his best option and began to climb.

"As I started climbing up the vehicle, an Iraqi insurgent came around the corner of a nearby building," said Brigham. "I was about halfway up the vehicle when he fired at me. [The shot] knocked me off of the truck and I landed on my head."



Master Sergeant Tim Brigham performing strength exercises with NSCA Human Performance Center Director Robb Rogers.

The gunshot entered Brigham's left mid-section and passed through his body. The shot fractured his spine, ruptured his spleen and damaged a section of his intestine before emerging from his left lower back.

"When I was shot, everything went into slow motion," said Brigham. "It seemed like an hour to me, but it was only a matter of minutes."

Brigham's unit radioed for support from the two remaining squads in the town and took cover. A member of his unit quickly positioned Brigham behind the wheel well of the vehicle and administered first-aid. Reinforcements arrived shortly and forced the insurgent attackers to surrender, capturing many in the process. A helicopter was flown in to medevac Brigham for further medical treatment. He was eventually admitted to a hospital in Germany to recover. He stayed there through early August 2005 until he was transferred to Walter Reed Medical Center in Washington, DC.



Down, but Not Out *cont.*



Master Sergeant Tim Brigham performing a gluteal hamstring raise at the NSCA Human Performance Center.

Brigham underwent surgery to insert a rod and screws to support his fractured vertebrae. The surgery also included the complete removal of his spleen and a small portion of his intestine. The injury to Brigham's spine caused severe nerve damage to both of his legs.

"When I first arrived [at Walter Reed], I was in a wheelchair because I could not walk at all," said Brigham. "While resting in the hospital, I experienced severe atrophy and I lost a considerable amount of weight and body mass."

Brigham was soon transferred to a VA hospital in Richmond, Virginia, where he continued the arduous process of rehabilitating his atrophied legs by progressing through a gauntlet of walking exercises.

"The nerve damage didn't affect me enough to totally keep me from walking," said Brigham. "But I had to completely relearn how to walk again."

In September 2005, Brigham was discharged and began rehab outside of the hospital in October. Brigham had been exposed to various exercises that included work with parallel bars, walkers, crutches and canes while in the hospital. Brigham continued his rehab on his own until a surgery required him to return to Colorado in July 2006. After returning home, Brigham experienced a major breakthrough that he had worked so hard to achieve.

"I was in the hallway of my house and I put my crutches down," said Brigham. "And I just started walking. It didn't look great, but it was the best feeling. I said to myself—I'm walking again."

Brigham had finally made his first steps since the attack, without any assistance. Just the thought of walking, was not the only motivational force behind his rehab.

"I wanted to walk again, so that maybe someday I could have the chance to play with my kids," said Brigham.

After returning to Colorado, Brigham connected with a physical therapist that began work to advance his rehab process. In March 2007, Brigham had recovered enough that he was faced with the option of returning for another tour in Iraq with his unit or staying in Colorado for further rehab.

"My unit really helped me through the whole process and they were there for me when I needed them," said Brigham. "I wanted to be there for them, so that is why I opted to go back with them."

Brigham deployed with his unit to Iraq and played a vital role in managing a special program being implemented there. While managing the program, Brigham was stationed in a non-combat zone which allowed him to continue his rehab. The decision to return to Iraq was not easy, but Brigham felt it was the correct one.

"I had a lot of doubt after I got out of the hospital. I doubted myself in various ways and I needed to prove I could get back on the horse," said Brigham. "I wanted to show people that even though I may have been knocked down, I am still standing."

Brigham and his unit concluded their tour in November 2007 without incident, and once home, he continued training on his own. A year passed before Brigham deployed for his final tour of Iraq in December 2008. After returning in February, he contacted his physical therapist. Training on his own was no longer producing the results he wanted, so his physical therapist recommended the National Strength and Conditioning Association.

Expected Protocol

- ⦿ ROM
- ⦿ Endurance
- ⦿ Size
- ⦿ Strength
- ⦿ Stability



Athletes

- ⦿ ROM
- ⦿ Retraining the software
- ⦿ Strength / Endurance
- ⦿ Size / Power
- ⦿ Stopping Strength
- ⦿ Stability
- ⦿ Speed



Retrain the Software

- ⦿ Is the pattern the same?
- ⦿ Is the recruitment the same?
- ⦿ Is the stability the same?
- ⦿ Is the neural stability adequate?
- ⦿ Is the neural work capacity adequate?

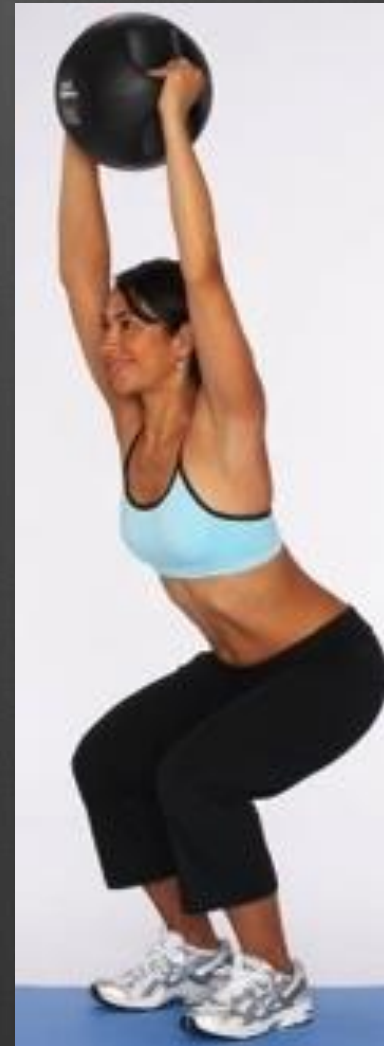
Exercise 1

- ⦿ Glute – Ham recruitment
- ⦿ Gait Patterning
- ⦿ Shoulder Blade Stability
- ⦿ Hip Flexor Hold



ROM

- ⊗ Stretching
 - ⊗ Passive
 - ⊗ Active
 - ⊗ Assisted
 - ⊗ Pin & Stretch
- ⊗ Release
 - ⊗ Deep Tissue
 - ⊗ ART
- ⊗ Fascial
 - ⊗ Deep Tissue / ART
- ⊗ Vibration
 - ⊗ DMS / Power Plate



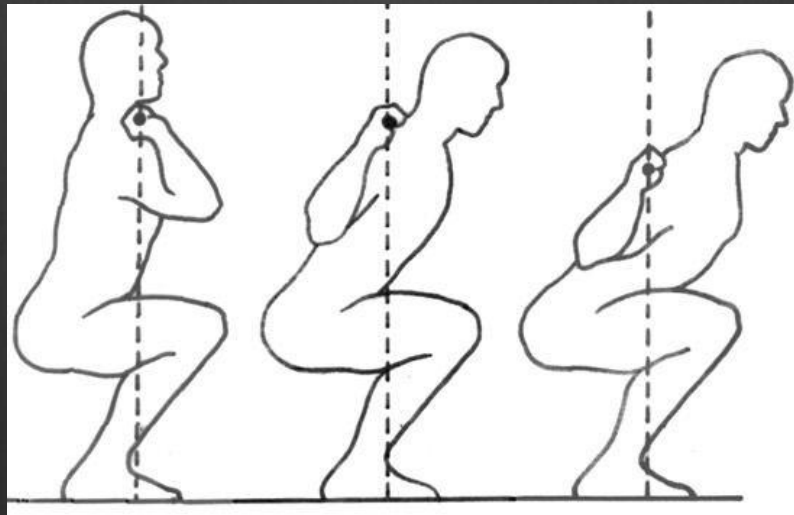
Exercise 2

- Pin and Stretch
 - Neck
 - Pec
 - Hip flexor
- Passive Release Techniques
 - IT Band
 - Hip Flexor
 - Shin Splints
- Fascial Stretch
 - Pec
 - IT Band
- DMS



Strength

- ⦿ Full ROM Strength – BW / External load
- ⦿ Stopping Strength – Pause / Hold
- ⦿ Starting Strength – Overcoming inertia
- ⦿ Elastic Strength – Plyometric



Exercise 3

🎬 Strength

🎬 Pause

🎬 Hold



Power

- ⦿ Move load with tempo
- ⦿ Move load with speed
- ⦿ Accept load with tempo
- ⦿ Accept load with speed
- ⦿ Move the body part with tempo/speed
- ⦿ Move the body with tempo/speed



Exercise 4

🎬 Power

🎬 Move with tempo

🎬 Move with power

🎬 Move with speed



Stability

- ⦿ Load bearing
- ⦿ Multiple Planes
- ⦿ Change Surface
- ⦿ Change Implement
- ⦿ Change – Change – Change stimulus



Exercise 5

⦿ Lower Extremity

- ⦿ LE step ups

- ⦿ Multiple plane single leg squat

⦿ Upper Extremity

- ⦿ Shoulder step – ups

- ⦿ Multiple direction crawling



