

PREVENTION OF ENVIRONMENTAL OBESOGENS



Endorsed by:



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— Important for everyone —



PRESENTATION

In this guide we would like to introduce, in a simple, clear and practical way, theories and techniques that help combat childhood obesity, a problem that is increasingly present in our society and that can indiscriminately affect all stages of life.

It is a compilation of the most relevant aspects of our daily life, presented in clear terms, concepts and examples that allow the understanding of the entire family unit.

We explore the new world of **environmental obesogens** and understand how and why they can harm our health and the health of our children.

Suggestions and proposals have been introduced throughout the entire guide in order to help the reader to incorporate these new or forgotten habits and knowledge.

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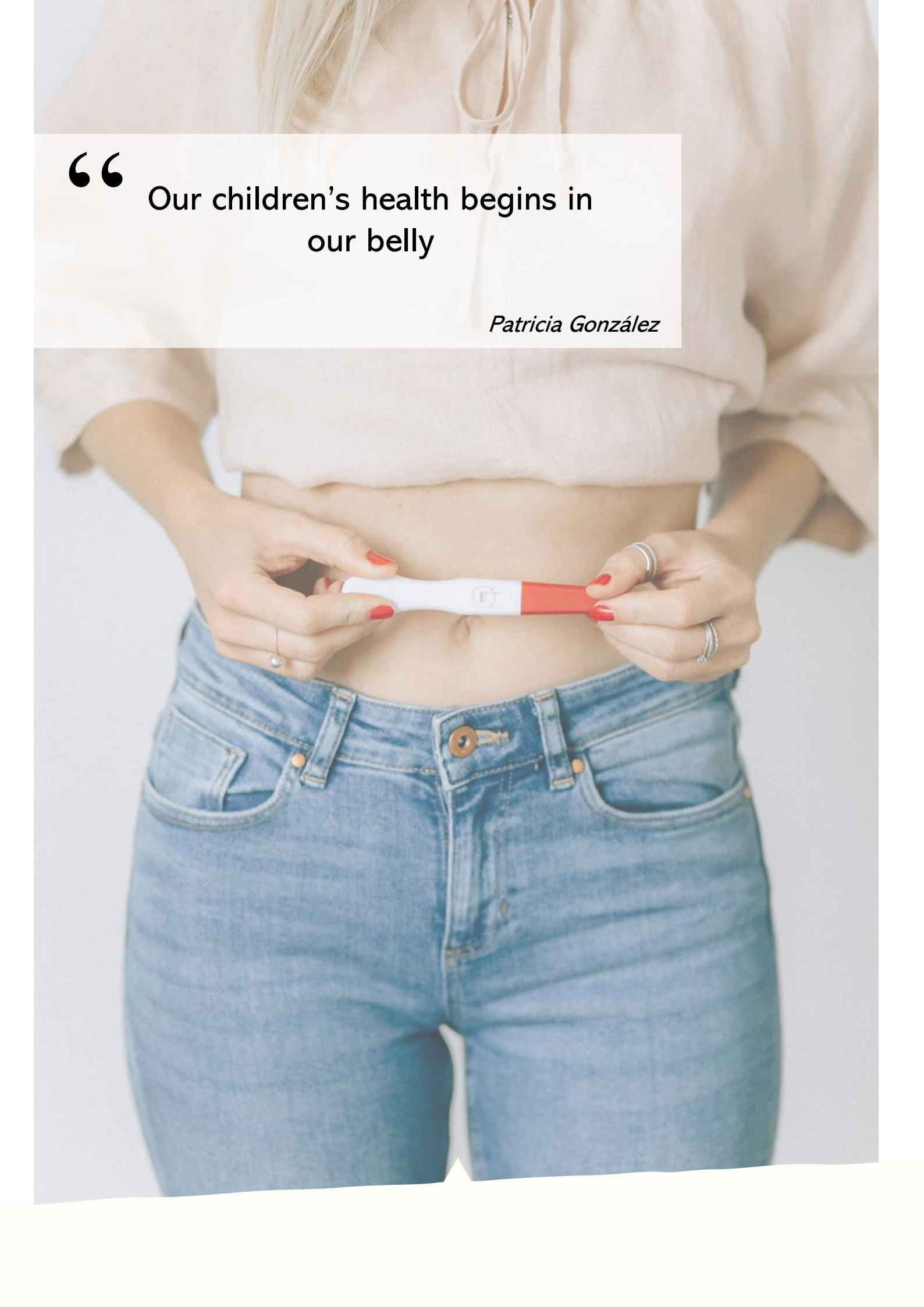
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A photograph of a woman from the waist up, wearing a light-colored, long-sleeved crop top and blue denim jeans. She is holding a white and red pregnancy test stick against her bare midriff. She has red nail polish and is wearing several rings on her fingers. The background is a plain, light color.

“

Our children's health begins in
our belly

Patricia González

SCOPE and OBJECTIVE

Despite the economic, social and health problems that obesity entails, it has become clear that it is necessary to educate individuals in scientific knowledge about how variations in lifestyle affect the health-disease binomial. For this reason, this guide has been made by compiling and capturing the available scientific literature on endocrine disruptors as environmental obesogenic agents.

This guide is aimed at all the public interested in obtaining verified and understandable information on how to address childhood and teenage obesity from a broader and more practical approach, considering endocrine disruptors as **obesogenic agents**. The guide covers the early stages of life, from pre-pregnancy through adolescence.

It is a tool for daily use that provides theoretical, visual and practical material on the prevention and/or treatment of obesity, considering three fundamental pillars: diet, physical exercise and psychology. We hope it will be useful in the implementation of guidelines that help combat the child obesity epidemic.

“ Let food be thy medicine and let thy
medicine be food

Hippocrates of Kos



INTRODUCTION

Obesity and overweight are defined as an abnormal or excessive accumulation of fat that can be detrimental to health, according to the World Health Organization (WHO). Part of its importance today lies in the fact that its prevalence has tripled between 1975 and 2016.

In 2016, 39% of the world's adult population was overweight and 13% was obese. In the child population, the data is even more alarming, with an increase of nearly 15% from 1975 to 2016, without much difference between sexes.¹

The ALADINO study, which offers us data on obesity and overweight in the Spanish child population, confirms that in 2019 the prevalence of overweight children was 23.3% and 17.3% of them were obese, which means that 4 out of 10 schoolchildren presented excess weight.²

From a political standpoint and seeing the importance of these pathologies, strategies have been created to reverse the increasing trend, such as, for example, the NAOS strategy in Spain, which aims to promote healthy eating and the practice of physical exercise.³

Focusing on childhood obesity, we find another major problem: being obese during childhood is a risk factor for many diseases in adulthood. Some of the diseases related to childhood obesity are: type II diabetes mellitus, hypertension, dyslipidemia, obstructive sleep apnea and development of nonalcoholic fatty liver, among others.

Among the factors that predispose to suffering from this disease we find: psychosocial factors, eating habits, physical exercise and perinatal factors (size and weight of the newborn), lack of breastfeeding, composition of the intestinal microbiota or other unknown factors such as those treated in this guide, the environmental pollutants, which can contribute to the development of overweight or obesity.⁴

Eat healthy and move !

¹ World Health Organization. Obesity and overweight [Internet]. 2020 [cited 2021 Jan 15]. Available from: [\[link\]](#)

² Spanish Agency for Food Safety and Nutrition (AESAN). Strategy for nutrition, physical activity and obesity prevention [Internet]. Madrid. AESAN, 2020 [cited 2021 Jan 6] Available from: [\[link\]](#)

³ Charro-Salgado AL, Moreno-Esteban B. Nutrition, Physical Activity and Obesity Prevention. NAOS Strategy. Spain: Pan American Medical Publishing House; 2007.

⁴ Kumar S, Kelly AS. Review of Childhood Obesity: From Epidemiology, Etiology, and Comorbidities to Clinical Assessment and Treatment. *May Clin. Proc.* 2017; 92(2):251-65.

CONCEPTS

Obesity

In recent years, society has evolved towards an environment that has favored the over-consumption of energy, a decrease in physical activity and a series of other conditions such as the exposure to different toxins. The global Covid-19 pandemic has also had a negative impact on many objectively visible aspects at a social and economic level. It has also fostered the acquisition of more static and sedentary habits which increase the prevalence of chronic diseases. This leads us to an uptrend in the population with overweight and obesity.⁵

Obesity is not limited to a single cause, but there is a relationship between different factors (biological, psychosocial, socioeconomic, genetic, hormonal, etc.) that can contribute to the appearance of this metabolic disease. Currently, we can find different scientific studies that open the doors to other causes for this disease such as environmental obesogens, molecules capable of altering our body.^{6,7}

Diet guidelines and physical exercise are not enough for an intervention to be totally effective, since there are a variety of factors involved. Prevention must be carried out from an early age, reducing as much as possible all the associated risks that may intervene. We must also pay attention to those that cannot be seen with the naked eye, such as **endocrine disruptors**, specifically the group called **environmental obesogens**.⁸



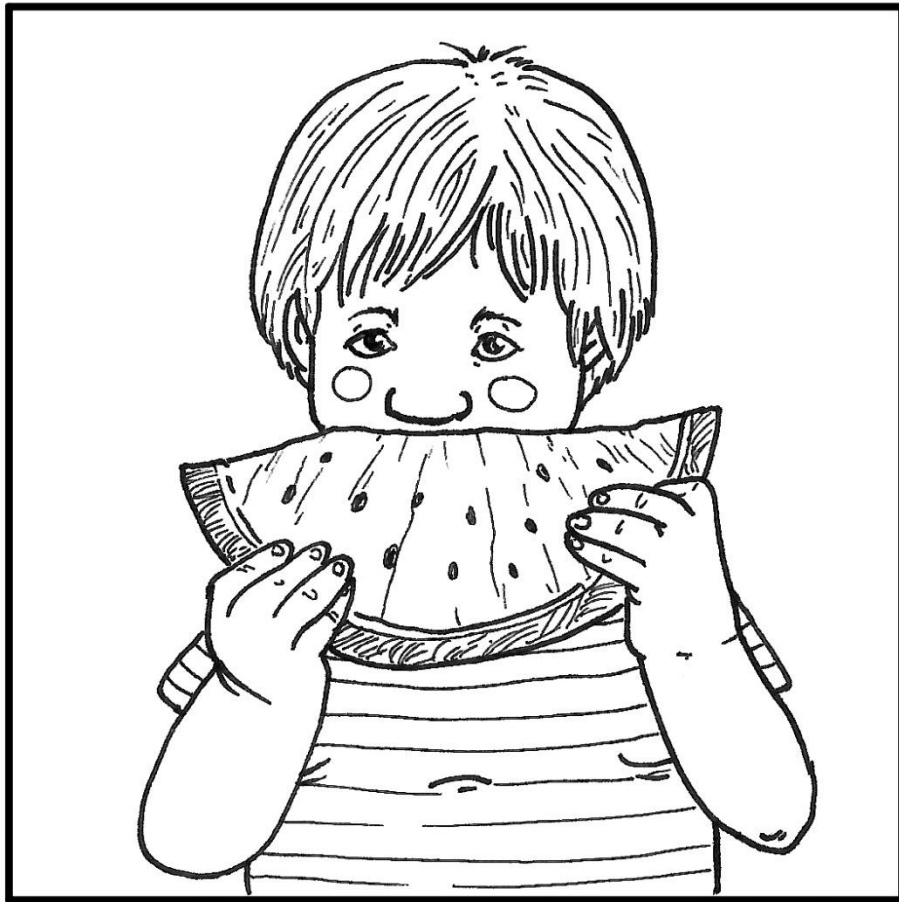
“Environmental obesogens can promote weight gain”

⁵ Stigler FL, Lustig RH, Ma JI. Mechanisms, Pathophysiology, and Management of Obesity. *N. Engl. J. Med.* 2017; 376(3):1490-1492.

⁶ Li Q, Blume SW, Huang JC, Hammer M, Ganz ML. Prevalence and healthcare costs of obesity-related comorbidities: evidence from an electronic medical records system in the United States. *J. Med. Econ.* 2015;18(12):1020-8.

⁷ Petrakis D, Vassilopoulou L, Mamoulakis C, Psycharakis C, Anifantaki A, Sifakis S, et al. Endocrine disruptors leading to obesity and related diseases. *Int J Environ Res Public Health* [Internet]. 2017;14(10):1–18.

⁸ Blüher M. Obesity: global epidemiology and pathogenesis. *Nat. Rev. Endocrinol.* 2019;15(5):288-298.



Environmental obesogens

Scientific research has allowed us to observe how exposure to an environment considered normal for humans, negatively influences the weight gain of animals. This increase is not only caused by a poor diet, genetic predisposition or a sedentary life, but there are also other factors at play. Therefore, the scientific community begins to investigate this fact.

As a result of studies carried out at the beginning of the 21st century, the term "environmental obesogen" was coined. These are chemical substances that alter our metabolism and are able to modify our body composition. Repeated exposure to these compounds promotes the development of obesity. **Obesogens** are part of a very heterogeneous group called "**endocrine disruptors**". These are very small molecules, fundamentally produced and spread artificially by man, capable of altering hormonal activity, thus causing adverse effects such as weight gain in the case of obesogens.

ENDOCRINE DISRUPTORS

"Substances that are very different from each other, capable of interfering with hormonal balance, altering our endocrine system at any stage of life".⁹

Could **obesogens** possibly be one of the factors that have caused the generalized increase in **obesity** worldwide?

Obesogens act by mimicking natural hormones. What does this mean? It means they have the same molecular structure or a very similar one, and therefore possess the ability to perform the same actions as hormones within an organism.

They can promote an increase in the production of fatty tissue, causing alterations in the energy and carbohydrate metabolism as well as increasing insulin resistance and modifying the mechanism that controls hunger and satiety.

The relevance of these compounds lies not only in their worrisome effects, but also in their ubiquity. Obesogens can be found in many places in our daily lives.

We know that hormones act in very small concentrations, requiring a minimum amount to generate changes in our body. Therefore, a low exposure to these contaminants can cause alterations in the body, damaging our health. Most importantly, however, is that this effect is not immediate, that is, the damage caused cannot be immediately observed.¹⁰

⁹ World Health Organization (WHO), United Nations Environment Programme (UNEP). State of the Science of Endocrine Disrupting Chemicals [Internet]. 2012 [cited 2021 Jan 8]. Available from: [\[link\]](#)

¹⁰ Vandenberg LN, Colborn T, Hayes TB, Heindel JJ, Jacobs DR Jr, Lee DH, Shioda T, Soto AM, vom Saal FS, Welshons WV, Zoeller RT, Myers JP. Hormones and endocrine-disrupting chemicals: low-dose effects and nonmonotonic dose responses. *Endocr. Rev.* 2012;33(3):378-455.

EXAMPLE

1. Completely normal situation.

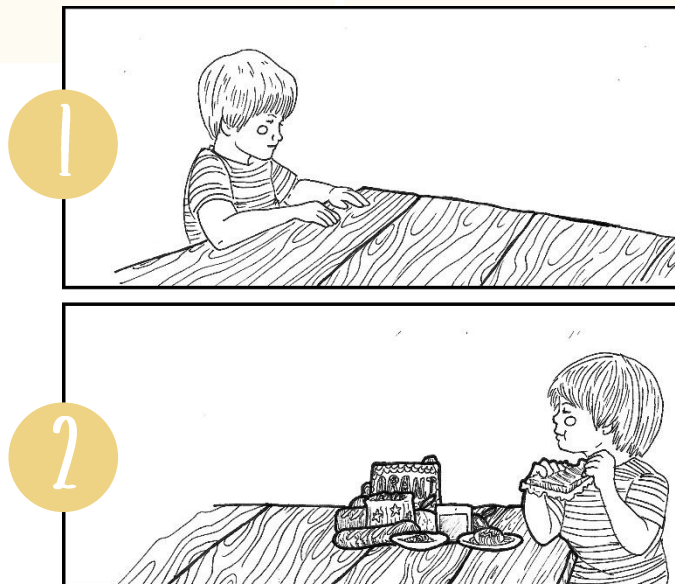
This morning we did NOT have breakfast or a snack. At lunch time, we are famished.

Through hormonal communication and various stimuli, our body allows us to understand that we should consume food. This situation is generated by a real need, an energy deficit. The problem with endocrine disruptors is that they activate the same stimuli as hormones, triggering a similar response.

2. Unbalanced situation.

This morning at 9:00 a.m. we had a hearty breakfast: toast with tomato and cheese, natural yoghurt with strawberries and coffee with milk. Without doing any exercise or work that involves movement, we soon feel hungry and eat again. This happens repeatedly, resulting in us snacking between meals.

The feeling of appetite should not appear if we are energetically covered, a situation of false need is taking place. It can be due to boredom, stress, habits, pathology or even **environmental obesogens**, which are capable of altering our hormonal balance and favoring **weight gain**.^{11, 12}



¹¹ Leeners B, Geary N, Tobler PN, Asarian L. Ovarian hormones and obesity. Hum. Reprod. Update. 2017;23(3):300-321.

¹² Maradonna F, Carnevali O. Lipid Metabolism Alteration by Endocrine Disruptors in Animal Models: An Overview. Front. Endocrinol. (Lausanne). 2018;9:654.

Environmental obesogens

OMNIPRESENT

They can be found in everyday products such as plastic wrapped cookies, canned pineapple in syrup or single-use water bottles. They can also be found in unprocessed foods, since these molecules are also used as pesticides and/or herbicides.

In addition, there are personal care products (cosmetics and/or personal hygiene) which often contain components with obesogenic activity. For example, day or night skin creams with parabens.


We must remember they are also present in many other everyday utensils, which we very frequently use. Who is not familiar with the light-weight, plastic tubs that we use to store food; or the plastic toys that we give our little ones to entertain them for a little while?¹³

Are you exposed?

Σ

Obesogens = Weight gain

¹³ Darbre PD. Endocrine Disruptors and Obesity. Curr. Obes. Rep. 2017; 6(1):18-27.



There is an association between the alterations caused by environmental obesogens and the increased probability of obesity.

Does your environment promote your physical, mental and social well-being?





**YOUR ENVIRONMENT HAS
AN IMPACT ON YOUR
HABITS AND YOUR
HEALTH**

OBESOGENIC ENVIRONMENT

In this case we are not talking about obesogenic molecules, but about the obesogenic environment. This new concept is very present in our industrialized and developed society. It turns out that everything that surrounds us negatively causes people to form sedentary habits and promotes excessive food intake, as well as the consumption of high-calorie products with low nutritional value.

We live in a reality in which publicity barrages consumers every two minutes through various forms of media (phones, televisions, billboards, etc.). Marketing strategies work by generating emotional links between people and their products, triggering acquisition by the consumer. We are not aware that our mind has been influenced and, therefore, we assume the product is necessary when, in fact, it is not.

**Re-educate ourselves
on how, when and
what we want to eat.
Unlearn to learn
again.**

The obesogenic environment encompasses aspects that go beyond food, for example work, new social customs or even hobbies.

In developed countries, technology has invaded our lives and has also naturally influenced our way of working. There is no doubt that we move less, because the nature of modern-day jobs is more static, among other things.

Who does not meet friends or relatives for a meal, coffee, beer or a movie? All these activities can be dynamic, full of mental and emotional activity, however, they make us spend hours being static and without meaningful movement.

And what about offering our little ones a mobile phone or a tablet as a reward, or perhaps, to keep them entertained? This procedure also contributes to reducing their physical activity throughout the day and stunting the imagination that comes from real playtime, as well as decreasing patience and increasing frustration.

The way we live our lives, an environment that encourages increased consumption, poor nutrition and reduced physical activity, as well as other external factors that promote weight gain, is what is collectively called the obesogenic environment.

Planning and organizing what we are going to consume throughout the week, reducing the hours of screen time and including more sports in our daily routine are the main objectives that we should all work towards and take into consideration in order to reduce the impact of the obesogenic environment.



Cities designed for us to move in vehicles.

Promote sustainable transport
and use your legs.

Supermarkets that support all basic needs.

Go back to local shopping and
seasonal consumption.

Excessive use of screens – sedentary lifestyle.

Go out, enjoy the sun and nature in the
company of our little ones.

Stress - copious meals - alcohol - ultra-processed foods.



EPIGENETICS, HOW
OUR LIFESTYLES
MODIFY OUR
GENETICS

Obesity presents a relevant genetic predisposition, which means we have genes that properly control food intake and adequate energy expenditure derived from the nutrients we consume.

Therefore, if these genes undergo permanent changes, we will have a completely unbalanced metabolism, contributing to weight gain. In fact, genetic alterations could be responsible for up to 90% of the modification of the normal values of the Body Mass Index.¹⁴ How are our genes altered? This is where the term "epigenetics" comes in, which refers to those genes that can undergo reversible changes in early and more advanced stages of development of an individual, due to nutritional and environmental factors, such as the deregulation of eating patterns and physical activity, decreased quality of sleep, and exposure to environmental obesogens.¹⁵

The importance of epigenetics is such that it determines whether a gene is active or not at any given moment.

What does this mean?

For example, in a regular food intake situation, our brain is prepared to receive the signal to stop eating when we are full. However, if a gene does not respond correctly to this signal because it is "turned off" or altered, that gene will not function properly, and we will continually have the urge to eat.

A sedentary lifestyle and the consumption of food containing saturated fats and added sugars, as well as a state of severe malnutrition, can cause epigenetic changes that impair the normal functioning of the energy metabolism, insulin response, and appetite, among others. On the contrary, a healthy and balanced diet, restful sleep and avoiding stressful situations could help us reverse or prevent epigenetic changes, maintaining healthy epigenetics and thus preventing the development of obesity.¹⁶

We cannot change our genetics, but we can change epigenetics

¹⁴ Flores-Dorantes MT, Díaz-López YE, Gutiérrez-Aguilar R. Environment and Gene Association with Obesity and Their Impact on Neurodegenerative and Neurodevelopmental Diseases. *Front. Neurosci.* 2020; 14:863.

¹⁵ Aguilera CM, Anguita-Ruiz A. Epigenética de la obesidad. *Nutr. Clin. Med.* 2018; XII (2): 47-60.

¹⁶ Milagro-Yoldi FI, Martínez JA. Epigenética en obesidad y diabetes tipo 2: papel de la nutrición, limitaciones y futuras aplicaciones. *Rev. Chil. Endocrinol. Diabetes.* 2013; 6(3):108-114.

**EARLY LIFESTYLE
INTERVENTION MAY
CONTRIBUTE TO
HEALTHY EPIGENETICS**

OBESOGEN EXPOSURE PREVENTION



Do not consume food packaged in plastics or canned food. Avoid plastic tableware and straws.

Use and reuse glass containers.



Reduce the consumption of plastic water bottles.

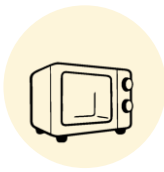
Preferably drink tap water, water from fountains, or glass bottles.



Do not use Teflon, aluminium or perfluorooctanoic acid (PFOA) pans.

Use glass as the material in contact with food.

Use stainless steel and/or wooden kitchen utensils.



Do not microwave plastic containers. If unavoidable, make sure they do not contain these symbols.



Reheat food on the stove or in glass containers.



Reduce the consumption of PVC wrap and plastic bags.



Use cloth bags to cover food and for grocery shopping.



Many insecticides and herbicides contain obesogens. ”



Consume organic, local, and seasonal food.



Foods cooked at high temperatures contain obesogenic substances, therefore, use grilling or roasting as an occasional cooking method.



Encourage steaming, grilling and boiling.



Ultra-processed foods may contain obesogens.



Increase the consumption of fruits, vegetables, legumes, eggs, cereals... From farm to table.



Reduce personal care products that contain chemicals, especially parabens.



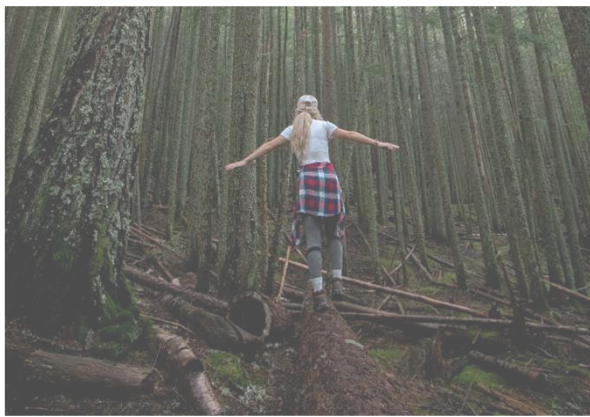
Find alternatives for personal care products WITHOUT chemicals.



Be careful with cleaning products.”



Use efficient traditional alternatives such as baking soda or vinegar.



Whatever your situation may be, you decide what your environment is like.

LABELING FOOD

Regulation (EC) No. 1169/2011 collects all information pertaining to the labeling of food products.

Below is a summary of some of the most relevant information you can find about labeling.

Whole wheat gluten free bread

Sarf

Ingredients	Nutritional information																												
Whole buckwheat flour, corn starch, potato starch, rice flour, beta-glucans from oats (3.9%), pistachio, seeds (sunflower and pumpkin), extra virgin olive oil, yeast, salt, hydroxypropyl methylcellulose, sugar, ascorbic acid, xanthan gum, water.	<table border="1"> <thead> <tr> <th>Average values</th> <th>por 100 g</th> </tr> </thead> <tbody> <tr> <td>ENERGY VALUE</td> <td>850,94 kj 203,40 kcal</td> </tr> <tr> <td>of which:</td> <td></td> </tr> <tr> <td>FATS</td> <td>5,35 g</td> </tr> <tr> <td>of which:</td> <td></td> </tr> <tr> <td>- Saturated</td> <td>0,86 g</td> </tr> <tr> <td>- Monounsaturated</td> <td>3,17 g</td> </tr> <tr> <td>- Polyunsaturated</td> <td>0,98 g</td> </tr> <tr> <td>CARBHYDRATES</td> <td>4,14 g</td> </tr> <tr> <td>of which:</td> <td></td> </tr> <tr> <td>- Sugars</td> <td>0,69 g</td> </tr> <tr> <td>DIETARY FIBER</td> <td>7,06 g</td> </tr> <tr> <td>PROTEIN</td> <td>3,94 g</td> </tr> <tr> <td>SALT</td> <td>0,92 g</td> </tr> </tbody> </table>	Average values	por 100 g	ENERGY VALUE	850,94 kj 203,40 kcal	of which:		FATS	5,35 g	of which:		- Saturated	0,86 g	- Monounsaturated	3,17 g	- Polyunsaturated	0,98 g	CARBHYDRATES	4,14 g	of which:		- Sugars	0,69 g	DIETARY FIBER	7,06 g	PROTEIN	3,94 g	SALT	0,92 g
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<p>Net Weight: 500g</p>																													
Storage	How to use																												
<ul style="list-style-type: none"> Store in a cool, dry place. Once opened, keep in the refrigerator. <p>Manufactured by: Sarf Iberia S.L. C/Miguel de Cervantes,3 Granada, 18012, Andalucía, (España)</p> <p>906 43 23 59</p>	<p>Open and let air out for a few seconds. Consume directly or spray with a few drops of water and bake for 5 minutes. Oven preheated to 200°C. Can also be heated in a toaster.</p> <p>Expiration date: 12-06-2022</p>																												
<p>www.sarf.com</p> 	 <p>0 123456 789012 1</p>																												

Ingredients used in the product's elaboration, ordered from the highest to the lowest amount.

Origin of the product, raw materials, or last stage of production.

Energetic value:

Kcal is not the most important measure.

Fats:

Ideal <30 %.

NOT Healthy: ↑Saturated.

Avoid: Trans fats.

Healthy: mono/poly.

Carbohydrates:

Ideal < 10 % sugars.

NOT exceed 25 g sugar/day.

Dietary fiber:

Recommended 25-30 g/day.

Salt:

Ideal <5g/day.

Preferential consumption:

Decreases organoleptic features, fit for consumption.

Expiration date:

From when it should not be consumed.

Nutritional claims and health properties are governed by Regulation (EC) No. 1924/2006.

They are messages that manufacturers can voluntarily put on the label as long as they meet the pre-established requirements by European regulations (sufficient scientific evidence), so that the validity of the statements is ensured.

Health Declaration

Vitamin D contributes to the proper functioning of children's immune systems.

The maternal intake of docosahexaenoic acid (DHA) contributes to the normal development of the eyes of the fetus and of the breast-fed infant.

Docosahexaenoic acid intake (DHA) contributes to normal visual development for children up to 12 months of age.

Iodine contributes to the normal growth of children.

Phosphorus is necessary for the normal growth and development of children's bones.

Iron contributes to the normal development children's cognition.

Nutritional Declaration

Low fat

<3 gr. fat per 100 g of food.

Fat free

<0,5 g fat per 100 g of food.

Low sugar content

<5 g sugar per 100 g of food.

Sugar free

<0,5 g sugar per 100 g of food.

Protein source

>12 % of total energy value.

High protein content

>20 % of total energy value.

Low energy value

<40 Kcal per 100 g of food.

No energy value

<4 Kcal per 100 g of food.

Source of fiber

>3 g de fiber per 100 g of food.

High fiber content

>6 g fiber per 100 g of food.

Light or Reduced

<30 % of the characteristic in question (fat, sugar, etc.) of a similar product.

Natural

The food naturally contains the substance referred to.

LABELING PLASTIC





Bottled water and soft drinks.
Should not be reused or heated above 18°C. Recyclable.



Milk bottles, yoghurt containers, shampoo, or Tupperware.
Recyclable.



Transparent plastic, trays, transparent bags.
Potent environmental toxin.



Shopping bags, salad containers, plastic wrap.
Difficult to recycle.



Plastic dishware, opaque containers, baby bottles.
Recyclable.



Toys, suitcases, cars, furniture.
Difficult to recycle.



CDs, glasses, several very diverse.
Avoid in pregnancy or lactation, they probably contain Bisfenol A.

Numbers 1, 2, 4 and 5 are safe but reusing them is not recommended.

Let sport be a game





AN ACTIVE LIFE IS
A HEALTHY
LIFE

PREVENTION WITH PHYSICAL EXERCISE

Physical activity is important at all stages of life. It is true that the type of exercise will be different in terms of intensity and duration depending on the moment of life in which we find ourselves, however, the physical and psychological compensation that it offers us, benefits everyone who practices it.

The World Health Organization (WHO) recommends at least **one hour a day of moderate physical activity** in all population groups, alternating if necessary two daily sessions of thirty minutes each. This is the minimum to ensure receiving its health benefits.¹⁷

Moving, in addition to promoting energy expenditure and maintaining a healthy body weight, makes us happier people.

Maintaining active habits during childhood and adolescence not only prevents diseases throughout the course of life, but also promotes the incorporation of favorable habits that last into adulthood, intrinsic habits that help maintain physical and mental well-being.

On many occasions and regardless of age, we find ourselves with a barrier called laziness, something that we cannot pinpoint but that prevents us from starting and carrying out an activity that requires physical effort. However, despite the difficulty involved in starting, after finishing any type of exercise, we shiver positively, a pleasant feeling comes over us, completely opposite to the one at the beginning. That is because **moving our body produces chemical happiness**, we secrete hormones that fill us with joy and satisfaction. This helps us, not only to maintain a healthy weight and get closer to the desired beauty standards, but also to lead a more joyful and fulfilling life.¹⁸

¹⁷ World Health Organization (WHO). Global strategy on diet, physical activity, and health [Internet]. 2008 [cited 2021 Jan 22]. Available from: [\[link\]](#)

¹⁸ Government of Spain, Ministry of Health, Consumption and Social Welfare. Healthy lifestyles [Internet]. Spain:

Ministry of Health, Consumption and Social Welfare, 2020 [cited 2021 Jan 25]. Available from: [\[link\]](#)

Increases concentration and improves academic results.

Improves self-confidence, self-esteem and helps us feel happy.

Promotes growth and optimal development.

Improves psychomotricity, strength and decreases body fat.

We propose. . .



Some alternatives are learning to ride a **bike** with training wheels, or riding a **skateboard**.

Learning how to **swim** with your parents is an activity that integrates sport and emotional union.

Playing outdoors with friends is the best way to learn.

Active and educational entertainment.

Ages 0 – 6



Ages 6 – 10



Riding a **bike** without training wheels, **hiking** and/or **family sports** are very motivating.

Jumping rope and playing ball are **exercises that improve psychomotricity**.

Sign up for an organized extracurricular team or individual activity (hockey, fencing, climbing, etc.).

Playing with their parents is their favourite activity.

Adolescent

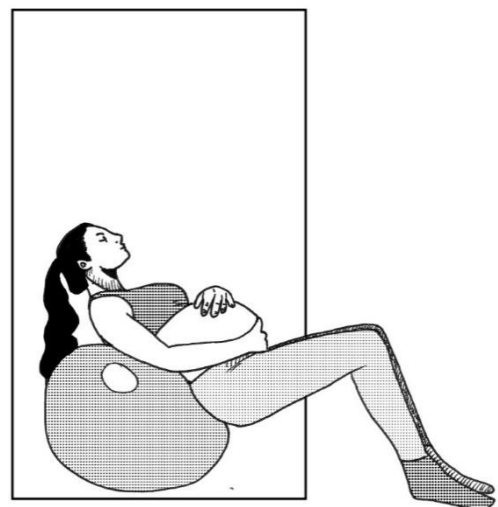


- Going to school and run errands on foot, in order to stay active in everyday life.
- Active tourism** with activities in nature.
- Dancing** with music or doing gymnastics.
- Starting **competitive activities** can be interesting and stimulating at this age (basketball, tennis...). A hobby is self-improvement and happiness.

Stay active and **walk**.

- Practice **swimming** or **cycling**, exercises that do not require an impact.
- Yoga or pilates are an alternative that can help gently **strengthen muscles**.
- Work your **back**, **pectorals** and **flexibility**, you will appreciate it during childbirth and postpartum, the importance of strengthen on the pelvic floor before and after childbirth.

Pregnant







**DOES MY CHILD HAVE AN
ADEQUATE WEIGHT FOR
HIS/HER AGE?**

IDENTIFYING OBESITY

What is body composition?

Body composition is the analysis of the different components that form our body and their amounts. Knowing what the weight distribution for each element is; how much fat, muscle, bone, water, our body has. In this way, we can understand if the proportions of each component are adequate.

Body Mass Index (BMI)

The BMI is one of the most commonly used tools that help us assess fat accumulation. It is used from 2 years of age onwards.

Taking into account that the calculation is made with a formula in which only the individual's weight and height are assessed, it will not provide us with information on where the fat is distributed. For this reason it is very important to evaluate this index along with others that allow us to determine if excess weight can really be a health problem.

A healthy person with high muscle mass could also have high BMI values. Therefore, it is important to also use other techniques to assess body composition.

What other indicator can I use?

Waist circumference is considered a very efficient anthropometric assessment. It allows us to assess where the fat deposits are located. For example, accumulation in the abdominal area is an unfavorable indication.

Children who show high values of BMI and abdominal perimeter have a higher risk of suffering the consequences associated with obesity.

To take the measurements of the abdominal perimeter, it is only necessary to have a flexible tape measure. We ask the subject to stand up, feet together and arms relaxed by the side of the body and proceed to surround the abdomen at the level of the navel without pressing. We take the value shown by the tape measure.^{19, 20}

What is a percentile?

They are numerical indicators that help us evaluate if the results obtained from BMI or abdominal perimeter are within normal limits, when compared to the indices of peers (same age and sex). This assessment method is used from birth to the end of puberty.

¹⁹ Pajuelo, J, Canchari, E, Carrera, J, Leguía, D. Waist circumference in overweight and obese children. An. Fac. med. 2004;65(3):350-7

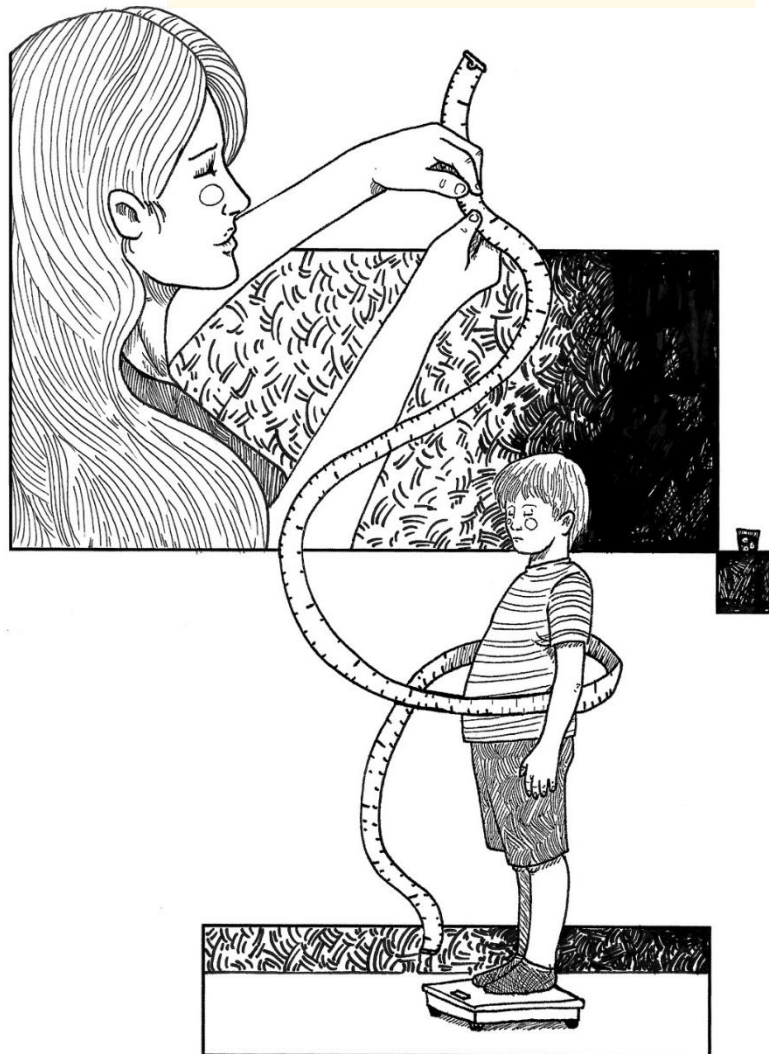
²⁰ Arriba MA, López ÚM, Rueda CC, Labarta Aizpún, JIL, Ferrández FÁ. Normal values of body mass index and

abdominal circumference in Spanish population from birth to 28 years of age. Nutr.Hosp. 2016;33(4):887-893.

Fat is an essential component of energy reserves in our body, it also allows us to insulate ourselves from the cold. However, having too much can cause serious health damage.

BMI CALCULATION

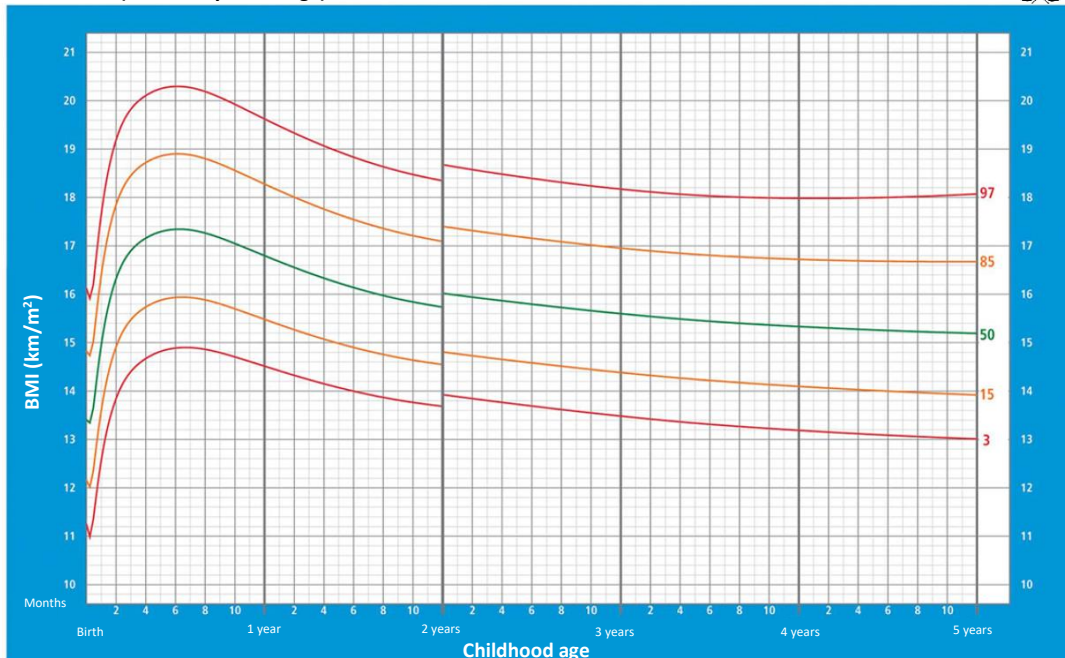
Weight (kg) / Height (m²)



Have you done the calculations?

BMI per age Boys

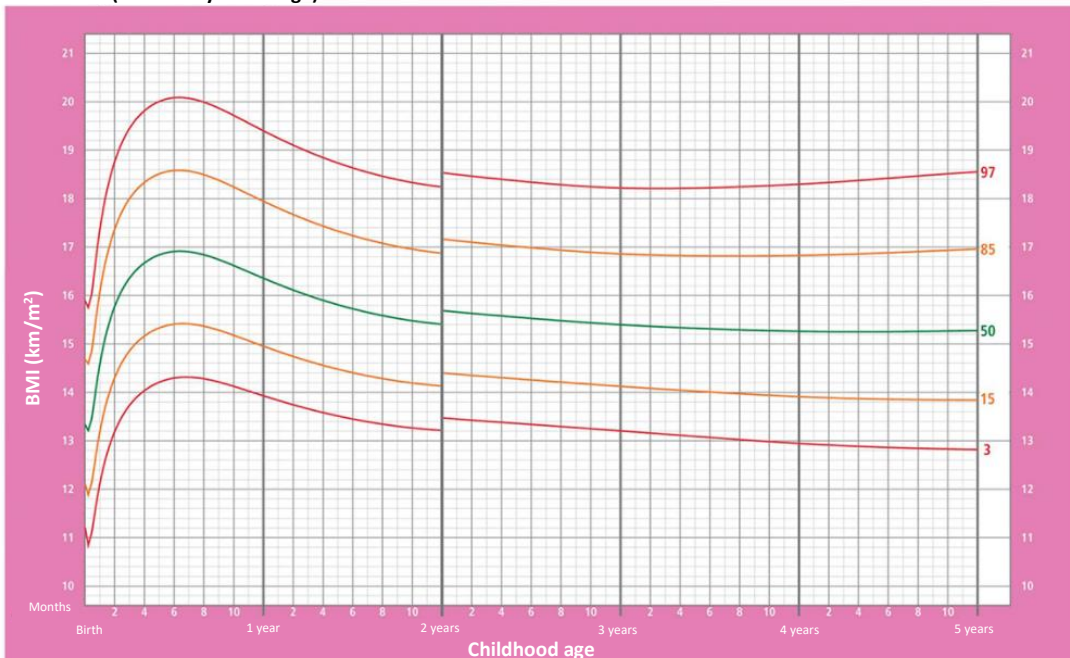
Percentiles (birth to 5 years of age)



WHO Child Growth Standards.²¹

BMI per age Girls

Percentiles (birth to 5 years of age)



WHO Child Growth Standards.²¹

²¹ World Health Organization (WHO) Standard Growth Charts [Internet]. Andalusian Health Service. 2019. [cited Jan 2022] Available from: [link](#)

Let's read the BMI chart

Horizontal axis → childhood age

Vertical axis → BMI

We find the infant's age on the horizontal axis and search vertically until we find the corresponding BMI. We get the numerical value of the percentile in which it is located.

Abdominal perimeter values

In the following charts, we can see the top indicates the age of the subject and the side indicates the percentile. We compare the calculated value with the measurement of the abdominal perimeter. If the measurement is between the values of p25 and p75, the results obtained are within normal limits.²²

What percentile do we find?

<3 Underweight

3 to 85 Normal weight

85 to 97 Overweight

>97 Obesity

BOY

Age	2	3	4	5	6	7	8	9	10	11	12	13
P10	42,6	45,5	47,0	49,0	50,5	52,6	54,1	56,0	58,2	59,7	61,4	64,0
P25	44,3	46,5	48,4	50,2	52,0	54,0	56,0	58,0	61,5	63,3	65,9	67,7
P50	46,1	47,9	50,0	52,0	54,5	56,5	59,5	61,5	65,0	67,5	70,9	72,9
P75	47,9	49,9	51,7	54,0	57,3	60,0	63,0	66,0	70,2	73,2	76,2	78,9
P90	49,4	51,3	53,5	56,0	59,0	63,0	67,2	71,6	76,1	80,0	84,1	86,2
p97	50,0	52,5	54,1	58,9	63,1	68,0	72,2	76,4	82,1	85,9	87,9	91,7

GIRL

Age	2	3	4	5	6	7	8	9	10	11	12	13
P10	42,4	44,2	46,0	47,6	50,0	51,5	54,0	55,3	58,3	61,0	62,5	64,4
P25	44,0	46,0	48,0	50,0	51,7	54,2	56,0	58,1	61,0	63,9	65,3	68,5
P50	45,8	47,9	50,0	51,0	54,0	56,6	59,9	62,1	66,3	67,8	71,6	72,5
P75	47,6	49,5	52,0	53,9	56,5	60,5	64,5	68	72,2	74,7	77,1	78,4
P90	49,2	51,3	54,0	57,5	62,9	65,2	70,3	72,5	77,5	81,4	85,1	85,0
p97	50,5	54,4	57,0	62,5	67,8	74,1	75,5	78,9	86,5	86,8	95,0	91,5

²² Antonio de Arriba Muñoz, Marta López Úbeda, Carmen Rueda Caballero, José Ignacio Labarta Aizpún, Ángel

Ferrández Longás. Normal values of body mass index and abdominal perimeter in the Spanish population from birth to 28 years of age. Nutr Hosp 2016; 33(4):887-893

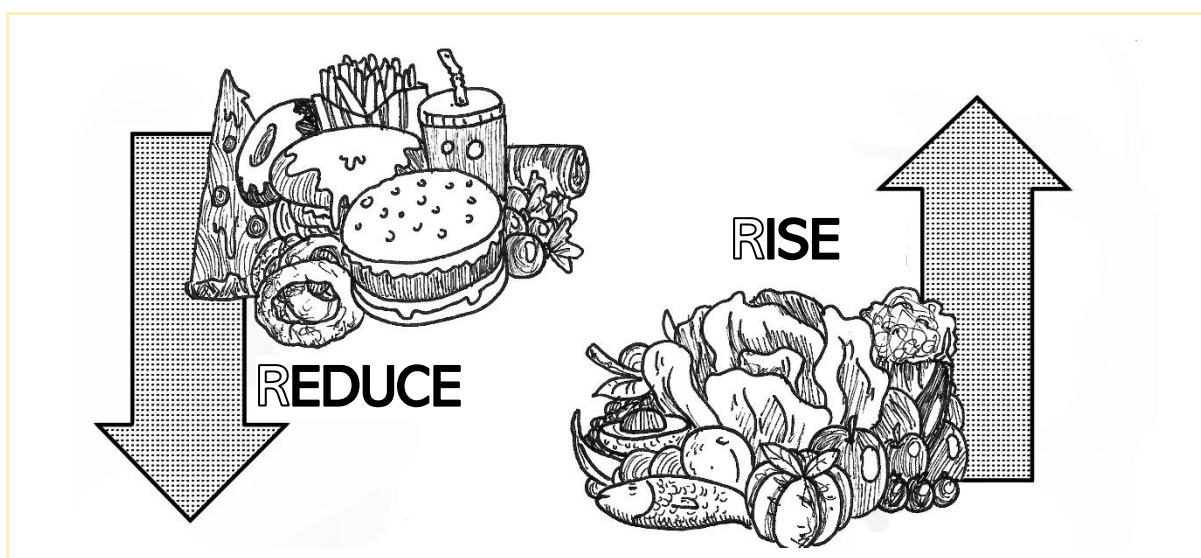
PREVENTION THROUGH NUTRITION

To prevent obesity through diet, with diet being understood as "the set of foods that we consume in a given period of time", it is necessary to achieve eating habits with the right **amount** and the correct **quality** of nutrients we need to maintain our health. However, the data provided by the Spanish Agency for Food Safety and Nutrition (AESAN) in reference to the average Spanish daily intake reflect an incorrect consumption of some food groups.

Therefore, before learning about the specific needs of various stages of life, it is necessary to correct small deviations (amounts and frequencies) and adjust food consumption. If possible, trying to return to

the traditional model of our **Mediterranean diet**, a fundamental pillar of a healthy and balanced diet considered intangible world heritage.

Let us remember that this diet, apart from rooting from the gastronomy of the Mediterranean basin, also focuses on eating habits that promote the consumption of local, seasonal, and non-processed products. It includes fundamental aspects around the act of eating; company and socialization, physical and mental rest after eating (siesta) and an active daily life that allows you to maintain physical fitness, among other important suggestions to achieve a comprehensive well-being.



FEEDING

Pre – pregnancy

If we are planning a pregnancy, some premises must be considered.

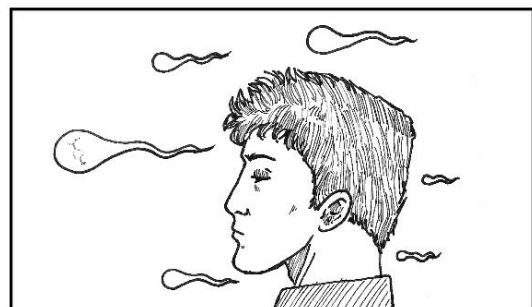
In the first place, we must abandon the presupposition that the woman is the only responsible for the risks associated with the child until the moment of delivery. The male parent provides us with half of the genetic material with his sperm and is equally responsible for the inheritance of the characteristics of the embryo. Both parents leave an "imprint" in consequence with their lifestyles. For this reason, personal, physical, mental, and nutritional care must be a common goal for both parents.

Micronutrients are involved in male fertility that allow the proper development of the sperm; the lack of these could produce a decrease in the fertility of the person involved, or even worse, the transmission of genetic errors to the embryo.²³ Eating habits in which the intake of antioxidants is objectively present (nuts, seeds, good quality oils, fruits, and vegetables in abundance) contributes to providing quality semen.

The reduction of simple sugars and bad fats (industrial products, processed meats, etc.) has been related to an improvement of fertility in men.

Exposure to obesogens plays a role in seminal quality, which is why reducing exposure to endocrine disruptors is on our self-care list.

The genetic factor is the most important of the consequences linked to the father. It is known that if a parent is obese, it predisposes their offspring to suffer from it by 41-50%. On the other hand, if both parents are obese, the probability increases by 69-80%. These are very high values that mark a trend linked to DNA for life.²⁴



²³ Petrakis D, Vassilopoulou L, Mamoulakis C, Psycharakis C, Anifantaki A, Sifakis S, Docea AO, Tsiaoussis J, Makrigiannakis A, Tsatsakis AM. Endocrine disruptors leading to obesity and related diseases. Int. J. Environ. Public Health. 2017;14(10):1–18.











²⁴ Sanchez AML, Piat GL, Ott RA, Abreo GI. Childhood obesity, the fight against an obesogenic environment. Prevention. Postgraduate Rev. Vla. Med Chair. 2010; 197(2):1-6.

Pregnancy

The role of the pregnant mother is very important in the metabolic programming of the fetus; being obese or gaining a lot of weight during pregnancy (particularly during the first trimester), can make the infant more likely to become overweight or obese during late childhood and/or adolescence.

The importance of nutrition during pregnancy is highlighted since a newborn being underweight or overweight can contribute to a future development outside of the ideal parameters.²⁵

For this reason, it is recommended that pregnant women follow a healthy diet as well as the general nutrition recommendations for this physiological stage.

-  High amounts of fruit and vegetables
 -  Drink plenty of water
 -  30' of sun exposure
 -  High quality protein
 -  Complex and whole grains
 -  Physical exercise
 -  Pasteurized milk and cheese
-
-  Ultra-processed and fast food
 -  Alcohol, Tobacco, kefir
 -  Keep cats away
 -  Big blue fish

²⁵ Fernandez-twinn DS, Hjort L, Novakovic B, Ozanne SE, Saffery R. Intrauterine programming of obesity and type 2 diabetes. *Diabetologia*. 2019;62;1789–801.



Lactation

During the period of lactation, following the general guidelines of a regular diet is recommended. Always within the Mediterranean diet, which serves as a guide in meal planning.

Some foods can affect the organoleptic properties of breast milk, but in no case is the infant at risk when ingesting it; on the contrary, it strongly favors physical, mental, and immunological development. It also enhances the acceptance of subsequent complementary feeding. Therefore, there are no mandatory or prohibited foods except for certain habits or specific compounds that can affect both the mother and the child's health.²⁶

Breast milk is the most complete food we can provide. It prevents future food allergies, as well as stimulating the maturity of different systems and providing them with the necessary defenses to combat possible infections in this vulnerable stage. If there are no impediments, it will always be advisable to feed our little ones with breast milk.

At this stage of life, we can differentiate three methods of milk feeding. The preferred choice will always be breastfeeding. A mother who breastfeeds protects herself from possible future pathologies (breast cancer, ovarian cancer) while also protecting the newborn from exposure to environmental contaminants and providing him/her with the most complete and ideal food produced specifically for him/her.²⁷

Regardless of the alternative that is chosen for feeding in the first months of life, the drastic changes that a child's organism faces when going from being completely dependent on the mother to completely or partially become independent creates a period of vulnerability.²⁸

In these months an upward deviation of the BMI can cause severe obesity at an early age. For this reason, the weight of the infant must be controlled and tracked from birth.²⁹

²⁶ Breastfeeding Committee of the Spanish Association of Pediatrics. Recommendations on breastfeeding [Internet]. Spain: AEP; 2012 [cited 2021 Jan 12]; Available from: [\[link\]](#)

²⁷ Maldonado Lozano J, Gil Campos M. Tratado de Nutrición. Nutrición del lactante. Médica Panamericana. España; 2017. Vol.3: p273-298.

²⁸ Spanish Nutrition Foundation (FEN). White book of nutrition in Spain [Internet]. Spain: FEN; 2013 [cited 2021 Jan 12]. Available from: [\[link\]](#)

²⁹ Smego A, Woo JG, Klein J, Suh C, Bansal D, Bliss S, et al. High body mass index in infancy may predict severe obesity in early childhood. *J Pediatr.* 2017; 183:87-93.



  Fruit and vegetable consumption

 Decaffeinated coffee

 Drink plenty of water

 10' – 15' on each breast

 Restrictive diets

  $\frac{3}{4}$ dairy servings

  Bad taste of breastmilk

 Wash fruits and vegetables well

 ↑Nuts

 30' sun exposure

  Alcohol,  Tobacco

Breastfeeding is the most beneficial form of feeding at this stage because it provides protection against many diseases, favors the baby's cognitive development and facilitates the establishment of a mother-child bond that helps in raising emotionally healthy adults. On the contrary, artificial feeding can increase the risk of mortality during the first year of life, sudden infant death, the appearance of infectious processes, atopic dermatitis, allergy, asthma, inflammatory bowel disease, diabetes mellitus, multiple sclerosis, and cancer.

Breast milk is a living fluid that will adapt to each stage of the baby in terms of volume and nutritional and immunological properties. It is environmentally sustainable, economical and allows a complete physical and emotional growth of the infant, reducing the chances of childhood obesity.

It is recommended to breastfeed exclusively for at least 6 months and preferably for the first year of life, with subsequent continuity until the mother/child decides. Maintaining lactation until this period is necessary to ensure the maturity of the digestive and immune system, guaranteeing the efficient digestion of food and the sufficient defenses to face possible pathogens. Breastfeeding will always be on demand from birth and can be maintained even when the complementary feeding stage begins.³⁰

From 6 months old the introduction of supplementary feeding begins. According to the WHO, «supplementary feeding» is the period between 6 and 23 months old in which gradual introduction of food other than breast milk begins. This period allows babies to learn to feed themselves autonomously, developing taste and food preferences, developing the maturation of the motor, kidney, gastrointestinal functions, as well as integrating themselves into the family diet. It is not a replacement feeding but a complementary feeding to breast milk. Breast milk will remain the main food throughout the first year of life.

It is not advisable to introduce food too early or too late, as it can cause nutritional deficiencies, obesity, and food allergies, among others.

The food introduction scheme will not be rigid at any time, although there are incorporation calendars that can serve as a guide. Food rich in iron and other micronutrients and eating together as a family should be prioritized. When the baby acquires the maturity to remain seated, it is advisable to follow a diet based on the child's autonomy and on the control of satiety called BLW (baby led weaning). Under the supervision of caregivers and through the introduction of soft and adapted solid foods at each motor stage of the baby. This will reduce the risk of future obesity.³¹

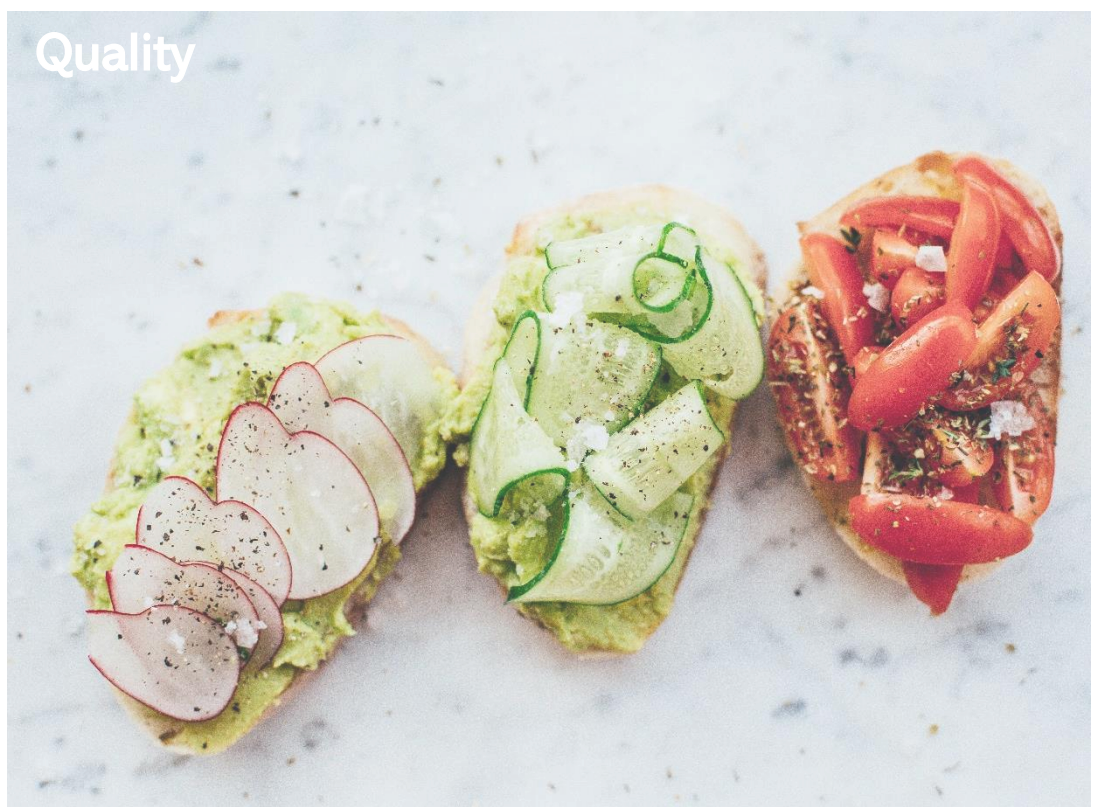
³⁰ Fewtrell M, Bronsky J, Campoy C, Domellöf M, Embleton N, Mis NF, et al. Complementary feeding: a position paper by the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) Committee on Nutrition. *J Pediatr Gastroenterol Nutr.* 2017;64(1):119-132.

³¹ an American Health Organization. Guiding principles for complementary feeding of the breastfed child [Internet]. Washington DC; 2003 [cited 2021 Jan 15] Available from: [\[link\]](#)

-  Food on demand.
Do not force and be patient.
-  Food variety.
Colors and textures.
-  Appropriate cooking.
Raw, steamed, boiled, grilled, and baked.
-  Small quantities.
High frequency tastings.
-  Non processed products.
No sugars and fats.
-  Beware of processed commercial products.
Homemade products are best.
-  Do not overuse screens.
You are the best company.

**Breast milk changes throughout
the day and modifies its
composition according to the
needs of the baby.**

BREAKFASTS



Pregnancy and lactation

Whole wheat toast with avocado, sunflower seeds, and radishes.

Fruit: Orange with cinnamon.

Infusion with ginger.

Seed bread toast with tomato, extra virgin olive oil and oregano.

Fruit: kiwi.

Decaffeinated coffee with **pasteurized** skimmed milk.

I'm hungry !

Whole grain toast with avocado, hard-boiled egg and pumpkin and sesame seeds.

Pasteurized natural yoghurt with chopped strawberries.

Whole wheat toast with grated tomato, extra virgin olive oil and semi cheese with lamb's lettuce or rocket salad.

Fruit: apple.

Infusion with ginger.

Delicious oatmeal banana and almond flour **cookies** with dark chocolate shavings.

Fruit: figs.

Pasteurized semi-skimmed milk.

a

Vegetable cream soup: onion, carrot, courgette, and leek.

Cous-cous with red pepper, onion, aubergine, and courgette stir fry. Seasoned with capers and natural basil.

Seasonal fruit.

b

Steamed hake with vegetable stew.

Mixed salad with figs and nuts.

d

Chicken soup with vegetables and ginger. Add turnip, carrot and julienne cabbage and let it boil (20'). Finish with two drops of soy and a hard-boiled egg.

Pasteurized natural yoghurt.

Baked sea bream with potato slices, onion, and red pepper.

Tomato and mozzarella salad with aromatic herbs.

Lamb's lettuce and arugula salad with parmesan and orange cubes.

Single egg omelette with spinach and pasteurized cheese.

e

e

f

SEAFOOD
Not raw

PORK
Well cooked

FRESH
CHEESE
Pasteurized

RAW
VEGGIES
Well cleaned

SPECIAL OCCASIONS

9

Blanched Swiss chard sautéed with garlic.

Boneless chicken breast previously floured and grilled with a tablespoon of extra virgin olive oil. Before taking it out, drizzle with lemon juice (2').

LUNCH and DINNER

SNACKS

1 A handful of roasted nuts.

Seasonal fruit and an infusion with lemon.

2 Banana, strawberry cashew, and almond milkshake.

3 Chia and kefir pudding with berries.

Soak the chia in the yoghurt for at least 30 minutes.

4 A bruschetta. Cured cheese, an anchovy and chopped spring onion with a drizzle of over toasted bread.



Pregnancy and lactation

We suggest . . .

	Monday	Tuesday	Wednesday
Breakfast	<p>DAIRY + FRUIT + WHOLE CEREAL</p> <p>Sliced orange and walnuts. Glass of milk and <u>decaffeinated</u> coffee. Whole wheat toast with extra virgin olive oil and tomato.</p>	<p>CEREAL + FRUIT</p> <p>Infusion with lemon. Wholemeal toast with tomato, cooked ham and EVOO. Kiwi (seasonal fruit).</p>	<p>DAIRY + CEREAL + FRUIT</p> <p>Strawberry salad with natural <u>pasteurized</u> yoghurt. wholemeal toast with tomato and EVOO.</p>
Snack	<p>FRUIT + DAIRY</p> <p>Grapes and 4 wedges of <u>pasteurized</u> hard cheese.</p>	<p>DRIED FRUITS + FRUIT</p> <p>A handful 30 gr of hazelnuts and a banana.</p>	<p>FRUIT + DARK CHOCOLATE</p> <p>2 or 3 tangerines with a couple of ounces of dark chocolate.</p>
Lunch	<p>VEGETABLES + FISH</p> <p><i>Fideuá</i> with vegetables, monkfish and cuttlefish. Spinach and chard scramble with egg and prawns.</p> <p>1 piece of seasonal fruit.</p>	<p>VEGETABLES + MEAT</p> <p>Carrot and pumpkin soup. Baked cod with slices of zucchini, red and green pepper.</p> <p>1 piece of seasonal fruit.</p>	<p>VEGETABLES + EGG</p> <p>Bean stew with vegetables. Roasted cauliflower and leek omelette. Rocket, lamb's lettuce, and cherry tomatoes salad. Season with EVOO, pepper, and vinegar.</p> <p>1 piece of seasonal fruit.</p>
Snack	<p>DAIRY + FRUIT</p> <p>Strawberries and raspberries with natural <u>pasteurized</u> yoghurt and pistachios.</p>	<p>FRUIT + CEREAL</p> <p>Wholemeal toast with sliced or mashed avocado. Fresh orange juice.</p>	<p>DAIRY + FRUIT</p> <p>Natural <u>pasteurized</u> yoghurt with flax seeds (in water 30' before eating) with kiwi and banana.</p>
Dinner	<p>VEGETABLES + FISH</p> <p>Green bean, boiled potato, grated carrot, roasted red pepper salad. Season with EVOO, salt, pepper, and garlic powder. 2 wholemeal bread rolls. Natural <u>pasteurized</u> yoghurt.</p>	<p>VEGETABLES + EGG</p> <p>Chicken soup with chicken pieces, vegetables, and noodles. Green asparagus omelette with 1 egg + 2 egg whites. Natural <u>pasteurized</u> yoghurt.</p>	<p>SEAFOOD + VEGETABLES</p> <p>Steamed clams with garlic and parsley dressing and a side of peas. Potato salad with cherry tomatoes, black olives, and orange segments. Natural <u>pasteurized</u> yoghurt.</p>

*EVOO: Extra Virgin Olive Oil.

* It is not a menu to follow strictly. There are healthy meals that could be incorporated into our diet. A regular follow-up menu should be personalised under the supervision of a professional.

Thursday

CEREAL + FRUIT

Fresh orange juice.
Toast with EVOO and
Avocado.

Sliced pineapple.

Friday

DAIRY + CEREAL + FRUIT

Pasteurized whole milk with
granola or oatmeal.
Banana with natural peanut
butter.

Saturday

DAIRY + CEREAL

Infusion with lemon.
Whole wheat toast with
tomato, pasteurized cured
cheese and EVOO.

DAIRY + FRUIT

Pasteurized milk + banana +
strawberry with cashews and
rolled oats.

SEEDS + FRUIT

Chia pudding with raspberry
and strawberry milkshake.

DAIRY + NUTS

Unsweetened pasteurized
yoghurt with pistachios.

VEGETABLES + MEAT + CEREAL

Cous-cous with sautéed
green asparagus, fresh garlic,
artichokes, and leek.
Grilled beef filet with EVOO,
black pepper and lemon.

1 piece of seasonal fruit.

VEGETABLES + FISH + RICE

Wholegrain rice with fish,
clams and prawns. Fresh
spinach, walnuts, fresh
cheese, raspberries, and
pumpkin seed salad.

1 pasteurized yoghurt.

VEGETABLES + MEAT

Zucchini, broccoli, leek, and
carrot soup.
Oven-roasted chicken with
potatoes, onions, coloured
peppers, and carrots.
Season with EVOO, salt,
pepper, thyme, rosemary,
and lemon.

1 piece of seasonal fruit.

DAIRY + CEREAL

Whole grain toast with
tomato and cooked ham.
Infusion with lemon.

DAIRY + SWEET

Decaffeinated coffee or milk
and homemade oatmeal
banana cake.

NUTS + FRUIT

Mix of natural nuts and a
piece of seasonal fruit.

VEGETABLES + EGG

Steamed hake and vegetable
ratatouille with natural
grated tomato and spices to
taste. Lamb's lettuce salad
with walnuts, grapes, and
pasteurized fresh cheese.
Unsweetened pasteurized
yoghurt.

VEGETABLES + EGG

Vegetable soup.
Scrambled eggs with broccoli
and sautéed garlic.

Unsweetened pasteurized
yoghurt.

VEGETABLES + MEAT

Grilled loin filets with spices
and lemon.
Green bean and potato salad.

Unsweetened pasteurized
yoghurt.



N O U R I S



“

Do not deprive
your baby of his
best food and enjoy
the infinite love
that breastfeeding
produces

Patricia González

H M E N T

From ages 2 to 6

This stage is characterized by the **acquisition of habits**, the set of activities that make up our day to day (hygiene, sleep, food, etc.). It is very important to incorporate beneficial customs for the child, since these will accompany him/her for life, like a birthmark that is difficult to remove.

The most relevant conditioning factor in the formation of habits is the social environment to which the child is exposed, mainly the family. This means that our guidelines and behaviours influence the behaviour of the child, incorporating what they have learned into their personality and their future decision-making.²⁵

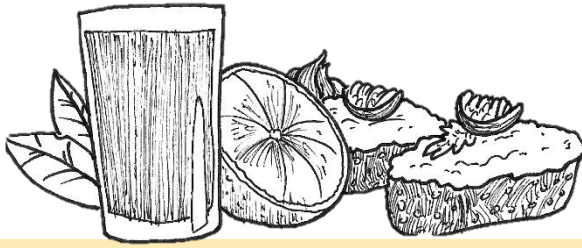
As in all stages of life, nutrients must be present in amounts that allow specific needs to be met (DRV: Dietary Reference Values). We must take into account that between the ages of 2 and 6 it is especially important to administer foods of all kinds, with different flavours, colours and textures, to encourage curiosity and to avoid the appearance of neophobia (aversion to new foods) that often appears at this stage in life.³²

- X Soft drinks and sugary drinks
- ✓ Dairy and derivatives
- X Reduce meat derivatives (charcuterie)
- ✓ Whole grains
- X Be careful with portion sizes
- ✓ Seasonal vegetables and fruit
- X Industrial bakery
- ✓ Fish - 2 times a week
- X Reduce fried foods

³² Quintana LP, Mar LR, Santana DG, González RR. Preschool and school feeding. Diagnostic-therapeutic protocols for

gastroenterology, hepatology, and pediatric nutrition. SEGHPN-AEP. 2010;297-305.

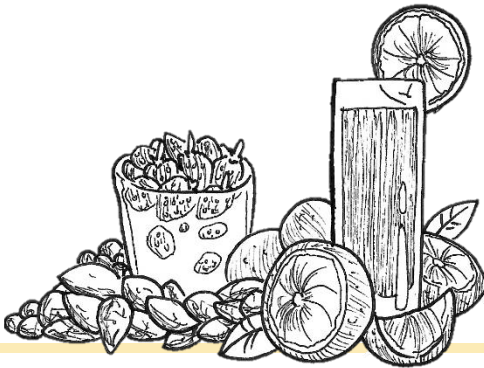
BREAKFAST



Fresh squeezed orange juice.

Whole grain toast with cream cheese + figs + seeds.

BREAKFAST



Fresh squeezed orange juice.

Bowl with natural yoghurt + fruit + nuts (crushed!)

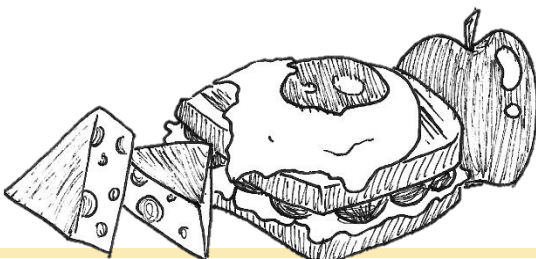
SNACK



Single serving milk container

70% chocolate + 4 dates + handful of walnuts (crushed!).

SNACK



Two portions of cheese.

Wholemeal bread sandwich + lettuce + tomato + egg.

Seasonal fruit.

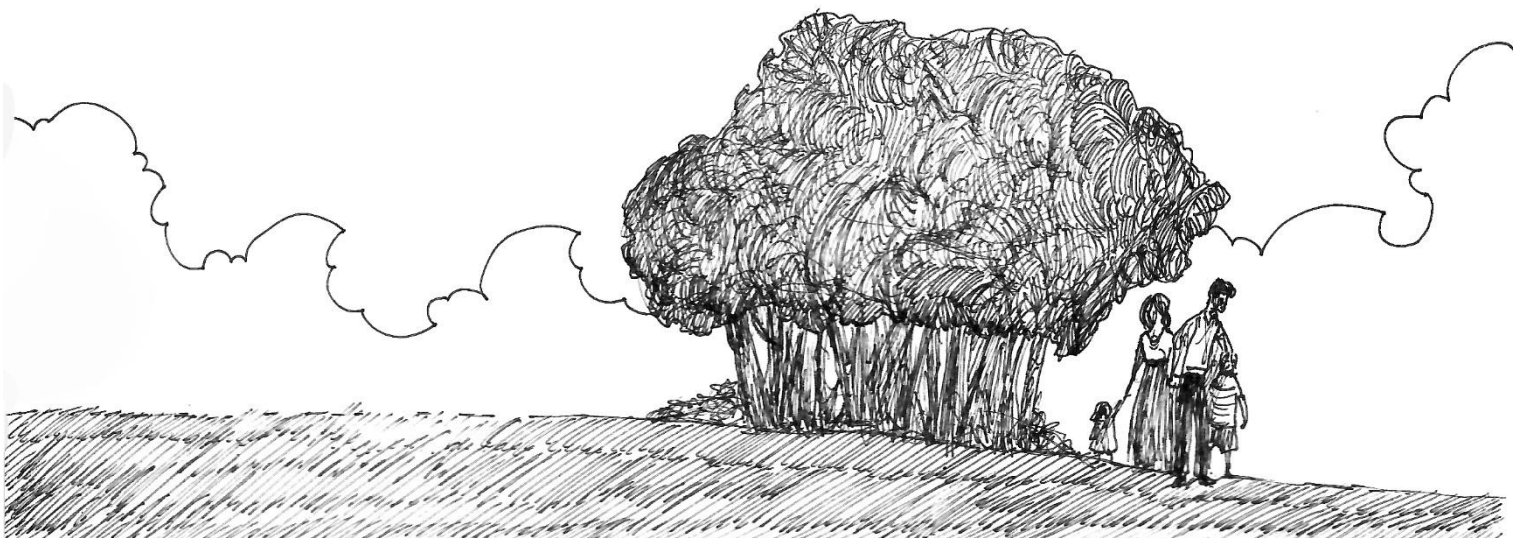
From ages 6 to 10

This stage is characterized by entering school. It is the moment in which the child leaves their family environment and begins to socialize autonomously. From the age of 6, the ability to reason is developed, forming their own critical thinking. The influences of the internal environment (home nucleus) as well as the external one (school nucleus) are important to this development. Communication with our children is of vital importance to understand how they live and how the events that occur in this period affect them.

In this age, the media profit and take advantage of the effective influence they exert over children. For this reason, our role in controlling the time and quality of their exposure to screens is of utmost importance.

Another factor to take into account is the **obesogenic environment** to which they will be exposed. There are a large variety of unhealthy yet readily available products which are provided consciously and unconsciously, as well as a lack of nutritional education. Coupled with the fact that we visit less leisure areas, less physical activity, a loss of adherence to the Mediterranean diet, economic crisis and the rise of new technologies, these factors promote an increase in sedentary lifestyle and malnutrition, resulting in weight gain at a general level in the child population and, therefore, a trend of increasing obesity in this age group.²⁵

Spending time with our children is the best way to educate and care for them.



➤ ✓ Whole grain cereal.

➤ ✗ Eating with distractions.

➤ ✓ Seasonal fruit and vegetables.

➤ ✗ Industrial bakery.

➤ ✓ Homemade sweets.

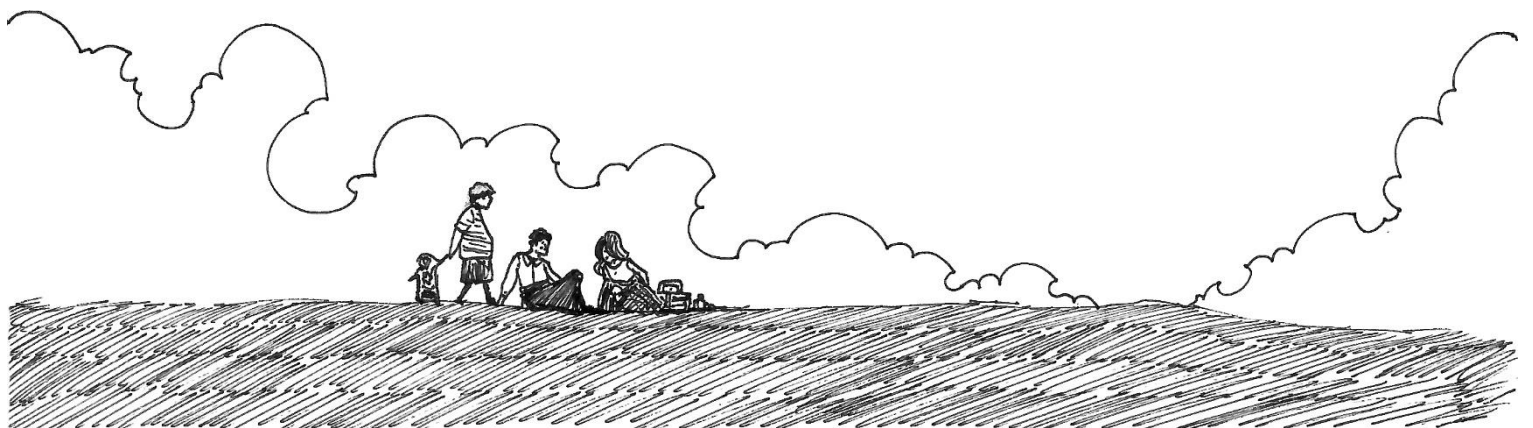
➤ ✗ Soft drinks or sugary drinks.

➤ ✓ Extracurricular activities.

➤ ✗ Video games – maximum 1h/day.

➤ ✓ Family atmosphere.

➤ ✗ Meat derivatives – deli meat.



Ages 6 to 10

We propose. . .

	Monday	Tuesday	Wednesday
Breakfast	<p>DAIRY + CEREAL + DRIED FRUITS</p> <p>Glass of milk with honey. Homemade cookies with oatmeal and dried fruit.</p>	<p>CEREAL + FRUIT</p> <p>Freshly squeezed orange juice with the pulp. Cereal bread toast with extra virgin olive oil and tomato.</p>	<p>DAIRY + FRUIT</p> <p>Unsweetened yoghurt with honey, nuts, and seasonal fruit.</p>
Snack	<p>CEREALS + FRUIT</p> <p>Sandwich made of cereal bread + boiled egg + cheese + zucchini + lettuce. Seasonal fruit.</p>	<p>DAIRY + FRUIT</p> <p>Seasonal fruit mixed with Kefir.</p>	<p>DAIRY + DRIED FRUITS + CEREALS</p> <p>Semi-skimmed goat's milk Whole wheat flour sponge cake + honey + crushed dried fruit.</p>
Luch	<p>FISH + CEREAL</p> <p>· Noodle casserole with fish + potato + vegetables. Seasonal fruit.</p>	<p>VEGETABLE + EGG</p> <p>· Pumpkin soup + carrot + onion + potato. · Eggs stuffed with mayonnaise + capers + yolk + carrot.</p>	<p>VEGETABLES + MEAT</p> <p>· Cous-Cous with cauliflower + sauce + lamb + onion + carrot. Seasonal fruit.</p>
Snack	<p>FRUIT + DRIED FRUITS</p> <p>Sweet crepe: Whole wheat flour + 70% chocolate + banana + strawberry + nuts.</p>	<p>CEREALS + FRUIT</p> <p>Cereal bread sandwich + chicken + spinach + fresh cheese. Seasonal fruit</p>	<p>FRUIT + DRIED FRUITS</p> <p>Smoothie: Pineapple + mango + almonds + Coconut milk + date.</p>
Dinner	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>

* It is not a menu to follow strictly. There are healthy meals that could be incorporated into our diet. A regular follow-up menu should be personalised under the supervision of a professional.

Thursday

CEREAL + FRUIT

Orange, banana and strawberry smoothie.
Whole wheat toast with guacamole and cheese.

CEREALS + FRUIT

Sandwich with cereal sliced bread + tomato + spreadable cheese.
Seasonal fruit.

CEREAL + FISH

· Gnocchi with tomato sauce and squid.
Kefir with nuts.

CEREALS + FRUIT + EGG

Sandwich made of cereal bread + hard-boiled egg + sprouts + onion jam.
Seasonal fruit

Friday

CEREAL + FRUIT

Seed bread toast with tomato extra virgin olive oil, oregano, and pumpkin seeds.
Seasonal fruit.

CEREALS + FRUIT

Sandwich with whole wheat sliced bread + lettuce + avocado + cheese.

VEGETABLES + CEREALS + DAIRY

· Boiled and seasoned asparagus with butter and parmesan.
· Aubergine stuffed with peppers + onion + béchamel sauce with wholemeal flour + baked with cheese.

FRUIT + DRIED FRUITS + DAIRY

Smoothie:
Watermelon + blueberries + natural yoghurt + honey + date + nuts.

Saturday

What do you propose?

Shall we try?

Do you dare?

What do you think?

Your turn



Adolescence

Finally, we find ourselves with a complicated stage, adolescence. In it, boys and girls begin puberty, where they undergo the greatest physical and psychological changes.

These changes are caused mainly by the increase in the production of sexual hormones. They include menstruation, with the consequent accumulation of fat in areas such as the hips or the widening of the pubertal area and shoulders, acne, maturation of the genital organs and drastic emotional and cognitive changes.

To face this barrage of changes, it is essential to help the teens understand these changes as part of the natural course of maturation and help them deal with them through a healthy, diversified, and colourful diet. The degree of maturity and the daily habits of individuals will determine and modify the specific nutritional needs of each person.

- **Do moderate physical activity on a daily basis.**
- **Ensure the supply of calcium for the well-being of bones (dairy products, seeds, cauliflower).**
- **Avoid all kinds of restrictive diets, return to the Mediterranean diet.**
- **Ensure the supply of extra iron at this age (meat, fish, legumes).**
- **Ensure healthy snacks, and do not resort to ultra-processed foods.**
- **Become aware of the physical changes typical of this stage.**
- **They need to set limits and learn to listen. Stimulate reading.**

You are only young once, live these years to the fullest!





Lunches

1

Seasonal vegetable soup
(onion + potato + pumpkin).

Spinach omelet
(1 egg + spinach + cheese).

2

Green Bean Salad
(green beans + potato + basil +
mozzarella + extra virgin olive oil).

4 hake meatballs with homemade
tomato sauce (garlic + tomato pulp).

3

Chickpea salad with green and red
pepper tomato EVOO and ham.

Steamed octopus with garlic and
parsley.

Dinners

1

Sauteed chilled **sweet potato** of the day
previous + zucchini + asparagus +
mushrooms.

Grilled **bream** + turmeric.

2

Cup of **vegetable broth** with miso.

Wholemeal **pasta** with zucchini pesto
(boiled zucchini with garlic and crushed +
basil + parmesan).

3

Steamed vegetables
(steamed cauliflower with seeds and
extra virgin olive oil).

Baked **chicken** with garnish (chicken +
potato + onion + tomato + white wine +
laurel).

Adolescents

Lunches

4

Hummus with crudité
(cooked chickpeas + tahini + garlic + lemon).

Red pancake cannelloni
(savory crepes + spinach + onion + ricotta cheese) + (homemade tomato sauce).

5

Endive stuffed with avocado sauce + fresh cheese + spring onion + soy sauce + roasted seeds.

Chicken burger with spinach and cheese with baked potatoes and paprika.

6

Spiced Chickpeas
(cooked chickpeas + sweet paprika + oregano + onion powder + cumin) → bake 35' 200°C.

Pizza with cheese, pear and nuts.

Dinners

4

Parsnip puree + nuts
(parsnip + onion + garlic + vegetable broth + milk).

Risotto
(rice + mushrooms + garlic + cheese cream).

5

Fajitas
(red + yellow + green pepper + onion + red beans with stir fried tomato + boiled brown rice + cheese).

6

High protein soup
(peas + onion + zucchini).

Turkey popcorn
(turkey + cream cheese + salt + pepper + garlic + wholemeal flour + 1 egg. Mix and form into balls, coat with unsweetened corn flakes).

Adolescents

We suggest . . .

	Monday	Tuesday	Wednesday
Breakfast	<p>DAIRY + WHOLE CEREAL</p> <p>Glass of milk (semi or whole) with unsweetened cocoa.</p> <p>Whole wheat toast with extra virgin olive oil, tomato, sunflower, and sesame seeds</p>	<p>CEREAL + FRUIT</p> <p>Fresh squeezed orange juice or a full orange.</p> <p>cereal bread toast with extra virgin olive oil and avocado.</p>	<p>DAIRY + FRUIT + DRIED FRUITS</p> <p>Kefir with fruit salad and a handful of nuts.</p>
Snack	<p>FRUIT + DRIED FRUITS</p> <p>A piece of seasonal fruit and a handful of nuts.</p>	<p>DAIRY + NUTS</p> <p>Unsweetened yoghurt with nuts.</p>	<p>DRIED FRUIT + DARK CHOCOLATE</p> <p>Dates and >70% cocoa chocolate.</p>
Lunch	<p>VEGETABLES + FISH</p> <p>Baked salmon and tomato avocado and arugula salad, dressed with a bit of pesto diluted with water.</p> <p>Kefir sweetened with honey.</p>	<p>VEGETABLES + LEGUMES</p> <p>Chickpea and green bean stew</p> <p>And stir-fried celery, carrot and onion with a pinch of tomato paste and cumin.</p> <p>1 piece of seasonal fruit.</p>	<p>LEGUMES + EGG</p> <p>Lentil salad with red pepper, green pepper and aubergine, all cut small and previously sautéed. Garnished with alfalfa sprouts and lamb's lettuce.</p> <p>1 piece of seasonal fruit</p>
Snack	<p>DAIRY + FRUIT</p> <p>Seasonal fruit and a tomato cheese sandwich with sprouts.</p>	<p>DAIRY + CEREAL</p> <p>Puff pastry roll with goat cheese and ham baked in the oven.</p>	<p>DAIRY + FRUIT</p> <p>Bowl of muesli with sugar-free chocolate chips with semi-skimmed or whole milk.</p>
Dinner	<p>EGG + VEGETABLE</p> <p>Homemade spinach, carrot, onion, parmesan, and egg burger. Thicken with breadcrumbs or wholemeal flour.</p> <p>Accompanied by baked potato wedges.</p> <p>Plain yoghurt.</p>	<p>VEGETABLE + EGG</p> <p>Vegetable soup with pasta.</p> <p>PizzaTorti – 1 egg, tomato and mozzarella cheese.</p> <p>Seasonal fruit</p>	<p>MEAT + VEGETABLES</p> <p>Baked chicken with white wine accompanied with tomato and onion.</p> <p>Baked Kale Crackers, seasoned with extra virgin olive oil and spices to taste.</p> <p>Seasonal fruit.</p>

* It is not a menu to follow strictly. There are healthy meals that could be incorporated into our diet. A regular follow-up menu should be personalised under the supervision of a professional.

Thursday

CEREAL + DAIRY

Glass of goat milk (semi or whole).

Toast with extra virgin olive oil and serrano ham.

DAIRY + FRUIT

Unsweetened yoghurt with fruit and seeds.

VEGETABLES + MEAT

Homemade meatballs with wholemeal bread, carrot, onion and egg. Accompanied by a natural tomato sauce with garlic, basil and peas.

1 piece of seasonal fruit.

DAIRY + EGG

Homemade flan.

VEGETABLES + CEREAL

Whole grain fajitas with a pepper, onion eggplant and goat cheese filling.
Tomato and chives salad with extra virgin olive oil.

Seasonal fruit.

Friday

CEREAL + FRUIT + DRIED FRUITS

Fresh squeezed orange juice.

Oats with fresh cheese, walnuts, and pear.

VEGETABLES + CEREAL + DAIRY

Whole wheat sandwich with tomato, cheese, and sprouts.

VEGETABLES + DAIRY

Single dish

Moussaka

or

Vegetable lasagne

or

Spinach cannelloni.

Kefir sweetened with honey.

CEREAL

Homemade croissant made of puff pastry and cocoa cream with hazelnuts.

VEGETABLES + MEAT

Single dish

Beef stew with potatoes and vegetables.

Seasonal fruit.

Saturday

DAIRY + CEREAL

Glass of milk (semi or whole) with cocoa without sugar.

Homemade oatmeal cookies.

DAIRY + VEGETABLES + CEREAL

Spinach, potato, and cheese dumplings.

VEGETABLES + FISH

Stuffed peppers with brown rice, onion, carrot, cilantro, parsley, and mushrooms.

Fish to taste.

Seasonal fruit.

CEREAL + MEAT + VEGETABLES

Whole wheat sandwich with chicken, lettuce, tomato and cheese.

VEGETABLES + MEAT

Leek, courgette, and potato soup with a splash of milk.

Grilled pork feet.

Seasonal fruit.



Сладкое
Пирожки / 850

Ушицы / 250
или поросенок

Пирожки / 160
или поросенок

ТОПЛИМЫЙ ВАР
Сладкое в стакане /
100 руб.
ТОПЛИМЫЙ ВАР
Сладкое в стакане /
100 руб.

Сладкое
Пирожки / 850
или поросенок



MAYBE YOU EAT TOO MUCH?
WE OFFER YOU RESOURCES

FOOD RATIONS

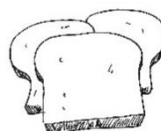
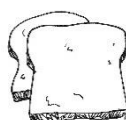
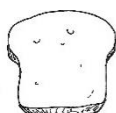
Dairy

	Ages 2-6	Ages 6-10	Adolescents	Daily ration
Milk	120-150mL	140-225mL	222-250mL	2-4
Yoghurt	120-150g	140-225mL	200-250g	
Cured cheese	30-40g	30-60g	40-60g	
Fresh cheese	50-70g	60-110g	80-125g	



Cereal

Bread	25-40g	30-60g	40-60g	4-6
Pasta	40-50g	45-75g	60-80g	
Rice	40-50g	45-75g	60-80g	
Breakfast cereal	24g	30-40g	40g	
Potato	90-120g	105-180g	150-200g	



Vegetables

Vegetables	90-120g	110-180g	150-200g	>2
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Protein

	Ages 2-6	Ages 6-10	Adolescents	Daily ration
Lean meats	60-75g	70-115g	100-125g	2
Fish	75-90g	90-135g	125-150g	
Eggs	1 unidad	1 unidad	1 unidad	
Legumes	40-50g	45-75g	60-80g	
Nuts		15-30g	20-30g	
Fatty meats	30-35g	35-55g	50-60g	
Deli meats	30-35g	35-55g	50-60g	OCCASIONALLY



Fruits

Seasonal fruit	70-120g	85-180g	120-200g	3
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Fats

Extra virgin olive oil	6ml	7-9mL	10mL	3-5
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How many hours are wasted like this?



SCREENS

ALLIES OR ENEMIES?

They are not a method
to educate or to learn,
only to entertain.

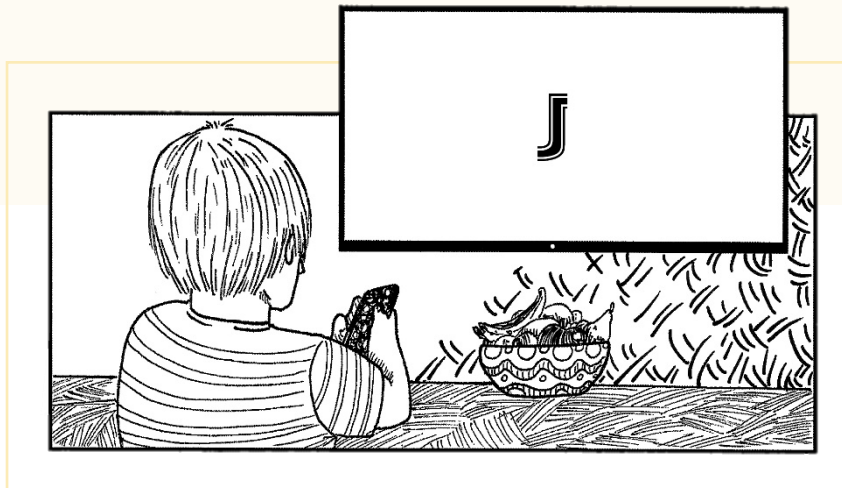
TO KEEP IN MIND

PAOS code

Through the media, the industry can have a great impact on the decisions and tastes of minors. Television commercials are completely oriented towards a specific audience according to the time slot. Advertising uses strategies such as toys, gifts, raffles, or characters of social interest to promote the product. They seek to attract the attention of a specific group of people, thus inciting consumption.

Institutions are trying to curb the impact that marketing can have on minors, as they are a very vulnerable population and easy to influence. For this reason, strategies such as the PAOS code have been implemented.

Through this code of self-regulation and voluntary adherence by companies, the government and the industry propose different rules with which to reduce the impact of advertising on minors. The code is based on non-binding regulations that support the promotion of company products on television and/or the Internet while reducing their influence on vulnerable groups, with the main objective of reducing advertising pressure. The NAOS strategy aims to reduce childhood obesity, improving the quality of nutrition and increasing physical activity. It is included within the PAOS code.³³



³³ Spanish Food Safety and Nutrition Agency and Ministry of Consumer Affairs. Food and drink advertising aimed at

minors [Internet]. Spain: AESAN, 2012 [cited 2022 Mar 20]. Available from: [\[link\]](#)

Influencers and new technologies

The growing importance of social networks in the education of our little ones is evident. Children and adolescents interact daily with platforms such as Instagram, Facebook, Twitter or Tik Tok. The tendency is to spend more time being online than studying. In this context, all the big industries, including the food industry, take advantage of the tools available to advertise and as a marketing tool.

Influencers, who according to the Royal Spanish Academy (RAE) are people with the ability to influence others mainly through social networks, share their routines, thoughts, and reasoning with their followers. These social characters cover all kinds of topics: from environmental policies to healthy habits, passing through sports, video games or fashion topics. The purpose is to influence the behaviour of users, who follow them through social networks.

These technologies could become a great educational tool. However, the industry has seen great potential for commerce and publicity, which is why this medium is currently used for profit and is not very educational. Influencers are the perfect vehicles for the promotion and launch of products. The incentive to consume unhealthy and ultra-processed foods and beverages, encouraged by popular characters, is one of the many problems that our current ultra-technological society faces.

Another problem that we face on a daily basis is the increase in comparisons with personalities or utopian images, unattainable beauty canons and/or ways of life beyond our economical reach. Generating, especially in adolescence, feelings of frustration and/or a state of psychological stress, which, prolonged over time, can even lead to more severe clinical disorders.³⁴

³⁴ Sidani JE, Shensa A, Hoffman B, Hanmer J, Primack BA. The Association between Social Media Use and Eating

Concerns among US Young Adults. *J Acad Nutr Diet.* 2016;116(9):1465–72.

Answer YES or NO

- Have you eaten fast food this week? Yes No
- Have you consumed food packaged in plastic this week? Yes No
- You normally consume water in plastic Yes No
- You use plastic bags to transport food Yes No
- You regularly use Teflon pans Yes No
- You reserve food in plastic containers Yes No
- You eat precooked food once a week Yes No
- You use plastic containers for the microwave Yes No
- You smoke or frequent environments with tobacco smoke Yes No
- You use cosmetics daily regardless of their composition Yes No
- You usually wear rubber shoes in summer Yes No
- You normally use chemical cleaning products Yes No
- You eat canned food at least once a week Yes No
- You have a habit of putting things in your mouth and chewing Yes No
- You use personal care products (soap, cream, etc.) without first considering their composition (parabens, bisphenol A (BPA), Phthalates, PCBs, organochlorine pesticides (DDT)) Yes No

Now count how many times your answer has been **NO**

Points 0 - 4

Performing this orientation test is a first step for the incorporation of new knowledge. You are beginning to open your eyes to a reality unknown to many. We suggest that you start by introducing small changes in your habits that keep you away from these molecules that can interfere and harm your health.



Points 5 - 10

You are beginning to be cautious with some aspects that many people may not consider, for this reason we encourage you to continue this path, you are doing a great job. Look at the points in which you have answered YES and try to modify your habits.



Points 11 - 15

Congratulations, getting to this point in the society we live in is very complicated, good job! The issues addressed in the questionnaire are usually the most frequent way of exposure to environmental obesogens. We encourage you to continue to be aware of them and act accordingly.



Answer YES or NO

- You eat at least 1 piece of FRUIT a day Yes No
- You eat at least 2 VEGETABLES a day Yes No
- You eat LEGUMES at least 2 times a week Yes No
- You eat PASTA/RICE/BREAD at least once a day Yes No
- You eat NUTS at least 3 times a week Yes No
- You consume MILK / YOGHURT / CHEESE at least once a day Yes No
- EXTRA VIRGIN olive oil is the oil you usually use Yes No
- You consume pre-cooked food 2 times a month at most Yes No
- You consume INDUSTRIAL PASTRIES once a week at most Yes No
- You do some PHYSICAL ACTIVITY at least 5 days a week Yes No
- You consume deli meats once a week at most Yes No
- You consume 2 tablespoons of SUGAR a day at most Yes No
- You consume FRIED food once a week at most Yes No
- You drink at least 3 glasses of WATER a day Yes No
- The consumption of CEREALS is usually wholegrain Yes No

Count how many times your answer has been YES

Points 0 - 4

Eating habits are not adequate, this can lead to nutritional imbalances and encourage the consumption of obesogens through inadequate nutrition.

We recommend modifying the habits that led to negative answers.



Points 5 - 10

Your eating habits are favourable, as they are on the right way towards healthy eating habits. However, improving in the areas where the statements made in the questionnaire were negative is recommended.



Points 11 - 15

Congratulations, the results are very favourable. Which means that you take care of your health and that your body will appreciate it. Persistence in these habits is recommended as it is a good way to keep away environmental obesogens and enhance physical and mental well-being.





They see, they do

PSYCHOLOGICAL
**INTERVENTION IN THE
PREVENTION OF OBESITY**

FAMILY AND EDUCATION

Below are a series of steps that represent techniques or tools that can help establish or promote a healthier diet in the difficult path of preventing childhood obesity I.

Step 1: ROLE MODELS

As adults we are role models and the children, we care for observe our what and how we eat. Family, in its many forms, must be the main transmitter of the best eating habits. These habits will last for many years, into our adult lives. Both healthy and unhealthy habits are very difficult to change, hence the importance of establishing healthy eating habits from childhood as an important step in preventing obesity.

“

Habit is habit, and not to be flung out of the window by any man but coaxed down-stairs one step at a time.

Mark Twain

Step 2: AWARENESS

It is important that the children begin to become aware, knowing and understanding the healthy eating habits they are forming as well as the habits we wish for them. It is advisable to make a visual and attractive record in which meals, physical activity and sleep are reflected; including times, number and type of meals, frequency and type of physical activity, and sleep schedule. It does not have to be a complex record. A simple, educational, and very visual one will suffice. This way, the child will begin to be aware of their routines and will begin to identify certain signals. Thanks to this record, the child can know when he/she is really hungry or when he/she is bored. In addition, in order to develop an adequate and healthy conscience, it is essential that the child learns not only how much he eats but what he eats. The nutritional value and its quality, as well as the importance they have in the child's development. Additionally, it is important to carry out certain strategies and/or guidelines that are described later (flexible thinking, mindfulness, motivation, etc.).

Knowing does not mean understanding

THE WAY TO PREVENTION

HEALTHY NUTRITION = Role Models + Habits + Exercise

Monday, April 20th	
Today I feel ...	Today I played...
_____	_____
_____	_____
_____	_____
_____	_____
I ate...	Sports...
_____	_____
_____	_____
_____	_____
_____	_____
unhealthy things...	I have to improve...
_____	_____
_____	_____
_____	_____
_____	_____
My favourite fruit _____	



Step 3: COGNITIVE FLEXIBILITY

Executive functions encompass aspects such as: the ability to move from one activity to another, make changes in routines, learn from mistakes and modify them, and develop new or alternative strategies. Cognitive flexibility refers to the way of interpreting reality in an extreme manner, "white" or "black", "all" or "nothing". It is necessary for children to develop "flexible thinking".

In relation to food, this manifests itself in the form of demonizing certain foods and glorifying others. Conceiving certain foods as "bad" and/or "good" prevents the development of more flexible thinking. In this sense, it is useful to change the way of interpreting and cataloguing foods, starting by qualifying them based on their nutritional value, not based on the number of kilocalories they contain, or whether it is a "forbidden" or a "miracle" food. This way children are taught to identify them according to whether they are more nutritious (fruits and vegetables) or less nutritious (industrial pastries). This can be a very useful strategy.

Likewise, it is interesting to apply this philosophy to physical exercise.

Cognitive flexibility helps us avoid the continual frustrations of trying to achieve our "ideal" goals. Therefore, walking 10 minutes a day is better than not walking at all. Walking those 10 minutes is the way for children to begin to implement healthy lifestyle habits progressively. A cognitively flexible child is prepared to search for alternatives, this means being able to access a variety of resources when making decisions in any situation or faced with any dilemma or problem.

For example, when faced with a hunger signal, alternatives that are healthier and more nutritious (fruit or nuts) can be identified and differentiated.

Flexibility and the search for alternatives can also be applied in aspects such as taking the stairs instead of using the elevator, walking or biking instead of going by car or public transport. Even if it is not every day, once is better than never.



The best is the enemy of the good



Step 4: FULL ATTENTION

Our body and mind need to go from a state of alert, in which we spend most of our day, to a state of calmness, so that our digestive functions (which depend on the parasympathetic nervous system) are put into action from a place of calmness and tranquility.

It is important that meals are also taken as a time for relaxation, talking about issues that do not involve education and/or family rules. Sometimes this space is used in the wrong way, since we have few moments to share with our little ones. And it is used to remind and tell the children of their obligations, talk about schoolwork, schedule the afternoon or even to have arguments over any issue that arises, including what they eat. "I like" or "I don't like it".

It is necessary to focus our attention on creating a relaxed family space at meals. So that they relate eating to comfortable, pleasant and calm moments.

Mindfulness techniques, on the other hand, help us break certain mental automatisms and regulate our emotional states. We eat quickly, looking at the clock, without chewing properly, often in a state of anxiety that sometimes leads us to eat large quantities or poorly nutritious food.

Teaching children to savour food while chewing properly, talking about why they like it, its properties and/or characteristics helps us to focus on eating and to not overstimulate ourselves mentally and/or physically, which can lead us to eat with anguish and anxiety.

For this reason, it is essential to dedicate the necessary time to eating and to our body, so that it is calm. To become aware of each moment, of each food, to be able to enjoy a unique situation every day.



Eating with presence and calm, "HERE" and "NOW"

Step 5: MOTIVATION

Motivation is a key factor when it comes to promoting healthy lifestyles and carrying out preventive actions. Although we want to point out that without action it is difficult to generate a state of motivation. Extrinsic motivation is characterized by actions that are carried out in order to achieve some type of external reward (be it material or otherwise). On the other hand, intrinsic motivation refers to actions that are carried out without expecting or depending on an external reward. In this case, actions are performed for the mere pleasure and enjoyment of performing them, to feel accomplished and/or competent.

It is necessary to carry out a process that starts from extrinsic motivation and develops towards a more intrinsic motivation. A movement from “outside” to “inside”. This way, using techniques like the ones we have outlined previously in our "steps", the child learns to develop intrinsic motivation through the promotion of healthy lifestyle habits. However, we must reward ourselves for our efforts from the beginning because that is the first step to form a habit, which later becomes an activity we complete willingly to feel self-fulfilled.

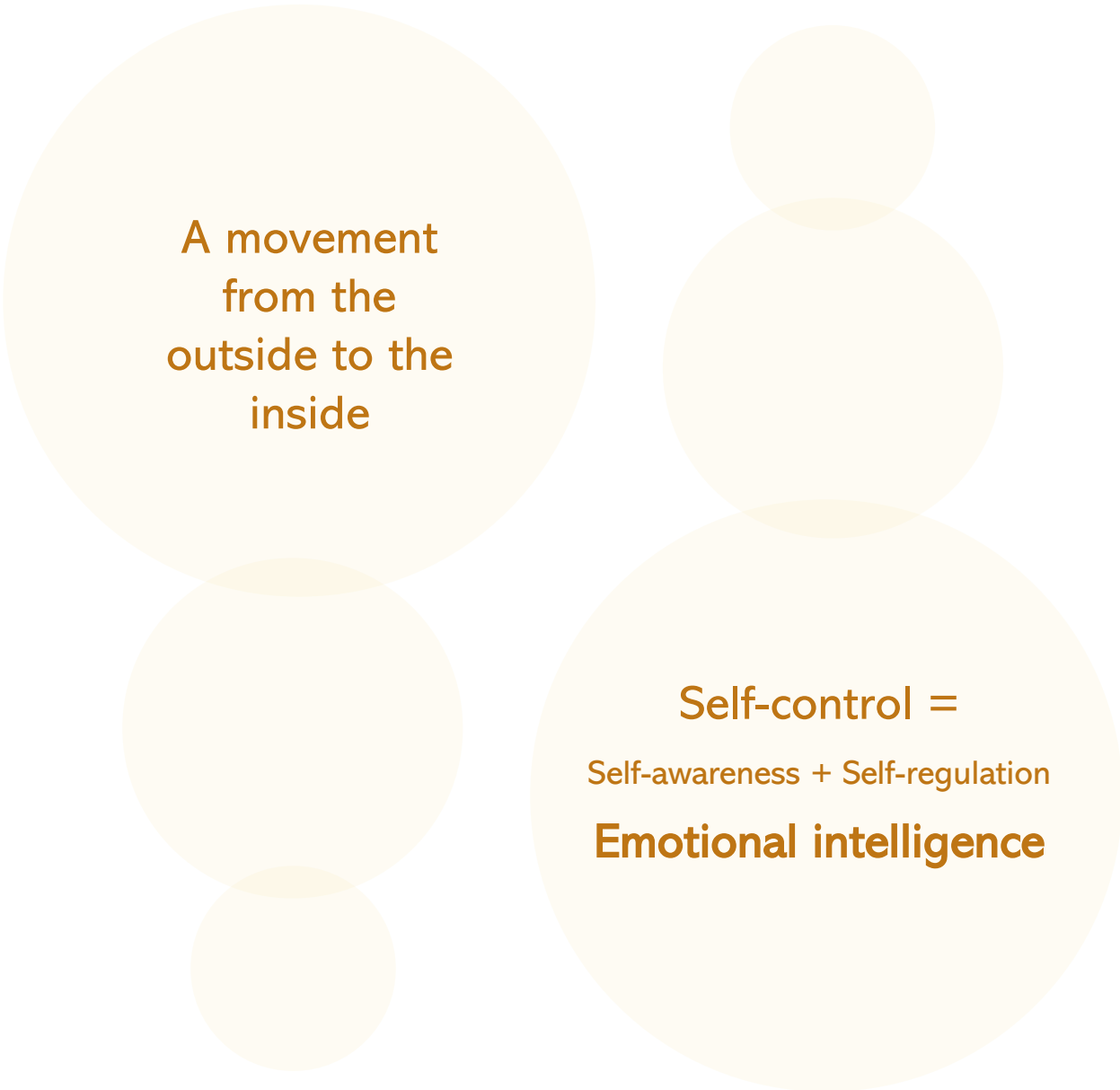
Step 6: SELF-CONTROL

We refer to the ability that humans have to regulate important aspects of our lives. Attention, emotional states, desires and actions or behaviours we carry out are some of the aspects we must learn to keep under control.

Two types of self-control can be distinguished: the kind that allows us to develop personal tools that help manage behaviour and actions, and emotional self-control that allows us to regulate emotional states and keep us balanced.

“

I choose my actions and I regulate my emotions.



**A movement
from the
outside to the
inside**

Self-control =
Self-awareness + Self-regulation
Emotional intelligence



Emotional control techniques

It is one of the most important skills to develop in all areas of human life. And therefore, it also plays a role in preventing childhood obesity.

Learning new behaviours, changing habits, and facing difficulties, requires a great deal of effort.

Emotions generate states of insecurity in both adults and children, as well as anxiety and/or stress.

Some simple techniques that can be introduced in our daily life to help us control and understand these emotions are described below.

RESOURCES TO PUT INTO PRACTICE

Self-control techniques

Within the different techniques that can be found, we are going to refer mainly to what we call “**waiting self-control**”.

From this guide we do not believe that the rewards and/or prizes for the children should come in the shape of different food, but we understand this variety of food is present at home, being able to teach alternatives that delay their consumption.

A reward must be attractive for the little one, not for the adult. Therefore, the foods that a child considers as a reward are usually those whose nutritional value is lower than those that should be included in a healthy and balanced diet. The "reinforcement" foods for the child usually consist of better palatability (high in added sugars and/or fats). Therefore, they must be introduced into the food and diet in a timely/sporadically and moderate manner.

We can gradually increase the time that elapses from when they want to consume it until they consume it, a process called “waiting self-control”. Our goal is for the child to develop self-control in a positive way, with a series of foods that, although we consider unhealthy, are usually present.

Treats (candies, chocolates, etc.) can be used as the victory for correct behaviour. It is important, however, not to grant them unduly or immediately, therefore creating a positive relationship to the consumption of these food products.

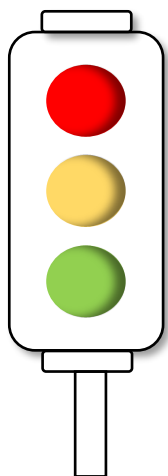
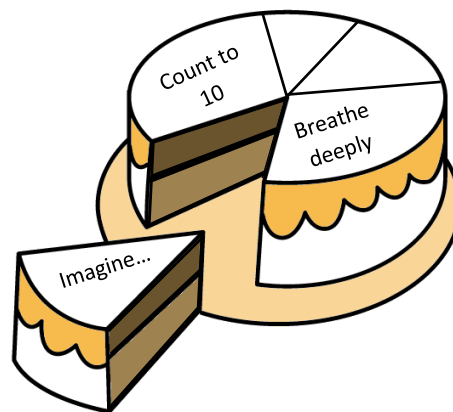
The delayed and unusual reward improves self-control and encourages the product to be consumed regularly, influencing the establishment of good habits.

The goal is to increase the child's capacity for self-control, helping to improve the way of coping with daily difficulties, such as personal relationships, etc.

When there is no emotional self-control, confronting adversity can generate, both in adults and children, insecurity, anxiety and/or stress. Without self-regulation, how and what we eat can be affected, even if we are not fully aware of it. So moderating our emotional states helps us not only to face difficulties, but also to improve our diet.

Here are some simple techniques we can practice to increase and/or develop self-control.

This technique consists of drawing a cake on paper and dividing it into portions. Inside each portion a «trick» will be written so that the child calms down when he/she is tense. Examples of “tricks” to use: take a deep breath, count to ten, imagine a landscape, etc. The child will choose the portion that she/he thinks will help her/him the most at that time.



Stop

Think

Act

This technique helps in teaching children to relax during moments of anxiety. The child must draw a traffic light, in which they will place the following instructions:

First step (red colour): we tell the child that we must stop (as a car would do at a red traffic light).

Second step (amber colour): together with him/her we describe aloud what is happening to us on the “inside”. The bodily sensations that we are having, what the body and mind are asking us to do right now, and then think of ways and alternatives to do those things.

Third step (green colour): the child chooses the course of action he considers best and starts it. We can use the “pieces of cake” technique to help us keep calm.

Creating new habits

We usually talk about habits when referring to behaviours that we learn through repetition. By repeating them, at some point, they fade from our consciousness and become automatisms.

This process is the same for healthy and/or unhealthy behaviours. To generate healthy eating habits, a series of recommendations must be considered:

The way of the 3 P's Practice, be Patient and Persevere. We can only establish habits if they are practiced daily and become mental automatisms.

Set goals that are achievable, realistic, and specific. The proposed goals must be precise, clear, and objective. It is difficult to achieve ambiguous and not clearly stated objectives.

Remember the "for what" it is done. It is key that the child is aware of the "for what" and not the "Why". In this way, essential habits are taught in their growth, development, and well-being.

Lower the level of demand. It is important that habits can be enjoyed and not be interpreted as an obligation.

Do not chastise or admonish if the routine is forgotten or not finished. The adult should remind the child that these changes are to help the child feel better.

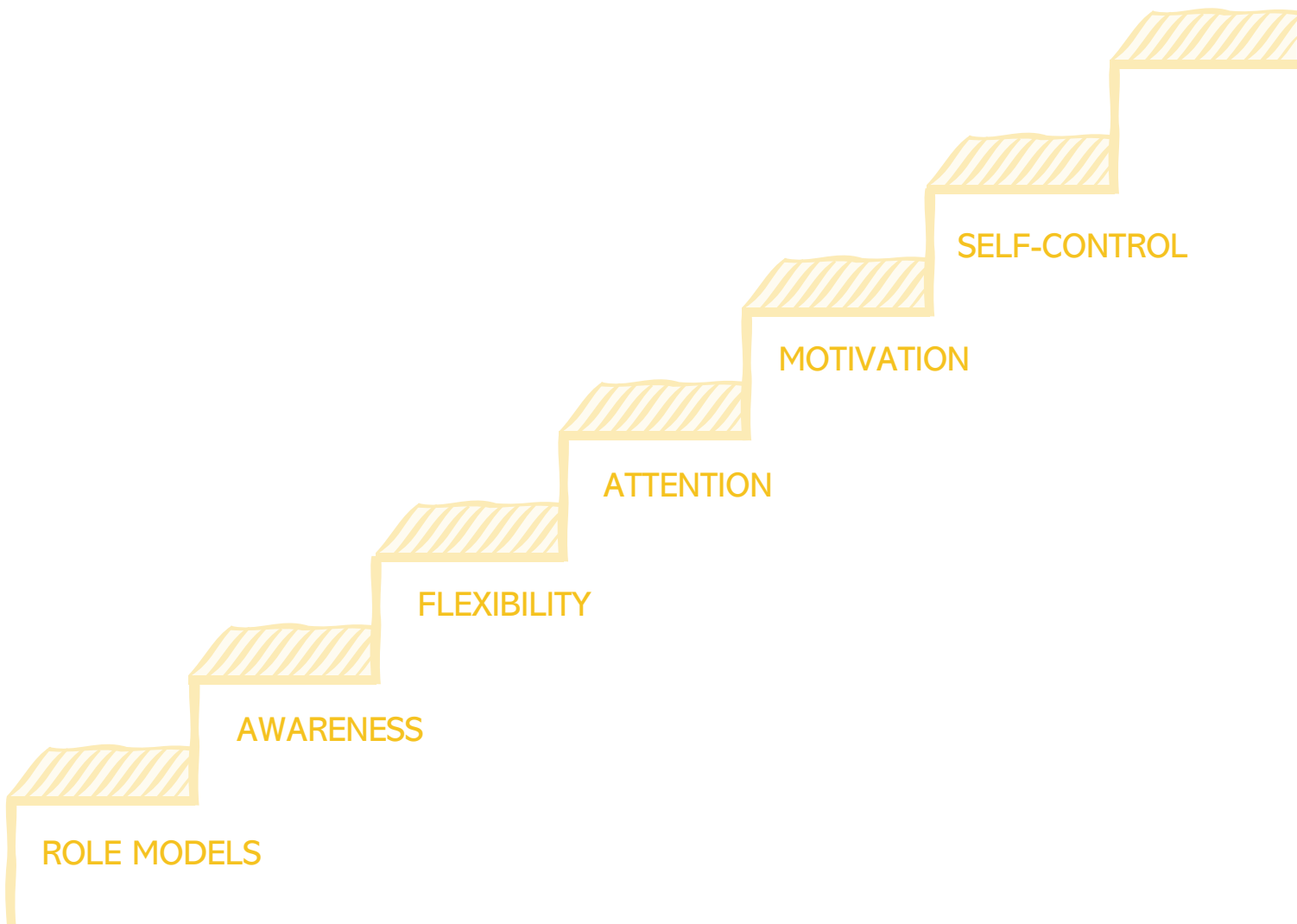
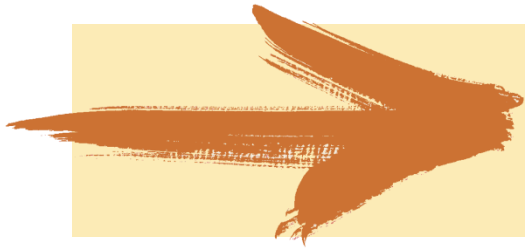
Look for visual or auditory stimuli that remind you of the new routine. An example could be having nutritious and healthy food in an accessible place (easily reachable fruit, for example).

Involve others. It is difficult to establish healthy lifestyle habits at home if they are not shared by the family nucleus. An example would be eating all the same dishes, with no differences.

Bet on flexible schedules. Establishing flexible schedules facilitates perseverance and perseverance, as opposed to abandonment.

Make small changes to routine. It is important to introduce small changes gradually.

Reward them. It is very important to reward, to assure the child at every step, no matter how small, making sure they move in the direction of establishing a new, healthier habit.





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