Tendon injuries are very common among athletes, from 30% to 50% of sports injuries are tendon related.

The tendon is a poorly vascularized tissue (Fenwick et al. 2002), uses little energy and have low metabolic tax. Besides, the tendon can support high tension for a long time which means that the tissues with a high metabolic activity demand, such as cicatrisation, occurs slowly (Sánchez et al. 2009).

Repairing the biology is fundamental to improve the quality of the damaged tissue, making the recovery period more comfortable and shorter. This is done by biological therapies based on three elements; three-dimensional scaffolds, cells and signalling molecules. The main role of three-dimensional scaffolds is to be the support where de cells adhere, they are also bioactive and interact, attract and stimulate those cells. One of the major focuses in regenerative medicine are cell-therapies, that depending on their collection source they have different characteristics. All the biological events basic for the success when regenerating, are controlled by signalling molecules. The biological pathways are immediately activated after a tissue injury, using the Growth Factors we are capable of modulate this response. They are involved in biological functions, such as cellular proliferation, cellular survival, migration and even apoptosis.

Growth Factor are a fundamental part of PRP treatment, which has been widely used for tendon injuries. The effect of PRP on tendon tissue is similar to other tissues. The platelets, once activated, release its granules content. This content consists on important growth factors, PDGF, TGF-β, FGF, EGF, VEGF, HGF, IGF and others, which play an important role (Molloy et al. 2003). Apart of this growth factors, this PRP therapy gives other bioactive and structural proteins, such as fibrin, fibronectin or vitronectin, which help to intracellular adhesion and three-dimensional matrix formation (Andia et al. 2010).

Conclusions:

- GF’s shorten Tissue Regeneration/Repair Time
- Biological Therapies, Proteins & Cells are the future. Medicine should be focused on Regeneration.

- One must control the creation of fibrosis or, in extreme cases, calcification.

- PRP treatment in Tendons improves healing.

- PRP treatment in Collagen fibres: Better organization and less intense inflammation (Fernández-Sarmiento et al. 2013)

- After an injury, it is essential to restore the anatomy, to recover mechanical function and to improve regeneration by biology therapies.

- The injured tissue after being regenerated can be re-injured.