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## Nutritional Treatment in Eating Disorders

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### 1. Introduction

Eating Disorders (ED) are complex and fundamentally psychological disorders with a rendering in the eating behavior, in which multiple alterations are produced (Jáuregui, 2006). These disorders are characterized by an unusual nutritional pattern and cognitive distortions relating to foods and body weight which produce serious nutritional alterations and medical complications (Martínez & Gómez, 2004).

Eating behavior is determined by nutritional aspects and others such as the economy, the availability, the weather, the culture or the mass media (Jáuregui, 2006). Consequently the dietary approach is essential within the action protocol for eating disorders. The nutritional treatment should consider all cited factors to modify the altered eating behavior. This part of the treatment must be carried out by a nutritionist, who should be part of an interdisciplinary team. The interdisciplinary team ought to be made up of doctors, psychologists, nutritionists and nurses, among others. These professionals are required in order to treat medical, psychological and nutritional aspects which converge in an eating disorder. All members of this team must maintain a constant communication about the patient evolution (Sayag & Latzer, 2002).

In the current literature, concrete and precise guidelines which constitute the action protocols to treat the medical and psychological aspects in eating disorders can be found. However, the same is not occurring for the nutritional treatment. The nutritional treatment is indispensable to treat eating disorders but only its importance has been considered recently.

To establish general rules to be applied in the nutritional treatment of eating disorders is possible. However, the nutritionist must always consider each individual case and the treatment should be personalized according to the nutritional state, the age, the clinical and nutritional histories, the psychosocial situation and the attitude to the disease and the treatment of the patient (Waisberg & Woods, 2002).

The family of the patient with an eating disorder has a fundamental role in the effectiveness of the nutritional treatment. To give the family clear patterns is required, emphasizing the need for meals as a relaxed social event. The nutritionist should teach the family to distinguish problems regarding meals from irrelevant aspects like "During this week, once my daughter left a little of legumes in the dish" (Jáuregui, 2006).

## 2. The nutritional treatment

Regardless of the intervention area needed, the nutritional team functions in eating disorder units are (Iglesias et al., 2004):

- a. The nutritional state assessment.
- b. The diagnosis of organic sequelae and related illness.
- c. The treatment of malnutrition and other possible nutritional deficiencies.
- d. The treatment of the presented organic complications.
- e. Nutritional education for patients and their families.

When patients who start the treatment in an eating disorder unit are malnourished, the nutritional treatment is indispensable because of the cognitive and affective alterations which are caused by the malnutrition make the psychological treatment impossible or hardly difficult (Fernández & Turón, 1998; Iglesias et al., 2004).

When nutritionists have collected the information and obtained the diagnosis, they must establish the nutritional treatment of which the main aims are (Iglesias et al., 2004): getting an adequate nutritional state, obtaining an organized, well-balanced and sufficient food intake and avoiding the appearance of medical complications.

## 3. Intervention areas

Generally, the eating disorder units are coordinated by a psychiatrist who establishes the general points of the treatment and manage the rest of the interdisciplinary team (Chinchilla & Padín, 1996). This team must be present in the eating disorder units during the whole process of the treatment because a “forced” weight gain without psychological support is not recommended (Cheryl, 1999).

The indicated nutritional treatment for each patient with eating disorder depends on the therapeutic context where the patient is treated (Jáuregui, 2006).

The intervention areas for the eating disorder treatment are the following (Iglesias et al., 2004; Jáuregui 2006):

### 3.1 Outpatient treatment

This intervention area is very recommendable to keep the normal social, family, school or professional life of patients as long as their nutritional and psychological state allows it (Iglesias & Gómez, 2002). Nutritionists will try to correct any biological alteration suffered by the patient. Then, they will work with the patient to modify wrong nutritional habits towards healthier nutritional patterns by means of the nutritional education.

The outpatient treatment is suggested for initial clinical manifestations with mild or moderate symptomatology. Considering Fernández & Turón (1998) the following contraindications exist for the outpatient treatment:

- Low motivation for the treatment that makes unlikely an adequate treatment adherence.
- A very marked low weight.
- The recurrent failures of previous outpatient treatments.

- Family conflicts which maintain the disorder.
- Lack of family support.
- Organic or psychopathological reasons for the admission.

The nutritional treatment:

The body mass index is the most used parameter to follow up the weight recovery. A normal body mass index ranges between 18.5 and 25. In this context, the nutritionist has to explain to the family nutrition and behavioral patterns which make possible meals in a correct way (Jáuregui, 2006). Procedures to modify the behavior with programs of operational conditioning with positive and negative reinforcement are the most effective (Saldaña, 2001). This treatment can last a minimum period of one or two years. In order to obtain an effective nutritional treatment, the nutritionist should not only consider the patient but the family members must be taken into account. Working with them is very important (Russell et al., 1987), so as to indicate clear guidelines and actuation rules for different situations which can crop up. In addition, the nutritionist, by means of this work with the family, can modify wrong acquired habits in the family unit towards more healthy patterns through the nutritional education.

At the beginning of the nutritional treatment, patients with an eating disorder are provided with a life - plan which includes dietary and behavioral patterns. This life plan must comprise: basic rules for a normal nutrition, control of the bathroom, rest periods, possible restrictions in scholar or labor schedules, other activities, pharmacological prescription and further indications.

The above-mentioned life-plan contains as a first point the chapter nutrition where dietetic rules are specifically established for patients. Taking into account the patients' nutritional state, their diet may be either based on the families' meals respecting some general nutritional recommendations or consist of a diet prescribed by the nutritionist according to the specific needs of each patient. The caloric value of such diet can vary between 1000 up to 3000 kcal, divided into five categories, increasing each one by 500 kcal. These diets are also recommended wherever the nutritional habits of the family are resulting to be unhealthy and the family members refuse to adapt their habits to the recommendable nutritional patterns. However, the nutritionist will avoid the use of programmed diets which delay the patient integration in a normal diet (Iglesias et al., 2004). If patients are suffering from malnutrition, oral protein-calorie supplements or a special milkshake on the basis of cereals and fruits will be prescribed to patients and this last one can be prepared at home. However, the recommended quantity of water is, for all types of diets, between 1.5 to 2 liters per day. The total water intake of patients must be controlled in order to avoid the potomania like a compensatory behavior.

If patients are allowed to follow the family-diet, some general rules for a normal diet are explained in order to modify wrong nutritional habits of patients towards healthier patterns, which patients should acquire and maintain after their recovery. These rules are exposed in this chapter as follows.

Patients should have five daily intakes consisting of: breakfast, midmorning snack, lunch, afternoon snack and dinner.

It is important to offer variety in every meal in order to obtain a complete and well-balanced diet.

The breakfast ideally is composed of a dairy product (e.g. full milk), a portion of the group of farinaceous (bread or cereals) and a piece of fresh fruit (can be natural juice too).

The midmorning and afternoon snacks may include nuts and dried fruit, cereals, fruits, dairy products, sandwiches and occasionally pastry.

The lunch and the dinner necessarily must consist of two courses each, in order to include as much as possible of the groups of foods with a correct frequency and should be followed by a piece of fruit. Both meals need to be accompanied by a portion of bread. The liquid preferably will be water, the ideal quantity being one to three glasses. Soft drinks and packed juices should be avoided generally, whatever diet is followed. Alcoholic drinks are strictly forbidden.

Light, skimmed and integral products are forbidden unless a pathology requires their consumption. In order to avoid the excessive intake of simple sugars, goodies are not allowed.

Patients cannot make any choice with respect to the food, neither to the quality nor the quantity. In fact, the portions will be served by the person in charge of the patient, who will always be present during the patient's meals. When the dishes are served, the responsible person must retire any type of container like trays or serving dishes. Generally all meals should be carried out at home, this allows patients to better obey to all rules accordingly.

In a recent study (Jáuregui & Bolaños, 2009), when a control student group decided on their diet, the food intake was  $2123.94 \pm 220.61$  kcal/day but in eating disorder patients it was  $1815.74 \pm 508.38$  kcal/day. The food intake of patients also was deficient in niacin, B<sub>12</sub> vitamin, sodium, zinc, phosphorous, copper and selenium. With respect to the food groups, the diet was deficient in bread and cereals, sausages, sweets or fried foods and the more frequent group was vegetables.

During the meals, patients cannot have any distraction as watching TV, talking on their mobile phone or playing with their computer. The family must avoid conversation topics based on foods, body image, weight, diets or the eating disorder itself as well as arguments during meals. The responsible person must control patients when they eat but in a relaxed way to avoid an unpleasant situation.

Patients ought to eat in a correct way: using cutlery adequately, sitting down right or respecting the established dishes order. Patients will not leave the table until the end of the meal (González et al., 2001).

The second aspect considered in the life plan is the control of the bathroom. Patients cannot enter the bathroom until nineteen minutes after meals. In addition, they must be accompanied at all times. This control is very necessary in order to avoid the practice of physical activity (e.g. in the shower) or the use of compensatory behaviors (vomiting, laxatives and diuretics).

Nowadays is very frequent to have a scale at home. Many patients with ED often weigh. Therefore, is very important to remove the scale with the purpose of patients cannot know their weight, because this data can harm the evolution of patients.

The nutritionist should indicate the recommended rest periods too. After meals, patients must not carry out any activity, it's to say, they have to rest. The rest periods may be on sofa or on bed, depending on the nutritional state of the patient. The advisable time to rest is half an hour after breakfast, midmorning and afternoon snacks and an hour after lunch and dinner. As during meals, in the rest periods, patients should not have any distraction (television, mobile phone or computer).

With the intention that patients acquire regular times of meals and rest periods, the nutritionist specifies a schedule for each patient, which assures the compliance of the nutrition and rest guidelines. The night's sleep must last eight hours in an approximate way.

The next point to treat is the school and working schedules. Taking into account the nutritional state of the patient, the nutritionist will can restrict theses schedules in order to facilitate a correct evolution of the patient. The professional will indicate if the scholar or labor activities will be maintained on full-time or partial-time. In cases of patients with a severe malnutrition these activities can be void. Also the dedicated time to study or work should be specified.

Then, consider others activities that patients can carry out is important. In this case, depending on the nutritional state of the patient, the nutritionist should think about the possibility to walk or practice some type of sport. If the patient is suffering malnutrition all type of physical activity must be forbidden. When the patient is at school age, indications about the subject "Physical Education" in the syllabus and the physical activities implemented must be given, considering, again, the nutritional state of the patient.

The sixth item listed in the life plan, which does not correspond to the work of the nutritionist, is the medication. The prescribed medication should be indicated by a psychiatrist. This data must be known by the nutritionist in order to consider the possible effects about the appetite or the weight changes that can be produced.

Finally, in the life plan, the nutritionist details others general indications. With the aim to ease the correct compliance of food standards, the kitchen must be controlled or closed considering each case in particular. This arrangement is necessary to avoid that patients cook their own meals, throw food, peck or binge. When the control of the kitchen is not enough, the family will proceed to close the door with a padlock or a door lock. With the bathroom, the same guidelines will be applied. The aim of controlling or closing the bathroom is to avoid that patients can practice physical exercise or use compensatory techniques such as vomiting, laxatives or diuretics. These are the causes for which patients must not enter the bathroom after meals and they always should shower before meals. Another recommendation in relation with the bathroom is that patients should be always accompanied.

Another indication very important is that patients must be go out without money not even credit cards, at least the responsible person should control the money that patients have got and spend. This aspect is necessary in order to avoid that patients can buy foods, diuretics or laxatives, among others.

With the aim to get a greater control respecting meals and compensatory behaviors, the person in charge of the patient must review, with a regular frequency the room, the handbag or backpack with the intention of find money, foods, diuretics or laxatives that the patient can hide. This is only possible after having obtained the consent of the patient.

Nowadays out-home meals are very frequent, and this acquires importance especially among adolescents, that search more autonomy in their nutrition. This reason justifies that patients should eat at home and they must be always accompanied by some member of the family and the whole family ought to eat together, if possible. When the patient follows the family-diet, the person that plans the menu and cooks has not got any type of restriction considering foods and culinary techniques, but this person must respect the nutrition rules explained by the nutritionist during the first visit. The nutritionist must clarify that this person should not give in to the requests of the patient relating to meals because patients have not a correct criterion to decide.

The frequent outputs night among adolescents must be avoided because both uncontrolled meals and insufficient rest times could arise. On the other hand, this habit facilitates the alcohol consumption among adolescents in an early way. The alcohol consumption, as explained in the first point of life plan, must be excluded during the treatment.

Traditionally foods are placed in the kitchen. However, to find food in the sitting room, in the rooms or in the bathroom is not unusual at the present. Therefore, the nutritionist ought to try that the family provides all food only in a room. The person in charge for the purchase should buy the essential and necessary.

The patients with eating disorders buy their own food, look all nutrients that these foods contain and cook their own meals. With the aim of get a better efficacy in the nutritional treatment, patients should not plan the weekly menu, or choose, buy and cook food or enter the kitchen when meals are being prepared.

Finally, the last indication in this chapter is the recommended time for meals. Patients have a maximum time for eat in order to maintain a regular meal schedule. These times are twenty minutes for breakfast, midmorning and afternoon snacks and forty minutes for lunch and dinner.

In addition to the abovementioned aspects, when the nutritionist proposes the patient the family-diet, the recommended frequency of food consumption is explained, including all groups of food: bread and cereals 3 times a day, rice and pasta 2-4 times a week, legumes 2-3 times a week, potatoes 2-3 times a week, fish 4-5 times a week, meat 3-4 times a week, eggs 3-4 times a week, dairy 4-5 times a day, vegetables 1-2 times a day (a portion should be raw, e.g. a salad) and fruits 2-3 times a day. On the other hand sweets and ice cream as well as fried food are included, and their frequency depends on the nutritional state of the patient. Generally the recommended frequency is 1-2 times a week for sweets and ice cream and the same for fried food.

From the first visit, patients must write food records and take digital photographs of meals (before and after eating) with the intention of controlling the quality and the quantity of food in an exact way. At first, appointments are given weekly and this frequency is modified according to the patient evolution. The nutritionist will carry out a complete anthropometric assessment in each visit. The nutritional treatment is especially based on the nutritional education with patients and their families. Currently, patients and families express irrational food beliefs which the nutritionist must treat with them. These beliefs can be assessed by means of different instruments [i.e., the Irrational Food Beliefs Scale (Jáuregui & Bolaños, 2010)]. When the nutritionist ignores these beliefs, the nutritional treatment

efficacy decreases and the relapse risk increases. It is necessary to take into account that many eating disorder patients compose their diets by means of these irrational beliefs.

In this intervention area as well as in the rest of them the nutritionist should try to obtain the patients confidence and assume the responsibility of their control weight. Increasing the amount of foods gradually is very important to avoid the association between a best food intake and a sudden weight increase.

The dietetic-nutritional education tries to support and increase basic knowledge of eating disorders and their nutritional treatment, modify wrong nutritional habits, give tools to patients who can create their own diet in a healthy way and get a stable and normal weight by them. A nutritional intervention program includes basic topics like food groups and their nutritional composition, explanations for irrational food beliefs, nutritional guidelines, information on culinary techniques, and dietary strategies to modify the wrong nutritional habits and eating behavior (Muñoz et al, 2004).

### 3.2 Day hospital

This intervention is an intermediate step between the outpatient and hospital treatments. There are two possible therapeutic modalities according to the number of hours that patients stay at the unit: complete and limited stay. In this case an intensive interdisciplinary treatment is given to patients who are not strayed from their social and family contexts. The day hospital provides patients with greater control of their nutritional state and eating behaviors than the outpatient treatment. This treatment modality is recommended for patients who have received an outpatient treatment without adequate outcomes or who had required a hospital treatment but still present a serious symptomatology at the end of this treatment. Also, this treatment modality is used as a temporary pre-hospitalization treatment and for patients who have a family environment with recurrent conflicts and lack of family support (Jáuregui, 2006).

According to Kaplan & Olmsted (1997), the contraindications are:

- Organic state with indication of admission.
- Psychiatric reasons.
- Serious toxic substance dependence or abuse.

With shortened inpatient hospitalizations many patients require long term care for their recovery which the day treatment programs can provide. This option eases the correct development of children and adolescents (Dancyger et al., 2003).

The nutritional treatment maintain the general objectives of the outpatient treatment but others are included (Iglesias et al., 2004): the nutritional state control, the recovery of a normal weight, the suppression of compensatory behaviors, the eating behavior and food intake observation, the meals and rest periods control by specialized monitors, meals in group, nutritional education for patients and families, medical control and psychological support.

Some patients need nutritional supplements (Imbierowicz et al., 2002), but these measures must be provisional and these will be applied during a short time (Mejia et al, 1994).



### 3.3 Hospitalization

This intervention area is recommended when the outpatient treatment or the day hospital have failed or the nutritional and health states are severe and other therapeutics alternatives are not possible. The nutritional and psychiatric units must indicate the admission by mutual agreement. This treatment involves the normalization of eating behavior, medical complications treatments, psychotherapy and family support (Jáuregui, 2006).

When nutritional reasons are key aspects for this decision the most important objectives are:

- The organic balance recovery.
- The improvement of associated medical complications.
- The treatment of the nutritional alterations.
- The recovery of a normal weight.
- The introduction of a normal oral diet.

The admission criteria in patients with anorexia nervosa are (Jáuregui, 2006):

- Weight loss > 25-30% and vital risk produced by medical complications. In these cases the responsible department is internal medicine. If the patient suffers lower weight loss and has medical complications without vital risk, the responsible department is psychiatry.
- Psychopathological complications.
- Family crisis.
- The outpatient treatment is not possible or the patient has had an inadequate response to it.

The admission criteria in patients with bulimia nervosa are, according to Yates (Turón, 1997):

- Repeated failures of the outpatient treatment.
- Substance abuse/dependence.
- Severe binge episodes and vomits.

The nutritionist carries out the control of patients' weight every morning. Patients are weighed before breakfast, after urinate, barefoot and with underwear, and their back to the scales. Patients should not know their weight in order to ease their psychological recovery. Also nutritionists collect the complete information about the eating behavior of patients. They establish an adequate nutritional plan, which can include nutritional supplements and artificial nutrition if it is necessary (Gómez et al., 1999).

The nutritionist must be present at patient meals where parents are too. At this moment the nutritionist can work with patients and families by means of the nutritional education, in order to get the maintenance of correct nutritional habits after admission.

The nutritional treatment will start with oral nutrition if it is possible. At first, a hypocaloric diet is indicated in proportion to the nutritional state of the patient and the food intake will be increased during the hospital stay until a normal diet. The use of nutritional supplements must be provisional because patients usually create habituation towards this supplement and then, the suppression is difficult (Iglesias et al., 2004). The nutritionist avoids the refeeding syndrome with gradual increase of the food intake. The most frequent alterations

caused by the refeeding syndrome are: hypophosphatemia, hypokalemia, hypomagnesemia, thiamine deficiency, glucose metabolism alterations and extracellular water increase (Birmingham et al., 1996).

### 3.4 Domiciled hospitalization

This treatment modality avoids the admission in many cases. The domiciled hospitalization is very effective if correct selection criteria of patients and families are applied and adequate action protocols are used. This type of medical care is similar to the offered by a hospital but patients are in their own house during the treatment. Patients and their families should undertake to fulfill in a strict way the therapeutic indications of a well delimited in time and specified in objectives program. This intervention area is recommended for malnourished patients without serious medical and psychiatric complications, after recurrent failures of outpatient treatments or as a previous or posterior step to the admission. The inclusion criteria are (Jáuregui, 2006):

- Diagnosis of anorexia or bulimia but not patients with severe course and very impulsive symptoms.
- Body mass index higher than 14.
- Organized and available family.
- Good patient disposition.
- Previous unsuccessful outpatient treatments.

The therapeutic objectives with respect to the physical aspects are three: the recovery of an acceptable body mass index, which will permit the outpatient treatment (higher than 18), the introduction of correct nutritional habits and the suppression of purgative or other compensatory behaviors. This treatment modality allows working with families some maintainer attitudes for the eating disorder like inadequate served amount of foods, recurrent arguments and conflicts between patients and their families or their irrational food beliefs (Jáuregui, 2006).

Generally, the domiciled hospitalization duration is from six to eight weeks approximately. Shorter domiciled hospitalizations are performed with bulimic patients to correct purgative behaviors and relapses. Patients have two appointments a week to control the weight and the therapeutic fulfillment by the interdisciplinary team. The calorie intake and the allowed activities are modified according to the weight and the patient attitude by the nutritionist. When patients do not improve notably in two weeks the admission will be indicated (Jáuregui, 2006).

The first phase begins with the retirement of all reinforcement to increase its value. This phase comprises the total rest in bed and the privation of any type of activity. The nutritionist gives the nutritional and behavioral guidelines to parents (the life plan). The duration of this phase can be from three to seven days. In the second phase, the nutritionist introduces some reinforcement according to the treatment fulfillment and the weight evolution (music, reading or phone calls among others). During the third phase more significant reinforcements are included like receiving a visit, going for a walk or studying. The partial resumption of normal activities takes place during the fourth phase and in their totality are introduced in the fifth and last phase, before starting the outpatient treatment (Jáuregui, 2006).

The nutritionist should not include reinforcements immediately and new reinforcements are preferable to an increased availability of an obtained reinforcement in previous weeks.

#### **4. Nutritional treatment in anorexia nervosa**

A patient with anorexia nervosa is characterized by body image distortion and weight fear. These aspects involve food restriction, physical exercise and compensatory behaviors in order to get the desired weight loss (Jáuregui, 2006).

Behavioral changes are observed with respect to foods. Patients restrict their food intake (they select certain foods to eat and limit the amount of these foods). In general, patients limit carbohydrates, lipids and proteins in keeping with this order. Nutritional rituals are frequent like drinking water before meals, cooking their foods themselves, eating slowly or quickly, cutting up foods in a particular way, crumbling, throwing or hiding foods, serving the amount of foods themselves or eating the different ingredients of a dish in a specific order and separately, among others. These rituals show obsessive characteristics of these patients (Jáuregui, 2006).

Another typical symptom to consider in the nutritional treatment is the hyperactivity. Patients use strategies in order to increase the energy consumption like walking constantly, doing exercise every day, standing up during meals, studying or reading standing, going up and down stairs, doing the housework, avoiding the rest after meals or sleeping a short time, among others (Jáuregui, 2006).

Before and during meals, arguments and protests with respect to the quality and quantity of foods are recurrent creating a tense environment which affects the family dynamics. In relation with this, patients avoid any social event where foods are present (Jáuregui, 2006).

Anorexia nervosa entails the appearance of medical complications, some of them potentially severe like osteoporosis, refeeding derived complications and cardiac arrhythmia. Most of these complications are reversible after weight recovery. In order to obtain this objective, to emphasize the importance of an interdisciplinary team is necessary, where the medical-psychiatric, psychological and nutritional treatments are essential to get the successful patient's recovery (Mehler & Krantz, 2003).

The objectives of the outpatient treatment relating to nutritional aspects are (American Dietetic Association, 2001): The recovery of a healthy minimum weight, the normalization of nutritional patterns, the establishment of a normal perception of hunger and satiety and the correction of biologic and psychological repercussions of malnutrition.

During the treatment these patients can communicate binge episodes and the use of compensatory behaviors that can be the result of their restrictive food intake (Rock & Curran-Celentano, 1996).

The nutritional education in this intervention area is essential to work the common and numerous irrational beliefs of these patients. Usually patients with anorexia nervosa classify foods in "good" "bad" "permitted" and "forbidden". This classification leads patients to exclude high-calorie foods and include vegetables and fruits frequently due to these foods are considered by them as healthy (Affenito et al., 2002; Stoner et al., 1996).

The first objective of the nutritional treatment in malnourished patients is to stop the weight loss and then the gradual weight gain. At first, a food intake of 800-1200 kcal a day can be prescribed (Marcason, 2002) that the nutritionist will increase according to the nutritional state of the patient, until a food intake of 3000 kcal a day in some cases (Russell et al., 1998). The nutritionist avoids the refeeding syndrome through this gradual increase of the patient food intake (Krahn et al., 1993).

## 5. Nutritional treatment in bulimia nervosa

Patients with bulimia nervosa have a pathological concern about body shape and weight. The most important symptom in bulimia nervosa is the binge eating, whose definition is an excessive food intake (in comparison with any normal person in similar conditions) in a short period of time (minutes or hours) with the feeling of control loss. The binge eating finishes because the patient feels satiety and abdominal pain, has not available foods or is surprised during the episode. After binge eating, patients feel guilt, anxiety or sadness, which leads them to compensatory behaviors. These behaviors can be purgative (self-induced vomiting, laxatives, diuretics and enemas) or not (fasting or excessive physical exercise). During binge episodes, patients ingest all type of foods depending on the availability, but in general they prefer high-calorie foods, which patients exclude from their normal diet (Jáuregui, 2006). The nutritionist must know the moment with more frequency of binge episodes of each patient.

There are patients with anorexia nervosa who communicate binge episodes. Usually, these patients refer to "subjective bingeing", that is, patients ingest a small amount of an excluded food like two squares of chocolate (Jáuregui, 2006) but their feelings are similar to those emotions described by bulimic patients.

Patients with bulimia nervosa usually suffer overweight or obesity despite the used compensatory behaviors. The total ingested amount of foods during a binge episode is not eliminated by means of vomiting. Therefore, a part of the ingested energy, that can be 1200 kcal in a binge episode, is absorbed in the first portions of the alimentary tract (Martínez & Gómez, 2004). Some patients maintain a normal weight because they combine bingeing and compensatory behaviors with calorie restrictions. The nutritional treatment aims to normalize the nutritional patterns as well as to eliminate or reduce the binge episodes and the existing compensatory behaviors (American Dietetic Association, 2001).

The nutritionist should not use hypo-caloric diets since these can facilitate the binge eating continuity. Therefore, the considered recommendations are: the suppression of binges eating, the modification of wrong nutritional habits by means of the nutritional education and the practice of physical exercise.

## 6. Patients with eating disorders and associated overweight or obesity

Some patients with bulimia or binge eating disorder are overweight or obese (Bolaños & Jáuregui, 2010). The nutritional education is essential for these patients. The fundamental aspects that the nutritionist will need to treat include promotion of healthy habits, acquisition of a complete and well-balanced diet, and regular practice of physical exercise (Bolaños, 2009). The nutritionist, with the nutritional education, modifies the eating behavior towards healthier patterns (Loria et al., 2009).

The trend toward the normalization of the associated excess weight and obesity has been observed after the nutritional intervention in these patients (Loria et al., 2009). A main purpose of this intervention is to teach the existing differences among hunger, appetite, satiety, and craving. A nutritional education program improves eating behaviors, bulimic episodes (binge eating and compensatory behaviors), irrational food beliefs, and self-control of food choices (Loria et al., 2009).

These patients need an interdisciplinary treatment (Martínez & Gómez, 2004). In many cases obesity is linked with psychosocial aspects (Jáuregui, 2006) and the “emotional ingest” (Martínez & Gómez, 2004). Therefore, a hypocaloric diet can be damaging to these patients because it could maintain binge eating (Martínez & Gómez, 2004), and an excess of weight. Establishing goals is critical for these patients. This aspect must be considered also with respect to physical exercise: most of these persons do not exercise regularly. Thus, this activity must be increased gradually.

On the other hand, the diet must include all foods. If patients like sweets, for example, and nutritionists forbid these foods, patients can feel craving for them and they can go into binge eating. Frustration could make patients leave the treatment. Therefore, high-calorie foods must be limited but not forbidden.

These patients must have regular mealtimes, sit-down to eat, remove the serving dish once courses are served, avoid distractions during meals, eat with family, plan the weekly menu, avoid buying foods (patients should write a list of the foods and have the exact quantity of cash if necessary), write a list of activities which help avoid pecking and avoid alcohol consumption (Jáuregui, 2009; Muñoz et al., 2004).

Patients with eating disorders who are overweight or obese must complete food records and take meals’ photos, in order to modify the quality and amount of foods, if necessary.

## **7. General aspects about the nutritional treatment**

### **7.1 Nutritional habits in adolescents**

During childhood, people acquire the nutritional habits, which will be maintained throughout life. These habits will determine persons’ nutritional state and consequently their health. Considering the duration of this period, the family plays an important role since children tend to imitate attitudes and behaviors which they observe in the context where they live. However, in the adolescence these habits can undergo alterations given that adolescents require a greater autonomy than children respecting meals. Adolescents start deciding the aspects with respect to their nutrition and influences of peers and mass media increase at this age.

Many adolescents acquire feeding styles without any type of information. An example is the vegetarianism. A teenager can be vegetarian because a peer is also vegetarian, the vegetarianism is in fashion or this teenager wants to be simply different. As a result, the lack of information can produce the appearance of nutritional deficiencies which can influence the adolescents’ development in a significant way.

Vegetarian adolescents and young adults ingest a bigger quantity of fruits and vegetables and have a smaller risk for overweight or obesity than no vegetarian. However researchers

have observed that vegetarian adolescents and young adults have an increased risk for binge eating with loss of control, and former vegetarians have high risks for extreme unhealthful weight-control behaviors (Robinson-O'Brien et al., 2009). For this reason any feeding style acquired for patients with an eating disorder, which does not meet with the nutritional recommendations, must be forbidden during the treatment. When the treatment finishes and patients have a correct information with respect to the nutritional habits they can decide with a correct criterion if they want to continue with the previous feeding style or not.

### **7.2 Exercise and eating disorders**

Due to the relationship between the development of eating disorders and some sport practices, this subject must be taken into account. In case of women, the "female athlete triad" is known. This condition includes an altered eating behavior, amenorrhea and osteoporosis. The female athlete can suffer one, two or the three components of the triad. This must be considered in the medical examination performed so as to detect possible cases of eating disorders in an early way and avoid potentially more serious consequences. When a female athlete is diagnosed of eating disorder, the nutritional treatment should be aimed at the recovery of medical complications. These complications are the result of an excessive physical exercise level and the adaptation to a negative energy balance (Mendelsohn & Warren, 2010). Taking into account these data, this type of patients must completely abandon the sport activities at a competitive level. However, a difference with others patients with eating disorders is that an athlete patient can practice physical exercise but in a lower intensity way and the exercise should be completely different from the patient practiced. The nutritionist will control the caloric intake of the patients and will give them clear rules of physical exercise in order to avoid a sudden weight recovery in these patients, a fact that could harm their psychological recovery.

### **7.3 Food craving in eating disorder patients**

Patients with anorexia nervosa live extremely worried about the consequences of their behaviors (Wagner et al., 2007). This fact produces the loss of the patients' ability to distinguish if they like a specific food or not, so many patients are not able to enjoy while eating because they only think about the consequences after eating this food. This aspect is expressed by patients with phrases like "I do not think if I like a food or not, I simply eat", "I'm not able to enjoy when I eat" or "I loved the chocolate before, but now I know the big quantity of calories that the chocolate has got, therefore it make me feel sick!". This problem may be treated by the nutritionist, by means of visual-analogue scales (color, texture, smell, taste, temperature or presentation of meals). These scales make the patient think about the food in order to give a score for each scale. Patients will acquire, again, the ability to distinguish the food that they like or not and they can learn to eat in a non mechanical way with this easy task.

The food craving, that is the intense desire to eat and specific food, is frequently felt by patients with eating disorders. Instruments like the Food Craving Inventory are used to evaluate the food craving. Generally, patients with anorexia nervosa get low scores because of the rejection of all food and especially to those which can generate a feeling of pleasure.

However, high scores are frequent in patients with bulimia nervosa, binge eating disorder or overweight/obesity. These patients express an intense desire for certain foods and after that, they can peck or binge and then use compensatory behaviors depending on patients and the context where they are. The nutritionist can face the patients' food craving by using imaginative, visual, olfactory or tactile stimuli. In a study (Gutiérrez-Maldonado et al., 2006), researchers showed six virtual contexts to thirty women with eating disorders: a living-room (neutral situation), a kitchen with high-calorie food, a kitchen with low-calorie food, a restaurant with high-calorie food, a restaurant with low-calorie food and a swimming-pool. Results revealed that virtual reality instruments are useful to simulate daily situations, which can produce anxiety and depression in patients. The highest levels of state anxiety and depression were obtained with the contexts where high-calorie food appeared.

On the other hand, the nutritionist can indicate the following instruments to induce an increase in food craving: to imagine and write situations respecting meals, to show meals and supermarket shelves' pictures, to give food to patients who can handle, smell or savor them. Then the nutritionist provides patients with the Food Craving Inventory and they should complete it. With the obtained scores, the nutritionist should indicate some guidelines to include the food craving-related foods in the patients' normal diet. This facilitates the loss of emotional value that these patients attach to these foods. In addition, the nutritionist is specific about strategies that patients can use in order to avoid eating these foods, depending on the patient and the context: going out for a walk without cash or credit cards, avoiding buying the necessary foods for the weekly menu at this moment and especially no going alone (the nutritionist can entrust someone this task), avoiding going into the kitchen, making a phone call, listening to music, reading a book, working with the computer or watching television.

#### **7.4 New technologies for the nutritional education in eating disorders**

Apart from the patients' weight monitoring the nutritionist should supervise the nutrition through weekly food records. All days of a week with the five recommended daily intakes (breakfast, midmorning snack, lunch, afternoon snack and dinner) appear in each food record. Patients have to write all food that they ingest in the section of the corresponding intake. At lunch and dinner, patients should specify the first and second courses, the bread intake, the drink they have with the meals and the dessert. If patients miss a meal, they should trace a line in the corresponding section for that intake. In addition, the section "Others" is included in the food record, where patients can show foods that they eat between meals or situations which have a relation with meals like binges eating, using of compensatory behaviors, different emotions (anxiety, depression or food craving, among others), circumstances surrounding the meals that patients want to treat, the alcohol consumption or the outputs night. As well patients have to indicate for each meal the time at which they eat. The nutritionist can know if patients have a regular mealtimes or not with these data. Nutritionists advise patients with eating disorders and diabetes mellitus to write the glycemia levels, because this data will help them to give recommendations when these levels are not correct. As mentioned above, out-home meals are very frequent at the present time; therefore patients must made known whenever they eat out and if they are accompanied by a family member or not.

Most of persons are not aware of the quantity of food that they ingest per day, especially per week, since the nutrition has become a mechanical action that few people stop to think. Besides showing the weekly diet of patients, writing the food record eases the nutritional treatment since patients are really aware of their food intake when they write the food records. This makes the guidelines' fulfillment easier by patients because they know that their intake will be assessed. In fact, generally parents of anorexia nervosa patients highlight a slight increase of the quantity of food that patients ingest since they write the food record for first visits. Patients with bulimia nervosa or binge eating disorder express a decrease in the frequency of binge eating and compensatory behaviors or in the quantity of ingested food during each binge eating for the reason that they should note down all ingested food in the food record. Something similar to this occurs with overweight and obesity patients who appreciate a decrease in their food intakes. These patients usually demonstrate their surprise in this way: "I was not aware on all foods that I can get to eat during a binge eating". Writing food records also affects parents because they make an effort to carry out a more varied and well-balanced diet, expressed truth by patients during first visits with phrases like: "This week we are surprised about meals because my mother has cooked meals which I did not remember, for example lentils. My diet has being more varied than ever!" This detail helps the nutritionist to establish priorities with the aspects to treat by means of the nutritional education in the eating disorder patients' families.

The use of food records causes a problem because these are not very precise. With food records, the nutritionist can know the food consumption frequency but not the exact ingested quantity of food by patients, therefore wrong portion estimations may be produced. When food records were used as only instrument for know about the food ingest, the therapeutic context was the scenario for continuous arguments which did not let the nutritionist treat real problems that could have happened in the course of the week. Confrontations between patients and their family were frequent because they did not agree on the described quantity of food that patients had ingested. Normally, anorexia nervosa patients point to large and even excessive amounts of food served in the dish whereas binge eating disorder or obesity patients indicate quite the opposite. On the other hand, occasionally parents describe the served amount of food accurately but the nutritionist can detect a certain degree of visual distortion in others cases when they describe these amounts as small or big when these are really normal. For this reason the nutritionist can recommend digital photos before and after meals (to see the served amount of food and the leftovers when the patient finishes eating) in order to know the real intake of patients. The family member who accompanies patients at meals should take a photograph of all foods that patients ingests in each meal, for example, at lunch, the first and second courses, the piece of bread, the dessert, the drink and the necessary cutlery must be placed in a tray and then, the responsible person can take a photo of this tray. The same applies to other meals. The presence of cutlery is necessary to help the nutritionist to interpret the served amount of food as accurately as possible. In cases of special meals where an established first course does not exist because this is made up of appetizers, a family member must serve out the food in the dish of patients in order to avoid having an adverse effect on their psychological evolution and this makes the photo of the patients' dish possible. With this type of photos, the nutritionist can work with patients on difficulties and emotions which they can feel in special meals (with friends, family or workmates for example). Usually parents ask: "when my daughter does not leave any leftover, is it necessary to take the picture?" The photo is always necessary because "any leftover" according to parents could mean very small



amounts of food which patients leave with some intention: "I am calm when I leave a little of food on my plate". This is an example of "insignificant details" that parents do not explain to the nutritionist who can detect it by means of the photo. At the beginning of the treatment lots of parents and patients are reluctant to photograph meals; however they change their mind by observing the efficacy of this instrument for the nutritional treatment.



Fig. 1. Patients with anorexia nervosa at the beginning of the treatment. These photos show the served amount of food and the leftovers when patients finish eating.



Fig. 2. Patient with anorexia nervosa after six months of treatment.

In addition to the demonstrated usefulness to show the real amount of food, the nutritionist can make use of photos to observe the meals' presentation and improve it, if necessary. Eating is an easier task for patients with an appropriate meals' presentation. Taking a meal's photo improves the presentation right from the start because the responsible persons show a great interest in the meals' appearance, given that this photo will see by a person beyond the family. This is one of the consequences of the lack of importance that the nutrition has at present. Generally, people do not pay attention to the meal presentation but this issue has a great influence on the nutritional evolution of patients. Usually, responsible persons for the meal presentation do not take any pain to satisfy the eyesight, which is particularly important for the nutrition of children, the elderly and eating disorders patients. Sometimes, eating disorder patients, as well as a normal person would make, express great efforts to eat given the lack of interest showed by family member responsible for cooking, for example: a meat croquette whose size was equivalent to five normal croquettes since the mother did not like cooking, a burnt omelet or a fried fillet without any previous preparation with eggs, flour or breadcrumbs, that is to say, from the butcher's shop to the deep fryer directly.



Fig. 3. These photos show that meals' presentation must be included in the nutritional education.

The nutritionist stresses the importance of a pleasant meal presentation because this detail makes the confrontation between patients and the fearsome foods easier. The same happens when patients have a varied diet, for example, any normal person would prefer a first

course of pasta and a second course with five meatballs instead of an only dish with thirteen meatballs. With meals' photos, nutritionists assess the context where patients eat and they also establish different aspects which the family must change. Observing computers, ironing, the car keys, books, mobile phones, pets...with foods on the table is very frequent. These things distract patients during meals and create an inappropriate environment to eat. The room where patients eat is also noticed with the photo, a detail that family members do not remark generally. However, bearing this data in mind is necessary because lots of patients with eating disorders usually eat in their bedroom, even in the bathroom. Patients must eat with their family in a common room which is assigned to this action. Patients will not eat in their bedroom or in the bathroom in order to avoid creating unhappy memories and experiences with foods throughout the whole house. With this recommendation patients have got reserved rooms where they can be if they feel food craving for example.

Furthermore, the digital photos are used to examine the nutritional habits of patients' family. Sometimes it happens that patients, thanks to the nutritional treatment, are the only member of the family who has a varied and well-balanced diet. Lots of patients' parents do not know the influence of their acquired nutritional habits on the nutritional treatment of patients and patients consider these habits as normal. For these reasons, this problem is not explained by patients or the family. In the meals' photos of patients, the rest of the table appears often. The nutritionist can see soft drinks, dishes with lots of sausages, crisps (as fundamental food at meals), excessive consumption of fried foods, alcohol bottles, goodies, sweets, fast food and great amounts of foods thanks to these pictures. The presence of these foodstuffs at meals can have an adverse effect on patients' evolution, who could consider the complete, varied and well-balanced diet as a treatment instead of nutritional habits which should be acquired and maintained throughout the life to ensure a good nutritional and health state. Therefore, the nutritionist works with families by means of the nutritional education to modify wrong attitudes and behaviors towards healthier nutritional patterns.

Additionally unhealthy nutritional habits are identified in meal photos but not in food records because there are lots of details regarding meals which patients do not write despite the fact that the nutritionist explains the way in which the food record should be completed to both the patient and the family. A clear example in this regard could be the inaccurate annotation of dairy products. Normally, when patients ingest any dairy product, they write "yoghurt". Firstly, patients must indicate if the yoghurt is composed of fruits, enriched with fiber or skimmed and the yoghurt characteristics like the taste. Afterward patients ought to distinguish the different dairy products in the food record because these have different nutritional compositions one each other. Another example is the explanation for the type of ingested fruit by patients, who usually indicate "fruit" as a rule. However, the nutritionist needs to know the specific type of fruit in order to assess the variety of this food group. In addition, there are groups of foods, which patients do not write down in a correct way (e.g., fish). Moreover many patients do not know the type of fish that they ingest, they do not distinguish the different foods of this group; therefore they write "fish" in the food record. The same occurs with the meat but to a lesser extent. These doubts are clarified with digital photos because the nutritionist sees them on the computer with the patients and their food records and all doubts can be explained at the moment.



Fig. 4. These photos are the result of the nutritional education. A good presentation eases the nutritional treatment.

Likewise, patients' families forget to mention anomalous eating attitudes of patients which the nutritionist observes in digital photos like crumbling foods, leaving always leftovers, peeling fruits in a particular way, mixing foods (for example the salad with lentils), using out of the ordinary plates and cutlery (anorexia nervosa patients who use small plates and cutlery, for example), among others. Finally, when out-home meals are allowed taking into account the patients' evolution, photos are again recommended to show them. Patients are

uncomfortable taking a meal photograph out home, but the nutritionist needs these photos to evaluate the ability to choose of patients in a different context. If patients are not accompanied by any family member, photos reveal the patients' choices without family supervision.

Patients like using their photos and they pose the weekly doubts and problems about meals easily. Photos of some patients can be used as examples for others patients and their families.

During the nutritional treatment the nutritionist advises the family to modify the amounts of food which are served to patients, if necessary. The increase or decrease of these amounts should be progressive until patients get their recommended intake. With food records as only used instrument, responsible persons had to weigh foods in order to serve the indicated quantity but this aspect usually causes anxiety in many patients. However, with digital photos, these small changes are indicated to the family by means of meal photos each week. Meal photos are required throughout the nutritional treatment because if patients do not show their photos during several weeks, when they provide the nutritionist with their photos again, the nutritionist observes the decline in the quality of their nutritional intake.

Usually parents emphasize that patients have many obsessions with respect to meals. The digital video is suggested with the aim to face these obsessions. This instrument consists of recording patients while they are eating (all meals for a whole day). Patients may be uncomfortable during the recording but this tool demonstrates the patients' attitudes and behaviors during meals accurately. Through the digital video, the nutritionist can observe if patients: sit down adequately, employ the cutlery correctly or not (there are patients who use the fork for lentils, for example), respect the established order for the dishes of meals, eat bread during or at the end of meals, drink water before, during or after meals, cut up foods themselves or these are prepared by some family member (and the same for fruits), watch TV, speak with their family while they eating, stock the cutlery in their mouth right, slice the bread or crumble it, leave leftovers and the way which they do it (on the edge of the plate or in the broth or soup for example), fill the spoon or the fork with foods or not (there are patients who eat chickpeas in pairs). The nutritionist also examines the position acquired by patients on the table, the presence of objects which distract patients, the time used by patients for eating and the way in which they organize themselves, their expressions and feelings (repugnance or disgust, anger, sadness or anxiety for example) and how they eat (in a mechanical or pleasant way).

The nutritionist makes a list of nutritional objectives with all things observed in meal photos and digital videos which patients must carry out.

### **7.5 The current families of eating disorder patients**

Nutritionists must know their tasks and be clear with families of eating disorder patients with respect to them because their work does not involve acquiring the role of mother or father. This explanation can be unnecessary for someone who is aware of the parents' responsibilities. Nevertheless, the fact that a nutritionist, in this case, acquires part of these obligations relating to patients is very frequent in the comfortable current society. From the first visit, when the life plan is explained, the next expressions are very frequent between the families: "You have told me that the whole information about the treatment is known by my son but...are you sure? If not I prefer my son to enter again and know all rules with you

because I'm afraid of him". "A rule of the treatment is avoiding the outputs night, how has my daughter reacted to this? We will have an argument for this reason when we arrive at home so we will not fulfill this rule". The lack of authority of parents is more worrying every time, in such a way that they are not able to carry out the required treatment for an eating disorder. Currently, a life plan based on regular hours of meals and rest, the prohibition of alcohol consumption and the control of the bathroom, cash, credit cards and bedroom involves a very radical change of the family dynamics. In many cases, parents expect that psychiatrists, psychologists and nutritionists work out the lack of discipline of some patients using the eating disorder treatment. The nutritional treatment helps parents with all aspects with regard to the disorder, but not with their children's manners. Arguments, raising one's voice, slams and insults are recurrent among the family members, even on the surgery. In these cases patients know the strategy to get their purpose, to sum up, the non-fulfillment of the nutritional treatment decreasing its efficacy. Some parents modify the rules of the treatment to avoid bad reactions by the patient but this means a lower efficacy of the treatment again.

The lie has always had an important role in eating disorders concerning patients. However, nowadays the interdisciplinary team also evaluates the parents versions due to they lie about the patient evolution to avoid confrontations with their children. In some cases, parents speak to patients about the information that they will say by mutual agreement. Nonetheless, working with an interdisciplinary team make possible to detect details concealed from patients and families because of lies are twisted when they relate them again and again. Some examples: (patient) "We went to the beach the last weekend. I missed meals and I ate an only dish at lunch and dinner" (mother) "The last weekend we went to the beach, but do not worry about the nutritional treatment because my daughter carried out the recommended five intakes and even we ate set meals to have two courses with bread and dessert!" In this case, mother lied to avoid a reprimand by the nutritionist; (patient) "I do not understand the loss of weight this week. I have fulfilled the treatment rules, for example I have not missed any intake and not even I have had a night out" (father) "I do not believe the loss of weight! Sincerely, there is something I have to tell you about my daughter...she has missed all midmorning snacks and some afternoon snacks and she have had two night outs. I allowed her to fail to fulfill these rules. It upsets me sad to see her with these meals (she is overwhelmed) and without night outs. She is a very good daughter! We agreed on this lie but I did not imagine the loss of weight". In this case the nutritionist can realize that father is not aware of the eating disorder.

Another topic in fashion is the "parents-friends", which does not ease the nutritional treatment fulfillment: "We have a very good relationship; my mother/father is as a friend". Parents must think that both are very different concepts and their union is not recommendable, especially for the treatment. Imposing regular hours of meals and rest on patients or avoiding the snack intake between meals are difficult rules when the nutritionist listens: (mother) "The last weekend I had a night out with my daughter. We arrived at four o'clock and I made her eat sausages and chocolate to avoid a loss of weight!". Finally, this mother told the nutritionist this information because her daughter lost weight.

For the abovementioned reasons, the nutritionist should always clarify what issues are included in the nutritional treatment and explain the parents' responsibilities with respect to the patients with eating disorders to get greater effectiveness.

## 8. The nutritional education

The nutritional education is a fundamental part in the nutritional treatment of patients with eating disorders. Many acquired habits come from the family-unit. In addition to the current need for nutritional education, the nutritionist needs to consider patients' families to be able to improve the efficacy of the nutritional treatment.

Nutritionists explain the importance of healthy habits modifying the wrong attitudes and involving all family members. The family must complete food records and take photos of the meals. With these instruments, nutritionists can modify family behaviors such as meal structure, meal presentation, or evaluate the drinks associated with meals. However, families are often not interested in modifying nutritional or lifestyle habits. Families do not think about the importance of nutrition on health or the influence that these habits can have on the recovery of the patient.

A persistent problem expressed by patients during the nutritional treatment is the comparison with other family members: "I do not understand why I need five intakes a day and my sister does not"; "I need more time to eat than other family members because they only have a course without bread or dessert"; "With all these rules I am a weirdo in my family"; "When I finish the treatment, will I be able to eat like the rest of my family or I will carry out these nutrition rules forever?" Patients may consider the nutritional treatment patterns like a needed treatment to recover and not like habits that they should acquire and maintain throughout their lives.

Patients must learn to eat. This objective is difficult when, for example, parents ingest bread with sausages or siblings ingest fast food in each meal, family members peck frequently, miss meals or eat a small amount of foods and anxiously look for chocolate thereafter. Nutritionists try to make the family understand that the nutritional treatment is focused on the recovery of the patient and the improvement of nutritional habits of all other family members.

When the family accepts the changes from the beginning, the patient's treatment is more efficient and the family members perceive the positive influence of correct nutritional and lifestyle habits on their health status and the patient's recovery.

In other cases, patients' families have a negative attitude: "I am sorry but I will not change my habits because of my son/daughter. I am not ill, my health is perfect. Therefore I do not need the positive influence of nutrition changes".

Nutritionists should avoid extreme attitudes such as situations where family members try to eat the same food as the patient, considering quality and quantity. Many parents eat the same amount in order to avoid comparisons by their children, the patients, but this can pose a significant problem. Nutritionists should clarify that their nutritional needs are different due to their age differences and the specifics of the individual situation. Parents must acquire healthy nutritional habits but they must eat appropriate amounts. When they imitate the amount of foods of the patients, they could suffer from an excessive intake, with problems such as obesity, diabetes, hypertension, hypercholesterolemia, or hypertriglyceridemia, among others. They should understand that the acquisition of correct nutritional habits helps the patient but this does not mean the same quantity also applies to other family members.

Nutritionists encourage healthy habits among families by means of the nutritional education. Programs of nutritional education for families of patients with eating disorders must include informative sessions and keeping food records and taking photos of meals by relatives or friends. Nutritionists, using the informative sessions, will explain about different groups of foods, their nutritional properties and their representation in the habitual diet, difference among hunger, satiety, and craving, guidelines to organize the weekly menu, selection and purchase of foods, different culinary techniques, organization of time to buy and cook, location of foods within the kitchen, behavioral rules about meals, new cookbooks, irrational food beliefs, importance of regular mealtimes, positive influence of physical exercise, link between emotions and nutrition, rules for eating out, and consequences of fast-food and pecking between meals, among other nutritional issues.

The food choice is the main factor that determines the habitual diet. There are different instruments, like the Food Choice Questionnaire (Jáuregui & Bolaños, 2011) used by nutritionists to know what influences the food choices of the person who is responsible for the nutrition at home, such as price, health issues, weight control, mood or familiarity, among others. With these data, nutritionists can work with families in order to modify the aspects that determine the food choice in order to develop a healthier diet.

The informative sessions can be carried out individually or grouping different families. The food records completed by the patients' families are very useful for the group sessions. They explain the food records, analyze them, and must be able to identify wrong and correct nutritional habits, giving nutritional recommendations if necessary, keeping in mind what they have been taught. Nutritionists are always present during these sessions. When families attend sessions regularly nutritionists can observe how they improve their nutritional habits and emphasize the positive influence on their health (weight control, improvement in mood or in pathologies like diabetes, hypertension or hypercholesterolemia) as well as on the nutritional treatment of patients. These aspects encourage other families to modify wrong behaviors towards healthier patterns.

## 9. Conclusion

Eating disorders are characterized by multiple anomalies in the eating behavior, which can produce serious nutritional and medical complications. Therefore, a nutritional treatment must be included in the action protocol for eating disorders, by means of nutritionists who work within interdisciplinary teams.

The nutritional treatment for eating disorder patients must include patients and their families. With respect to patients, nutritionists must analyze each individual case in relationship with the diet, the physical exercise, the regular daily activity (at school or at work) and the rules about the control of food intake (money issues, time at the bathroom or bedroom, or outside of home, among others). All patients must complete food records and take photos of the meals. With these instruments nutritionists can establish goals, related to the structure of meals, amounts, water intake, physical exercise, or the inclusion of "forbidden" foods by the patient. All proposed changes by the nutritionist must be gradual and progressive, regardless of diagnosis. Nutritionists must always take into account that they treat persons, and therefore the emotions, feelings and fears must always be considered. Each patient needs a different treatment pace, which needs to be explained to families who try to speed up the treatment.



To improve the efficacy of the nutritional treatment with eating disorder patients, nutritionists can use new technologies like digital photos or videos. These instruments facilitate some aspects of the treatment like documentation of the exact amount of food needed by the patient, meals' presentation, detection of rituals carried out by patients, and observation of nutritional habits of families.

Nutritionists consider families in the nutritional treatment of eating disorder patients in order to avoid any contact of the patient with food between meals and to ease the fulfillment of the rules. When families have correct nutritional habits, the patient's recovery is positively influenced by them. Therefore, an important issue in the nutritional treatment is the nutritional education with patients and families, in order to modify wrong nutritional habits towards healthier patterns.

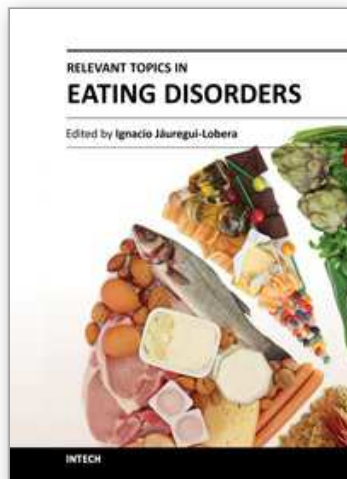
## 10. References

- Affenito SG., Dohm FA., Crawford PB., Daniels SR. & Striegel-Moore RH. (2002). Macronutrient intake in anorexia nervosa: the National Heart, Lung, and Blood Institute Growth and Health Study. *J Pediatr*, 141, 5, Nov, 701-705, ISSN 1097-6833.
- American Dietetic Association. (2001). Position of the American Dietetic Association: nutrition intervention in the treatment of anorexia nervosa, bulimia nervosa, and eating disorders not otherwise specified (EDNOS). *J Am Diet Assoc*, 101, 7, Jul, 810-819, ISSN 1878-3570.
- Birmingham CL., Althman AF. & Goldner EM. (1996). Anorexia nervosa: refeeding and hypophosphatemia. *Int J Eat Disord*, 20, 2, Sep, 211-213, ISSN 1098-108X.
- Bolaños P. (2009). Evolución de los hábitos alimentarios. De la salud a la enfermedad por medio de la alimentación. *Trastornos de la Conducta Alimentaria*, 9, May, 956-972, ISSN 1699-7611.
- Bolaños P. & Jáuregui I. (2010). Sobrepeso y obesidad en los trastornos de la conducta alimentaria. *Rev Esp Nutr Comunitaria*, 16, 2, Abr-Jun, 83-89, ISSN 1135-3074.
- Rock CL. (1999). Nutritional and medical assessment and management of eating disorders. *Nutr Clin Care*, 2, 6, Dec, 332-343, ISSN 1523-5408.
- Chinchilla A. & Padín JJ. (1996). Estructura funcional de las unidades de trastornos de la conducta alimentaria, anorexia nerviosa y bulimia nerviosa en los servicios de Psiquiatría, In: *Guía teórico-práctica de los trastornos de la conducta alimentaria: anorexia nerviosa y bulimia nerviosa*, Chinchilla A., Masson, ISBN 978-84-458-0317-2, Barcelona.
- Dancyger I., Fornari V., Schneider M., Fisher M., Frank S. & Goodman B et al. (2003). Adolescents and eating disorders: an examination of a day treatment program. *Eat Weight Disord*, 8, 3, Sep, 242-248, ISSN 1590-1262.
- Fernández F. & Turón VJ. (1998). *Trastornos de la alimentación: Guía básica de tratamiento en anorexia y bulimia*. Masson, ISBN 84-458-0746-3, Barcelona.
- Gómez C., De Cos AI. & González B. (1999). Trastornos de la conducta alimentaria, In: *Tratado de Nutrición*, Hernández M. & Sastre A., Díaz de Santos, ISBN 84-7978-387-7, Madrid.
- González I., Pérez J. & Peinó R. (2001). Anorexia y bulimia nerviosa, In: *Trastornos alimentarios*, Diéguez C. & Yturriaga R., McGraw Hill Interamericana, ISBN 978-84-486-0431-8, Madrid.

- Gutiérrez-Maldonado J., Ferrer-García M., Caqueo-Urizar A, Letosa-Porta A. (2006). Assessment of emotional reactivity produced by exposure to virtual environments in patients with eating disorders. *Cyberpsychol Behav*, 9, 5, Oct, 507-513, ISSN 1557-8364.
- Iglesias C. & Gómez C. (2002). Trastornos de la conducta alimentaria y obesidad, In: *Fisiopatología aplicada a la nutrición*, Planas M. & Pérez-Portabella C, 1ª Ed, Mayo, ISBN 978-84-961-2256-7, Barcelona.
- Iglesias C., Gómez C., de Cos AI. & Castillo Rosa. (2004). Papel del médico nutriólogo en las unidades de trastornos de la conducta alimentaria, In: *Nutrición y Metabolismo en Trastornos de la Conducta Alimentaria*, Miján de la Torre A., pp. 493-505, Glosa, ISBN 84-7429-192-5, Barcelona.
- Imbierowicz K., Braks K., Jacoby GE., Geiser F., Conrad R., Schilling G., et al. (2002). High-caloric supplements in anorexia treatment. *Int J Eat Disord*, 32, 2, Sep, 135-145, ISSN 1098-108X.
- Jáuregui I. (2006). *La imagen de una sociedad enferma: anorexia, bulimia, atracones y obesidad* (2ª Edición). Grafema, ISBN: 84-934225-9-2, Barcelona.
- Jáuregui I. (2009). *El pequeño gran libro de la alimentación. Cómo comer para sentirte bien* (1ª Edición). Almuzara, ISBN 978-84-92573-55-4.
- Jáuregui I. & Bolaños P. (2009). Choice of diet in patients with anorexia nervosa. *Nutr Hosp*, 24, 6, Nov-Dec, 682-687, ISSN 1699-5198.
- Jáuregui I. & Bolaños P. (2010). Spanish version of the Irrational Food Beliefs Scale. *Nutr Hosp*, 25, 5, Sep-Oct, 852-859, ISSN 1699-5198.
- Jáuregui I. & Bolaños P. (2011). What motivates the consumers' food choice? *Nutr Hosp(accepted)*. ISSN 1699-5198.
- Kaplan AS. & Olmsted MP. (1997). Partial hospitalization, In: *Handbook of Treatment for Eating Disorders*, DM. Garner & PE. Garfinkel, 2nd ed., pp. 354-360), Guilford Press, ISBN 978-15-723-0186-3, New York.
- Krahn DD., Rock C., Dechert RE., Nairn KK. & Hasse SA. (1993). Changes in resting energy expenditure and body composition in anorexia nervosa patients during refeeding. *J Am Diet Assoc*, 93, 4, Apr, 434-438, ISSN 1878-3570.
- Loria V., Gómez C., Lourenço T., Pérez A., Castillo R., Villarino M. et al. (2009). Evaluación de la utilidad de un Programa de Educación Nutricional en Trastornos de la Conducta Alimentaria. *Nutr Hosp*, 24, 5, Sep-Oct, 558-567, ISSN 1699-5198.
- Marcason W. (2002). Nutrition therapy and eating disorders: what is the correct calorie level for clients with anorexia? *J Am Diet Assoc*, 102, 5, May, 644, ISSN 1878-3570.
- Martínez C. & Gómez P. (2004). Tratamiento dietético en los trastornos de la conducta alimentaria, In: *Nutrición y Metabolismo en Trastornos de la Conducta Alimentaria*, Miján de la Torre A., pp. 289-303, Glosa, ISBN 84-7429-192-5, Barcelona.
- Mehler PS. & Krantz M. (2003). Anorexia nervosa medical issues. *J Womens Health (Larchmt)*, 12, 4, May, 331-340, ISSN 1931-843X.
- Megía A., Gil Canalda I, Luna R., Herranz L., Weisz P., Bacaicoia A., et al. (1994). Nuestra experiencia en el tratamiento nutricional de la anorexia nerviosa (1989-1991). *Nutr Hosp*, 9, 6, Nov-Dec, 399-406, ISSN 1699-5198.
- Mendelsohn FA. & Warren MP. (2010). Anorexia, bulimia, and the female athlete triad: evaluation and management. *Endocrinol Metab Clin North Am*, 39, 1, Mar, 155-167, ISSN 1558-4410.

- Muñoz M., Aranceta J. & García-Jalón I. (2004). *Nutrición aplicada y dietoterapia* (2ª Edición). EUNSA, ISBN 84-313-2196-2, Navarra.
- Robinson-O'Brien R., Perry CL., Wall MM., Story M. & Neumark-Sztainer D. (2009). Adolescent and young adult vegetarianism: better dietary intake and weight outcomes but increased risk of disordered eating behaviors. *J Am Diet Assoc*, 109, 4, Apr, 648-655, ISSN 1878-3570.
- Rock CL. & Curran-Celentano J. (1996). Nutritional management of eating disorders. *Psychiatr Clin North Am*, 19, 4, Dec, 701-713, ISSN 1558-3147.
- Russell GF., Szmukler GI., Dare C. & Eisler I. (1987). An evaluation of family therapy in anorexia nervosa and bulimia nervosa. *Arch Gen Psychiatry*, 44, 12, Dec, 1047-1056, ISSN 1538-3636.
- Russell J., Baur L., Beumont P., Byrnes S. & Zipfel S. (1998). Refeeding of anorexics: wasteful not willful. *Lancet*, 352, 9138, Oct, 1445-1446, ISSN 1474-547X.
- Saldaña C. (2001). Tratamientos psicológicos eficaces para trastornos del comportamiento alimentario. *Psicothema*, 13, 3, Jul-Sep, 381-392, ISSN 0214-9915.
- Sayag S. & Latzer Y. (2002). The role of the family physician in eating disorders. *Int J Adolesc Med Health*, 14, 4, Oct-Dec, 261-267, ISSN 0334-0139.
- Stoner SA., Fedoroff IC., Andersen AE. & Rolls BJ. (1996). Food preferences and desire to eat in anorexia and bulimia nervosa. *Int J Eat Disord*, 19, 1, Jan, 13-22, ISSN 1098-108X.
- Turón VJ. (1996). *Trastornos de la alimentación. Anorexia nerviosa, bulimia y obesidad*, Masson, ISBN 978-84-458-0550-3, Barcelona.
- Wagner A., Aizenstein H., Venkatraman VK., Fudge J., May JC., Mazurkewicz L. et al. (2007). Altered reward processing in women recovered from anorexia nervosa. *Am J Psychiatry*, 164, 12, Dec, 1842-1849, ISSN 1535-7228.
- Waisberg JL. & Woods MT. (2002). A nutrition and behaviour change group for patients with anorexia nervosa. *Can J Diet Pract Res*, 63, 4, Winter, 202-205, ISSN 1486-3847.

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Eating disorders are common, frequently severe, and often devastating pathologies. Biological, psychological, and social factors are usually involved in these disorders in both the aetiopathogeny and the course of disease. The interaction among these factors might better explain the problem of the development of each particular eating disorder, its specific expression, and the course and outcome. This book includes different studies about the core concepts of eating disorders, from general topics to some different modalities of treatment. Epidemiology, the key variables in the development of eating disorders, the role of some psychosocial factors, as well as the role of some biological influences, some clinical and therapeutic issues from both psychosocial and biological points of view, and the nutritional evaluation and nutritional treatment, are clearly presented by the authors of the corresponding chapters. Professionals such as psychologists, nurses, doctors, and nutritionists, among others, may be interested in this book.

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