Feed the Patient and They'll Get Better

"It's amazing that Hippocrates famously commented; "feed the patient and they'll get better" over 2,000 years ago and it's only now that we're beginning to re-appreciate the effects of nutrition on healing all over again."

Certain nutrients are known to heal our tissues after injury. **Marcus Webb** explains the phases of repair and how food can help.

It's not easy to get accurate figures when it comes to sporting injuries, since so many never get registered at hospitals or become incorporated into nationwide surveys. Most people simply manage their injuries at home and limp along until they get better. Interestingly, back in 2005 Barclays Bank (Barclays Spaces for Sports), commissioned a survey into the rate of sporting injuries in the UK and published some very interesting results; just under 30% of the UK experiences a sports-related injury every year. That translates to roughly 22 million cases per year, the majority of which are the direct result of over-exertion, lack of preparation and general clumsiness! Most people recover well from injury but some 25% of those who were injured were forced to quit their sport. By far the most common injuries were sustained in soft tissues such as ligaments and tendons, with football injuries leading the pack.

While some 26% choose to leave their injury to nature to heal, there are many ways to encourage the recovery from injury that could reduce the risk of a problem becoming chronic or forcing early retirement from your chosen sport. All-too-often little is mentioned about the effects of food, diet and nutrition and its effects on the healing process. Keeping in mind the saying, "we are what we eat", your food will, in essence, be the mother-load when it comes to supplying your body with the building blocks for healing and tissue regeneration. It's amazing that Hippocrates noticed this and famously commented; "feed the patient and they'll get better" over 2,000 years ago and it's only now that we're beginning to re-appreciate the effects of nutrition on healing all over again.

From Injury to Recovery

If someone reaches their expected healing time, but continues to complain of pain and disability, the condition is said to shift into the chronic phase; a scenario that has many possible implications. To illustrate this with a common example; the healing time for a simple knee ligament injury is in the region of three months. Someone complaining of persistent pain and disability after this time is then considered to be suffering from a chronic injury that needs careful investigation in order to discover if there are any maintaining or aggravating issues. Nutritional and dietary factors are now thought to play a key role in healthy resolution of tissue repair following injury and if all the right nutrients are in place, injury healing should run like a seamless process and full function should be restored. However, deficiencies and poor diet can cause serious disruption to one or more of the four key points of the healing process. If this happens, a weak and ineffective repair will result, nudging the problem ever closer to a chronic injury state. Nutritional research has now confirmed that each of the four stages of the healing process requires specific vitamins, minerals and amino acids for a successful outcome, even from relatively trivial injuries

Healing; a Four-Stage Process

1) ***Vascular Reaction*** - The initial phase following an injury is characterised by the rapid constriction of blood vessels, closely followed by a more prolonged phase of blood vessel dilation. Over this phase, the involved vessels become leaky. This allows various components of the blood to seep into and collect around the injury site. With its complement of immune cells and inflammatory chemicals, the fluid starts to clear away the damaged tissue and cells and prevents secondary infections.
2) ***Inflammation Heat*** - A typical sign of injury and represents the outward effects of the inflammatory process, which causes an increased blood supply with swelling and an activated pain response. The purpose of inflammation is to deliver fresh blood to the injury site. The blood delivers all the elements of the immune system to the site of damage to prevent infection, along with a myriad of specialist healing cells that initiate the next phases of the repair process.
3) ***Proliferation*** - This phase is characterised by a high level of cellular activity devoted to the production of the vital protein-based framework that needs to be laid down. This is the biological scaffolding onto which new tissue will be deposited as the region is repaired.
4) ***Remodelling*** - In most cases, basic tissue healing is up to 70% complete after four weeks, but the process of remodelling can in some situations continue for up to two years. Remodelling involves the subtle laying down, breaking down and re-laying of healing tissues until the injured region has been returned to its pre-injury state.

Nutrients - the Basic Healing Materials

A quick look at the health section of your local supermarket or health store will reveal just how many vitamin and mineral supplements there are; each with their own story to tell! When it comes to injury management, there are a few that stand head and shoulders above others. These include vitamin C, vitamin A, zinc, arginine and glutamine:

- **Vitamin A** is needed for the formation of strong and effective collagen fibres, preventing wounds from breaking down prematurely. This is especially evident in skin injuries. Along with its collagen strengthening function, vitamin A is also necessary for an effective immune response that protects against nasty infections that could seriously delay the healing process. Because of its potential to be toxic in cases of smoking-related lung cancer, retinol (true vitamin A) is not normally recommended as a supplement. Instead, beta carotene can be used, which in a healthy body, can be converted into retinol as needed. Foods that are colourful tend to owe their colours to the carotenoid group of compounds of which beta carotene is

just one. Select from a variety of foods such as carrots, spinach, kale, apricots, papaya, mango and tomatoes.

- **Vitamin C** is another important nutrient needed for the production of strong collagen. While scurvy (a gross deficiency state) is unlikely today, an optimal amount of vitamin C is still essential for the healthy resolution of an injury. Vitamin C is also needed for the normal functioning of many immune cells as well as for the strength of blood vessel walls. Collagen, the very glue that holds us together, is dependant on adequate vitamin C levels; a lack of vitamin C is commonly associated with fragile and poorly healed injuries. It's interesting that we all tend to associate oranges with vitamin C but it is sweet red peppers and papaya that actually boast the highest amounts. Other vitamin C foods include broccoli and Brussels sprouts. Contrary to popular belief, cooking is known to release more readily available (bioavailable) vitamin C than eating food raw. Also consider eating more 'greens', sprouts and tomatoes to boost your vitamin C intake from food.

- **Zinc** deficiency is known to result in a delayed or poorly healed injury. Zinc is needed to increase scar strength and the need for zinc is thought to be the highest from time of injury, especially during the early inflammatory phase. Getting a good boost of zinc from your diet can present vegetarians with a dilemma; the highest amounts are found in oysters (around 77mg per serving), followed by beef, crab, pork and lobster. However baked beans (1.7mg per serving) and cashew nuts (1.6mg per serving) offer fair amounts when eaten on a regular basis. Zinc toxicity can be an issue with high supplement intakes, but keeping a supplement dose to around 15mg for a few months is a reasonable thing to do over a phase of injury when your zinc needs are higher than normal.

The Need for Proteins

Protein intake is vital to optimal wound healing; that's an established fact in all manner of injuries. Out of the many available to the body, two key amino acids (arginine and glutamine) appear to be essential for soft tissue regeneration and repair:

- **Arginine** has a surprising immune function in addition to stimulating the production of complex proteins needed essentially for the formation of new body tissue.
- **Glutamine** is used by specialist healing cells known as fibroblasts as a primary energy source during the healing process. Fibroblasts are central to the balanced production of fibrous tissue and scar tissue.

Using supplements of these important amino acids has been shown to enhance repair and healing. Balancing the proteins in your diet is normally the best way to obtain a broad spectrum of well-absorbed amino acids. Food such as parsley, raw spinach, fish, meat and beans boast a high glutamine content, while chocolate (yes chocolate!), coconut, dairy products, meat, oats, nuts, raw cereals, peanuts, soybeans and walnuts serve as good sources of arginine. To be on the safe side, those suffering from viral infections or who are pregnant or lactating and those with schizophrenia should avoid taking over 30mg of arginine per day, while those with liver or kidney diseases, Reye's syndrome or other disorders resulting in the accumulation of ammonia in the blood need to avoid excessive glutamine intakes.

In managing your sporting injury it is important to remain realistic and understand that healing is a natural process. But also understand that it can be enhanced with good diet, specific supplements when needed and the careful use of physical therapy and rest.

About the Author

Marcus Webb BSc (Hons), ND, DO is an osteopath and naturopath with a keen interest in integrative nutrition. He graduated in 1988 from the British College of Osteopathic Medicine and has undertaken postgraduate training in Western medical acupuncture, pain management and osteoporosis care. His holistic approach has led him to develop effective techniques for managing musculoskeletal pain using a combination of osteopathic care and acupuncture needling techniques along with dietary and nutritional advice. He is on the medical advisory board of the Fibromyalgia Association (UK) and the editorial board for the open source publication, *Natural Medicine Journal*. His North London multi-disciplinary clinic's website is www.hadleywoodhealthcare.co.uk