PRESENTATION


“Hydration. Fundamentals at different stages of life” handbook

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Water is an essential element for life, it is the single largest nutrient in the human body, it is involved in most of the body reactions, nearly all the major systems of the body depend on water to work properly; nevertheless, the recommendations regarding its intake are based on assumptions and vary from country to country.

Being well hydrated is related to an adequate health and wellbeing; however, it is easier to find information in the literature on issues related to dehydration, than to find information on hydration.

This book consists of 11 chapters divided into two sections; the first one is about general information of water and hydration, and the second is about the basics of hydration at the different stages of life.

Chapter 1 is an overview of the characteristics of the water molecule and its functions in the body, which are countless. It also refers to some of the mechanisms to maintain water homeostasis in the body.

Chapter 2 deals with the sources of hydration which include different kinds of beverages, foods and also macronutrient oxidation. It is important to have knowledge of all sources of hydration and their characteristics to generate specific intake recommendations.

On Chapter 3 the recommendations for a healthy nutrition and hydration are addressed. Although there are daily suggested intakes and guidelines for water and food consumption, the requirements present a wide variability and depend on each individual’s own characteristics. In fact, there is no consensus about the suggested water intakes which are based more on assumptions than on scientific evidence and are variable between countries.

Chapter 4 is about the consequences of an inadequate hydration, both dehydration and over hydration. Children and elderly, pregnant and lactating women, patients admitted to the Emergency Room and people who perform physical activity (amateur, professional and elite athletes) are most at risk of hydration disorders.

In Chapter 5, some of the methods for assessing hydration status are reviewed. It is very important to know how to evaluate patients clinically and through laboratory test, to know how to interpret the findings and generate effective and correct therapeutic actions.

Regarding the different stages of life, Chapter 6 is about the importance of hydration in childhood and adolescence. Children are often more vulnerable to fluid and electrolyte imbalances as between 60 and 80 % of their body weight is water, which explains their high needs per day. Children have different thermoregulation systems and their sweating rates are lower than those of adults so they are more vulnerable to dehydration.

Chapter 7, deals with hydration in adulthood. Under normal conditions, the restoration of fluid and electrolyte balance in adults is easily achieved due to the neural, endocrine and renal mechanisms. However, certain situations like extremes in climate and humidity can increase fluid losses. So it’s important to understand hydration needs and always maintain proper fluid and electrolyte intakes.

In Chapter 8 the importance of hydration in pregnancy and lactation is mentioned. During pregnancy, the accretion of body water is essential for foetal development; during lactation the volume of milk produced by the woman provides the new born with the amount of energy, nutrients and water required for proper growth and development. So these two physiological states are associated with the increase in water requirements.

In Chapter 9 the hydration of the elderly and how aging is associated with several changes that affect the water balance is addressed, these changes include the decline of lean body mass (sarcopenia), the decline of the feeling of thirst and a decreased renal ability to concentrate urine, among others; this makes dehydration one of the most common disorders in the elderly.
Chapter 10 is about the importance of adequate hydration status in athletes and people who perform physical activity. Special sport drinks and strategies to maintain a good hydration status in individuals who exercise to avoid water losses which are related to a decline in physical performance are described.

The last chapter of the book is about myths in relation to water and hydration, here a group of preconceived ideas about this issues are enlisted and discussed.

Thus, in a clear, accurate and entertaining manner, the most important aspects of hydration are covered from the physiological standpoint. The intention of this book is to be useful in the daily health care practice as well as becoming a reference text on this subject.

Key words: water, hydration, population groups.

DOI:10.3305/nh.2015.32.sup2.10268