

In Focus: NuCalm



HOW MANAGING STRESS CAN ACCELERATE INJURY RECOVERY

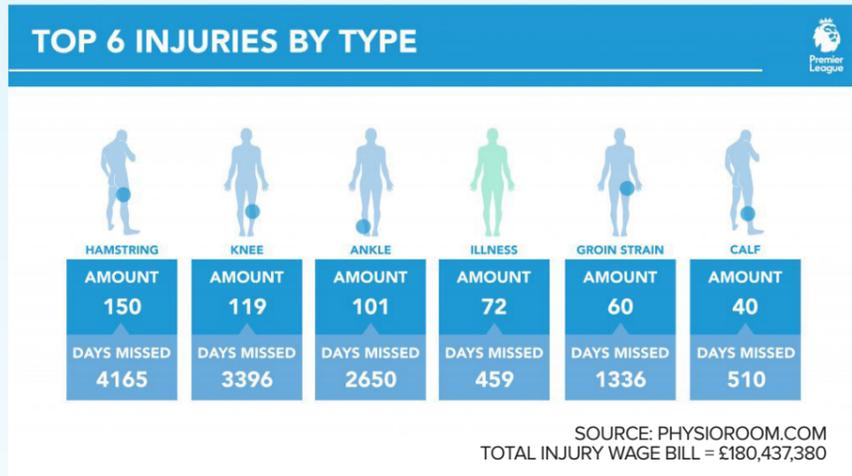
The neuroscience of NuCalm is helping athletes overcome the mental and physical challenges of injuries

You are in full speed, outpacing the defender, approaching the ball, and then it happens... you hear a pop in your knee, your leg collapses and you reach for your knee in agony as you crash on the field. The ball does not matter anymore, but the long road to recovery does. You get carted off the field and it starts – the doubt, the anxiety, the frustration. Injuries are part of the game. It's how you respond physically, mentally, and emotionally that dictates how and when you get back to the work you were born to do.

Injuries are part of the game. The raw data from the English Premier League from the 2016/2017 season shows just how disruptive injuries are.

The physical injury healing process is a complex system of cascading cellular events that result in reconstitution and restoration of the injury site. Impediments to any of the cellular functions during the healing process can delay healing and compromise the outcome. There is a lot of attention paid to the mechanics of injury recovery. However, the stress of being injured is just as important as the interventions prescribed by your doctors and trainers.

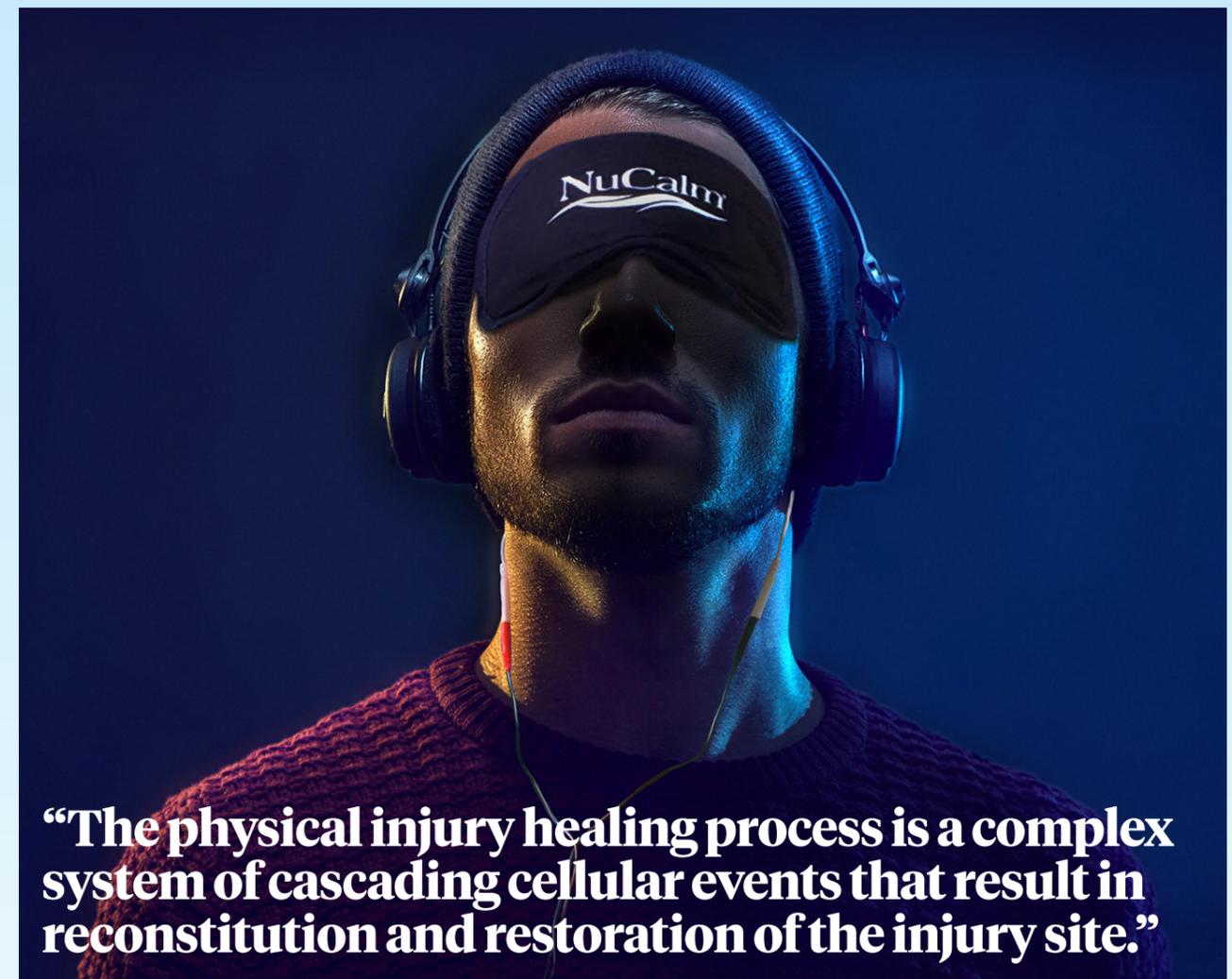
When you live in a state of chronic stress, even for weeks at a time, it negatively impacts your overall health and ability to recover quickly. Let's examine the stressors that injured professional soccer players face. You have stress from pain, discomfort, swelling, numbness, inflammation, and immobility to



the injured area. You have stress from poor sleep because you can't get comfortable or the pain wakes you up periodically throughout the night. You have stress from not knowing when you will feel normal again, and fear that you may never be back to your best. You have stress from the prospect of a long rehab schedule. You have stress from not being on the field and maybe not even traveling with the team. You have stress from disappointing your teammates, coaches, club owners, family, and your fans. You have stress from the media. You have stress from the competition continuing to improve while you wait to recover. And, you have self-doubt from the prospect of maybe never recovering 100%. All of this stress

wreaks havoc on your immune system, your body's natural healing processes, and your endocrinology. Now that you look at the stress caused by injury, the medical interventions and rehab may seem easy.

It is well established that stress can have a profound impact on cellular response systems. Research shows that stress can adversely affect the body by disrupting communication between the nervous systems, endocrine system, and immune system. These systems communicate using natural chemical messages and must maintain tight communication to ensure coordination and effectiveness. As the body responds to stress, the hypothalamus secretes corticotrophin



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releasing factor (CRF), to initiate production of adrenocorticotrophic hormone (ACTH) by the anterior pituitary gland. The release of ACTH in the blood stream stimulates the adrenal cortex to produce glucocorticoids (stress hormones). Cortisol, the primary glucocorticoid, stimulates the production of enzymes, which increases the availability of the body's fuel supply needed to respond to stress. The metabolic actions of epinephrine and cortisol ready the body for its 'fight or flight' response.

The healing process is a complex series of cellular events typically classified into three overlapping phases: inflammation, proliferation, and maturation. Cytokines are protein mediators that play significant roles in regulating the complex interplay of cells during all three phases of wound healing. Cytokines are soluble proteins released by cells to send messages to other local cells. Cytokines bind to specific receptors of the target cell to cause a change in function. Why are cytokines important? Because they manage the pace of healing.

According to a study published in the Archives of General Psychiatry on the healing process, "stress-induced elevations in glucocorticoid levels

can alter the carefully regulated dynamic system that controls development of the inflammatory response, suppressing IL-1a and TNF [cytokines] production." The more stressed you are, the lower the cytokine production, the slower the healing and recovery.

How reducing stress can accelerate healing

There are many proven ways to reduce stress – yoga, meditation, Tai Chi, mindfulness practices, etc. Most require committed practice and discipline. A new way to achieve deeper stress reduction and get the benefits of meditation, without the practice, has been used by professional athletes for the last seven years. This clinically proven technology is called NuCalm® and is the easiest way to quickly resolve stress and put the body into the optimal recovery zone. This patented neuroscience technology is currently used by 41 professional sports teams.



switch on the stress response and naturally pace the brain wave function to the recovery zone (alpha and theta – 12Hz – 4Hz). People in the recovery zone are physically unable to have an anxious response. Once in a relaxed state, people cannot produce cortisol, which interferes with the inflammatory phase of healing. NuCalm turns off the stress response and allows the body to perform its natural healing process of absorbing as much oxygen as possible by slowing down respiration rates and increasing the depth of your breathing.

The ability of NuCalm to create and sustain parasympathetic nervous system dominance helps athletes accelerate injury recovery by managing stress at the midbrain, balancing the inflammation response, improving sleep quality, and promoting oxygenated blood flow throughout the body. When you can get your mind off the injury, interrupt the stress response in the brain, and place the body in the ultimate recovery state, you win. For optimal recovery we must bring your mind back to before your injury and invigorate your confidence. In just 20-minutes of NuCalm you can have the recovery benefits and peace of mind of 2 hours of restorative sleep. Imagine being able to do this 1-2 times daily and spending more time on the pitch than on the trainer's table to ensure that injuries don't derail your career.