

# Blood valorization for food iron fortification

Sergi González Perelló

February 2021

## 1 OBJECTIVES

To understand the **basic nature of iron**, the different forms in which it is found and their interactions.

To know the **current problems** associated with iron deficiency.

To establish a possible **way of valorization of the blood** from meat industry for the production of heme iron.

To carry out a viable **strategy for the application** of the product, in order to reduce the cases of deficiency.

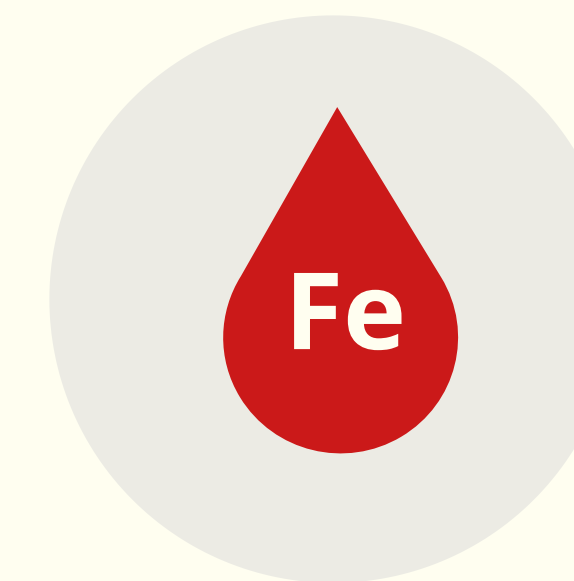
## 2 PROBLEM

Iron is a microelement essential for the body because it is involved in many biochemical processes. It has a role in molecules as hemoglobin or myoglobin, among others.

It is mostly found in non-heme form, but especially in animal products there is a heme-iron form.

Furthermore, it is one of the most deficient micronutrients. It generates problems in poor regions and in developed countries, where the influence of food trends such as veganism aggravate the situation. Also, mainly affects to childbearing age womens because of their high requeriments.

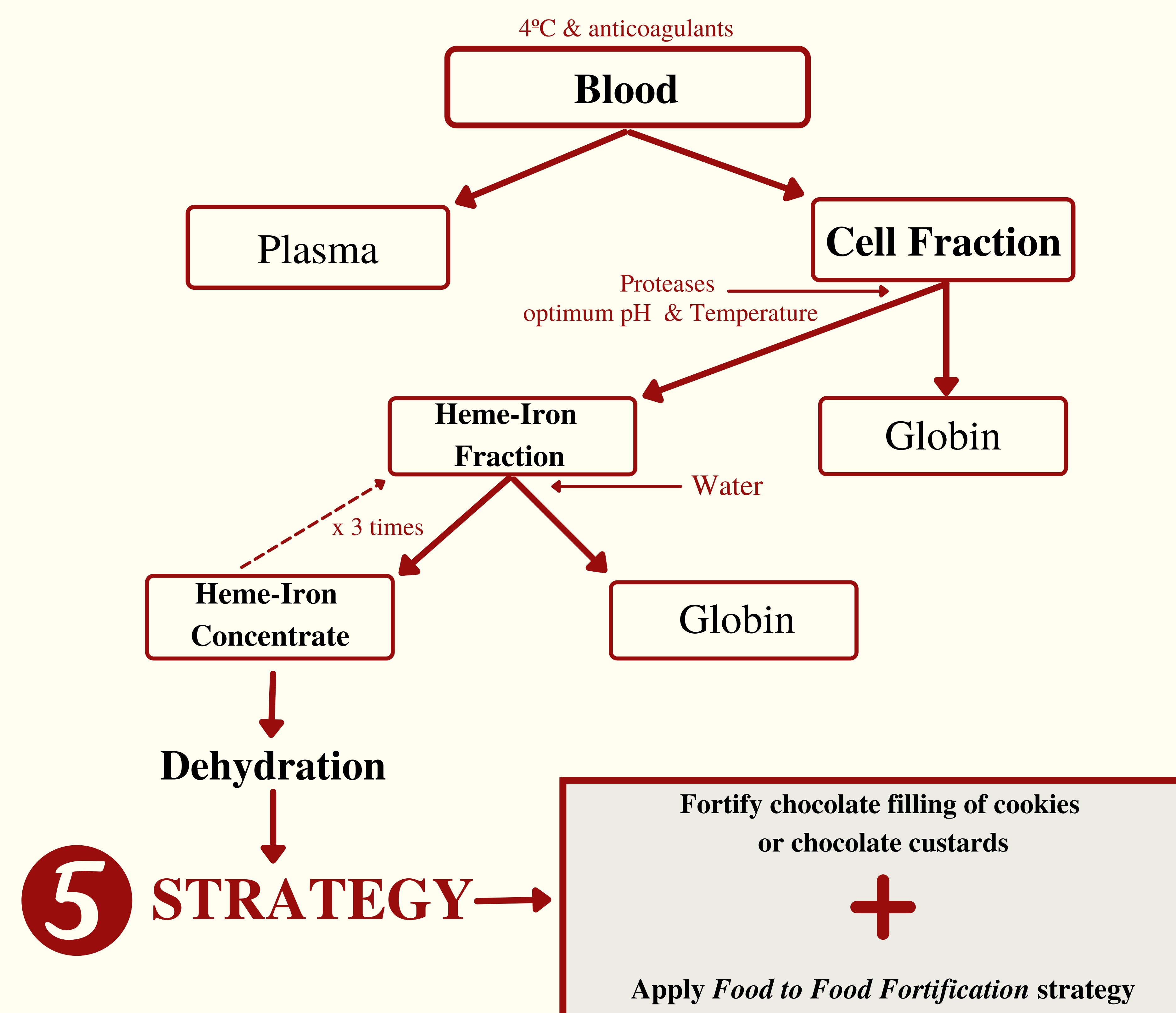
## 3 POSSIBLE SOLUTION



Because of good absorption of heme iron, we can take advantage of the blood by-product from meat industries **to produce a heme iron concentrate**. Then, **fortifying a common product** with the heme-iron supplement and **applying a dietary strategy** can be a suitable alternative for increasing iron body values.

## 4 PROCEDURE

(Figure 1. Diagram of process for the production of heme-iron concentrate)



## 5 STRATEGY

## 6 WHAT IS MORE...

High non-heme iron intakes can develop discomfort symptoms, but recent studies demonstrated that heme-iron does not have any effect due to its great absorption.

Also, is commonly said that high consumption of red meat is related to colon cancer. Scientists claims that this is not true and this problems could appear from other red meat compounds.

## 7 CONCLUSIONS

**Iron has essential functions** and we can differentiate non-heme iron from heme-iron, which is more bioavailable. Besides, the oxide-reduction state is important in physiological processes.

Iron deficiency is **one of the most prevalent nutritional deficits**, in developing countries and even in developed ones due to its incidence in childbearing age womens. Moreover, in developed countries it is influenced by food trends.

Using current technologies, **a viable procedure can be established** to obtain a heme-iron concentrate, making more sustainable the collection of blood by-product generated by meat industries.

Different foods can be fortified with the supplement and applied to **Food to Food Fortification strategy** helping to reduce iron deficiency effectively.