

## REHABILITATION IN HAEMOPHILIA

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### Abstract

**Introduction** The role of physiotherapy in haemophilia is still unknown for many health professionals. In this disease, where the protagonist has always been the hematologist, physiotherapy also plays a fundamental role. Of all the changes caused by this disease, musculoskeletal disorders are the most frequent, serious and disabling ones that continue to significantly impede the normal daily life of these patients as well as their social activity or school activities [4, 5, 6].

**Material and method** Proper rehabilitation treatment can provide the patient with more independence and functional capacity and, as a result, can improve the quality of life. Hemophilia is a hemorrhagic, hereditary, monogenic, recessive and sex-related disease. The cause is the deficiency of factor VII blood coagulation or factor IX. This deficiency is the cause of hemorrhages that can be cerebral, more serious and / or musculoskeletal, with larger sequelae. Already Biggs and McFarlane published in 1962 a series of papers in which they proposed a new treatment approach, underlining the value of the orthopedic field. Hemophilia, like all diseases, receives better multidisciplinary treatment, and the recovery physician is essential in this team, always accompanied by appropriate hematological treatment. The most common musculoskeletal lesions in haemophiliacs are haemarthrosis, synovitis, haemophilic arthropathy and, as a consequence, all functional disorders and the disability it involves. Hemophilia arthropathy, which is one of the most frequent and severe complications [5], is a degenerative joint process secondary to hemorrhage and has an anatomopathological entity of its own. Undoubtedly, it is due to the production of repetitive intra-articular haemorrhages, but other mechanisms that lead to lesions of joint structures, bone disorders, cartilage disorganization and include age, muscle hematoma, sedentary life, lack of muscle strength, inadequate efforts, repetitive movements, obesity, instability [5, 6, 7], the joints of the knee, ankle and elbow being the most affected. Hemarthrosis is also common in the elbow, ankles and knees. Its etiology can be traumatic or spontaneous, and severity is usually linked to the intensity of trauma. This intra-articular blood deposit causes a synovial hypertrophy, which usually leads to a new haemorrhage and most of the time a haemophilic synovitis [8]. Another common accident is muscle damage. Bleeding continues until the intramuscular pressure is equal to the intravascular pressure of injured vessels. If the amount of blood exceeds the capacity of phagocytes to re-absorb it, it is encapsulated and forms a cyst. It can evolve and form a pseudo-tumor that can invade and damage neighboring tissues or may evolve and form an abscess. The objectives of physiotherapy in haemophilic patients are broad. Relief of pain and sensory disorders, resorption of bleeding and inflammatory processes, ensure adequate physical fitness, improve quality of life, and prevent and treat joint and muscle joint and lesions. The techniques used are also diverse and range from physical-sport therapy for patients without injuries, all techniques of kinetherapy, thermotherapy, electrotherapy, magnetic therapy, laser therapy, hydrotherapy and ultrasound.

**Results** In patients with haemophilia, we find lower values of the isometric, isokinetic contraction, especially in the lower extremities of the healthy population, and in the case of the healthy limb if they suffer unilateral haemarthrosis [2, 3, 4, 5, 12]. In patients with haemophilia, the lack of maximum force and the presence of fluctuations (inability to produce constant force) during physical activities suggest an increased risk of bleeding [9, 10], which will determine the severity of arthropathy.

Given the literature, we can conclude that increasing muscle strength by various methods is an effective and safe technique for the haemophiliac patient. The success of our intervention will therefore be the ideal choice of one or the other method based on objective and safe data.

Ownoception is also altered, in addition to muscular atrophy, as a result of immobilization after bleeding [4]. The basis for rehabilitation depends on the correct relationship between the musculoskeletal system and the nervous system, because valorisation and involvement of proprioception should not be neglected, which plays an important role in improving joint stability, especially when most haemorrhages are in the lower limbs [1].

Early treatment and early preventative treatment have shown that children with moderate and severe haemophilia are comparable to healthy elderly in terms of muscle strength, motor control and daily life development [12].

## Conclusions

Hemophilia is not a common pathology in rehabilitation services, but we must not forget that it exists. Like many other conditions, it goes unnoticed in the broad spectrum of affections we usually treat, but that does not mean it should be left untreated. Recovery physicians have a professional and ethical obligation to continue training for life.

Investigate what we do not know, study what has been forgotten, and never forget that there is always treatment, even if it is conservative treatment.

## Bibliography:

1. Buzzard BM. Proprioceptive training in haemophilia. *Haemophilia* 1998 Jul; 4 (4): 528-31
  1. Falk B, Portal S, Tiktinsky R, Weinstein Y, Constantini N, Martinowitz U. Anaerobic power and muscle strength in young hemophilia patients. *Med Sci Sports Exerc* 2000 Jan; 32 (1): 52-7
  2. Falk B, Portal S, Tiktinsky R, Rigel L, Weinstein Y, Constantini N et al. Bone properties and muscle strength of young haemophilia patients. *Haemophilia*. 2005 Jul;11(4): 380-6
  3. Hilberg T, Herbsleb M, Gabriel HH, Jeschke D, Schramm W. Proprioception and isometric muscular strength in haemophilic subjects. *Haemophilia* 2001 Nov; 7 (6): 582-8
  4. Gilbert M. Complicaciones musculoesqueléticas de la hemofilia: las articulaciones. *World Federation of Hemophilia* 1997
  5. Koch B, Cohen S, Luban NC, Eng G. Hemophiliac knee: rehabilitation techniques. *Arch Phys Med Rehabil* 1982 Aug; 63 (8): 379-82
  6. Querol F, Aznar JA. Lesiones musculoesqueléticas en hemofilia: hemartrosis. En: Baxter SL. Guía de rehabilitación en hemofilia. Barcelona: Ediciones Mayo; 2001.p.31-41
  7. Querol F. Rehabilitación y fisioterapia en la artropatía hemofílica. [Tesis doctoral]. Valencia: Universidad de Valencia; 2003
  8. Querol F, Gonzalez LM, Gallach JE, Gomis M, Aznar VA. Force fluctuations during the maximum isometric voluntary contraction of the quadriceps femoris in haemophilic patients. *Haemophilia* 2007 Jan; 13 (1): 65-70
  9. Querol F, Aznar JA. Lesiones musculoesqueléticas en hemofilia: hemartrosis. En: Baxter SL. Guía de rehabilitación en hemofilia. Barcelona: Ediciones Mayo;2001.p.31-41
- Seuser A, Wallny T, Schumpe G, Brackmann HH, Ribbans WJ. Biomechanical Research in Haemophilia. En: Rodríguez-Merchán EC, Goddard NJ, Lee CA. Musculoskeletal Aspects of haemophilia. Oxford: Blackwell science Ltd; 2000. p.27-36