into the subcutaneous layer ('full-thickness'). Abrasions, surgical wounds, burns and lacerations are considered acute wounds (Dreifke et al. 2015). Burns can be further classified into: first-degree (resulting from exposure to moderate intensity heat and involving primarily only the epidermis), second-degree (involving a large part of the dermis as well) and third-degree or full-thickness burns (the skin is completely damaged) (Thomas 1990).

Chronic wounds

Chronic wounds take a minimum of eight weeks and sometimes even up to many years, in some cases, to heal or respond to therapy. They can seriously affect the quality of life of the patient causing mobility limitations and sometimes depression. These type of wounds are often caused by vascular, haemostaseological or metabolic disorders, as well as inflammatory skin diseases, cancer or infections (Erfurt-Berge and Renner 2015). Hospitalization is often required with consequent high costs for the healthcare system. For example, approximately 2% of health budgets are used for chronic wound therapies and care (Harding et al. 2002; Schreml et al. 2010).

The Healing Process

Wound healing can be described as a cascade of four different events: haemostasis, inflammation, proliferation and maturation. Through this dynamic phenomenon, which requires the contribution of several molecules, cells and growth factors, the equilibrium is re-established in the body and the wound closes (Hanna and Giacopelli 1997; Gurtner et al. 2008). Considering the complexity of the healing cascade it is very impressive to observe how often everything proceeds without any problems (Harper et al. 2014). In the case of chronic wounds, the process is delayed by complications such as a secondary infection, and it can take much longer for the wound to heal (Timmons 2006). For instance, when there has been considerable tissue loss, wound closure is not immediately possible because the edges are too distant or for the presence of sepsis, in which case the microbial load must be managed so that the wound can heal without trapping bacteria inside the body. This represents the so-called closure by secondary intention, which is different from wound closure by primary intention which results from suturing wounds that involve minimal tissue loss, such as surgical incisions (Harper et al. 2014).

Haemostasis

During haemostasis, uncontrolled blood loss is prevented and vascular integrity is restored. After tissue damage, the formation of a localized thrombus is promoted: subendothelial collagen and von Willebrand factor (vWF) are exposed on the lower face of the endothelium, stimulating platelet adhesion. Plasminogen activator inhibitor is produced, allowing fibrin generation through the proteolytic cleavage of fibrinogen by thrombin. Cross-linked fibrin then binds to platelets leading to the formation of a