

# Preparing gelatin as a pedagogical tool for teaching cryotherapy in hemophilia

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## INTRODUCTION AND OBJECTIVES:

In the treatment of acute bleeding like hemarthrosis or muscle hemorraghe, the early onset of clotting factor concentrates is mandatory and the use of cryotherapy accelerates clot formation. The physiological principle is that colloidal substance easily condense at low temperatures, besides the cold therapy decrease the pain and the local blood supply. The benefits of ice application is well established<sup>1</sup> but, in some cases, the cryotherapy is not used by the patient and the medical team. To highlights the relevance of using cryotherapy, we designed an educational tool by preparing gelatin comparing this with the natural clotting phenomem.



## MATERIALS AND METHODS:

Working by couples, a group of 20 patients or his relatives was formed, using simple and secure materials like plastic plates, cups, a bag of powdered gelatin, one liter of water and ice cubes. Each team prepared two cups with one tablespoon of gelatin podwder and 60 mL of hot water: one with two cubes of ice and other without it. The cups were allowed to stand for 10 minutes.

Meanwhile the teacher explained the theoretial basis of using cold therapy in hemarthrosis and muscle hemorraghe. At the end of the class, the cups were turned over the plates to show the great differences between them. **The educational team highlighted the aspects of the cup with ice**, showing the effect of 10 minutes of cold over the gelatin which is similar in the blood. The main difference is the presence of initial "jelly clots" in the ice cup.



## RESULTS:

The pedagogic tool was used in the hemophilia camps through 2012 and 2013 in a expositive way inside of a classroom. The teacher asked the opinion of each attendee, most said that this experience improves a lot their knowledge about coagulation and realize the importance of using cryotherapy while bleeding. This experiment was described like a funny way to learn about hemophilia. Knowledge was reinforced by eating a well prepared gelatin dessert.

Wow!.. It seems to be working. That s cool...



## CONCLUSIONS:

The desing of educational strategies must include recreational life experiences. The pedagogical tool showed here allows to learn by playing, we think it will traduce into more self adherence to the correct treatment and less days of pain an physical impairment. The main objective of this lesson was to teach the benefits of the cryotheraphy in each episode of joint or muscle bleeds, encouraging routine use as an important part of treatment. We believe that this method could be used in the hemophilia camps or in the Permanent Educational Program, because it is easy and quick to do and because the low costs of materials.



BIBLIOGRAPHY: This work was mainly done by de curiosity of the patients, but to make de theoretal context we consulted:

1. A. Srivastava, et al. WFH Guidelines for the management of hemophilia. (2013), 19, e1-e47.
2. National Hemophilia Foundation (2013). Physical Therapy Practice Guidelines for Persons with Bleeding Disorders: Cryotherapy.
3. Vicente Talanquer, Glinda Irazoque (2008). Química, Ciencias 3. Editorial Castillo.

