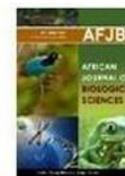


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## THYROID DYSFUNCTION ACROSS THE LIFESPAN INSIGHTS INTO PHYSIOLOGY AND DISEASE

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### Abstract:

**Background:** The physiological structure of human organs significantly influences health and well-being across all age groups. The thyroid gland below the brain is pivotal in hormone regulation and plays a crucial role in various physiological processes.

**Objective:** This paper delves into the pathophysiological aspects of thyroid disorders, shedding light on the gland's structure, hormone production, and the impact of iodine deficiency on thyroid function.

**Methods:** The study adopted a documentary research approach following Carrero's (2017) framework, focusing on theoretical investigations and problem-solving. It entailed reviewing primary studies on thyroid-related pathophysiological aspects, ensuring descriptive analysis. Carrero's documentary techniques guided text interpretation, supported by methods like

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underlining and annotating. Phases were structured to meet methodological objectives, assessing general conditions and evaluating diverse material resources. This process aimed to construct conclusions on thyroid patients' pathophysiological aspects, facilitated by interpretative element development for scientific evaluation.

**Results:** The thyroid gland, characterized by its firm, smooth, reddish-brown structure, exerts substantial vascularization and blood flow rates. Thyroid hormones, particularly triiodothyronine (T3) and thyroxine (T4), influence mental and physical development in children and adult metabolic activity. Iodine deficiency can lead to various thyroid disorders, including hyperthyroidism, hypothyroidism, goitre, and thyroid cancer. These disorders manifest through diverse physiological manifestations, affecting individuals' health and daily functioning. **Conclusion:** Thyroid diseases pose significant challenges across different demographics, necessitating a multidisciplinary approach to diagnosis and management. Understanding the pathophysiological intricacies of thyroid disorders is crucial for effective treatment and prevention strategies. This structured analysis provides insights into the complexities of thyroid diseases, emphasizing the importance of tailored interventions to address individual patient needs and optimize health outcomes.

**KEYWORDS:** The patient is experiencing thyroid difficulties—physiopathological Aspects.

## **INTRODUCTION:**

When referring to the thyroid, it is stated that it is a gland that is characterized by a structure that is firm, smooth, and reddish brown. Additionally, it possesses two lateral lobes that link to each other similarly. In a similar vein, it is worth mentioning that in comparison to the different organs, it is the organ that has the most vascularization and The blood flow rate is among the most extraordinary (Docimo et al., 2020). As a result of the significance of thyroid hormones, it can be concluded that they play a role in the mental and physical development of children, as well as in the metabolic activity of adults.

Triiodothyronine (T3) and thyroxine (T4) are the two forms of biologically active thyroid hormones. Thyroxine (T4) is the hormone that accounts for 93% of the hormone generated by the thyroid gland (Meyer et al., 2019). It is important to note that there are two types of thyroid hormones. Both are made up of two benzene rings that are connected by an oxygen bridge (Churilov et al., 2019). One of the benzene rings has an alanine chain, and the other contains a phenyl group. Both hormones differ because T4 has two iodine atoms in the ring phenyl group, whereas T3 only has one. This is the difference between the two hormones. Additionally, a

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different version known as rT3 reverse triiodothyronine has no biological activity characteristics (Ylli et al., 2019).

Based on the facts above, it is possible to assert that to produce an average quantity of thyroxine, individuals require approximately 50 milligrams of iodine annually, equivalent to approximately 150 milligrams per day for adults. On the other hand, pregnant women should eat approximately 220 milligrams per day, and the amount of iodine that children should drink varies with age (Lekurwale et al., 2023).

When the amounts consumed are chronically reduced, goitre, which is an increase in the size of the gland, arises. Goitre can also occur when chemicals that interfere with the gastrointestinal absorption of iodine or in its utilization by the gland, known as goitrogens, are consumed (Sawicka-Gutaj et al., 2022). To prevent a deficiency of iodine, salt commonly used has sodium iodide added. Iodides that are taken in by the mouth are most of them are eliminated from the body through the kidneys, but in some cases, they are absorbed from the digestive system into the blood (Genova et al., 2020).

Twenty-five per cent of it is eliminated by the thyroid cells to facilitate the production of hormones under typical circumstances. Thyroid gland. Therefore, urine excretion can determine the presence of an iodine deficiency; hence, the lower the excretion, the more significant the shortfall. In contrast, hormones also act in the opposite direction, which is the opposite direction (Bansal et al., 2023). Several target tissues are responsible for the conversion of thyroid glands into iodides. The iodide is absorbed into the bloodstream, either eliminated by the thyroid gland or through urine. Feces are responsible for losing a negligible quantity of iodine, approximately 10–20 milligrams. The proportion of iodine escaping and used in the thyroid is higher when the intake is lower than the requirements (Bansal et al., 2023). This is compared to the proportion eliminated by urine, which is higher than the requirements, so a more significant proportion is eliminated through the urine.

Regarding this matter, Hernández and Rendón (2015) state that to accomplish a fundamental combination of thyroid hormones, the following conditions must be met:

75% of T4 is bound to TBG, 10% to TTR, 12% to albumin, and 3% to lipoproteins.

In serum, approximately 0.02% is free. Eighty per cent of T3 is bound to TBG, five per cent to TTR, and fifteen per cent to albumin and lipoproteins. A little less than 0.5 per cent is free in A serum. Through establishing a connection between this evidence and the methodologies presented in the article, it is defined that to reach the concentration of free T4 and T3, which is present to

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assess the biological activity of these hormones, the control is highly exact. Because there has been an increase in Although the concentration of free hormones in the plasma falls, the concentration of binding proteins also decreases (Buckley, 2020).

This decrease stimulates the secretion of pituitary TSH, which, in turn, increases the production of free hormones; it also contributes to the appearance of different pathologies that endocrinologists diagnose to initiate the respective treatment based on iodides, which will be estimated based on the concentration present in the thyroid gland (Nemeroff, 2020). Therefore, when patients are diagnosed with any pathologies in the gland in question, this manifests various pathophysiological events. These events will be closely linked to the type of sickness the endocrine system detects. "Thyroid dysfunction constitutes one of the most common pathologies," according to Salazar (2016).

Present throughout the entirety of one's life. 21st page:" Therefore, patients who exhibit some pathologies will exhibit specific manifestations at the liver level by increasing the Turmgreen grade acids. In addition, it is observed that the synthesis of vasodilatory substances increases insulin sensitivity and oxidative metabolism in the muscles. Additionally, it is observed that these substances reduce arterial resistance and increase venous tone, among other manifestations. among a similar vein, Salazar (ob. cit) asserts that "thyroid diseases are not exceptional in women of reproductive age." Furthermore, maternal thyroid dysfunction can have an effect on the health of the mother during gestation as well as the physical and neurological development of the child (Haiduc et al., 2021). This is page 32. Is it In other words, the pathophysiology of diseases associated with the thyroid will be evaluated based on the type of patient presenting with them (Khazaal et al., 2022). These diseases are common in pregnant women; however, their pathology necessitates an evaluation accompanied by several specialists, including an endocrinologist, a gynaecologist, and an internist. This ensures that the newborn is born in a healthy condition, allowing for subsequent healthy development and protecting the mother (Khazaal et al., 2022).

It is important to note that Salazar (ob. cit) describes the pathology associated with hypothyroidism as "a variable that increases with age and ranges between 4% and 10% in the general population, and between 45% and 26% in the elderly." This is something that should be mentioned. It is estimated that between 1.7% and 2.4% of children and adolescents are affected by this condition. This is page 41. Because of this evidence, we can determine that the physicalpathological manifestations that are present in patients who have hypothyroidism disease are as follows: the

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prevalence of the disease increases with age, which means that the presence of cardiac ischemia becomes more apparent; in addition, there are manifestations of obesity, nervousness, hair loss, and dry skin, among other physical manifestations of the disease (Nass & Evans, 2019).

In a similar vein, Barrientos (2019) notes the fact that the calculations against thyroid cancer in the United States may be in the following range for the year 2019: "Approximately 52,070 new cases will be diagnosed cases of thyroid cancer (14,260 in men and 37,810 in women)" Thyroid cancer will be responsible for the deaths of approximately 2,170 persons (3,020 men and 1,150 women).it is on page 14. According to the data, it is possible to comprehend that, for the current year, the expansion of thyroid cancer needs to be addressed with urgency; hence, the number of cases will increase, and therefore, the mortality rate will also increase.

Likewise, the Ecuadorian Institute of Statistics and Censuses (INEC 2017) indicates that carcinoma Thyroid disease affects 54,809 people in the country, of which 67.1 per cent (36,804) are women. This is the second most affecting cancer, but it is also the common differentiated type, which affects 9 out of 10 patients with this disease. Because the rate of growth of thyroid cancer increases at the population level, these percentage figures make it possible for us to emphasize that the presence of thyroid cancer as a pathology of the relevant gland deserves to be addressed. According to the ideas described above, a variety of pathophysiological aspects can be found depending on the disease diagnosed in the thyroid gland. Furthermore, when a patient has two thyroid diseases, the complexity of these aspects becomes increasingly more significant for specialists (Kovacs & Deal, 2019). The endocrine system is mirrored in the thyroid functioning, which is responsible for several steps in producing hormones, releasing those hormones, and their final influence on the cells.

White in color. As a consequence of this, such mutations are among the most prevalent pathologic features. Mutations in the G protein receptor or the thyroid-stimulating hormone receptor, with which it is coupled, can induce hyperfunction or hypofunction. This is because mutations have been detected that can cause constitutive activity or inactivity of the recipient itself.

When seen in this light, it is possible to assert that an insufficient supply of iodine or selenium leads to an inadequate glandular system function or makes the body more susceptible to specific clinical illnesses (Renaud et al., 2019). Likewise, and although, fortunately, only one mutation has been identified in one of the transporters of thyroid hormone (MTC-8) as the cause of a devastating

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syndrome of severe psychomotor deficit, Hormonal resistance has also been recognized due to mutations in the nuclear receptors of the thyroid hormones. According to Ortega (2016), "When an individual has reservations about adequate iodine, only 10% of the required iodine is absorbed, which has a plasma half-life of approximately 10 hours, and 90% of the iodine will be eliminated through urine." This is explained in the context that the plasma half-life of iodine is approximately 10 hours. This is page 58. In other words, higher consumption of iodine will not be absorbed by the body; instead, the body will seek it out by generating urine output to maintain a balance; however, when a shortfall occurs, the clinical data includes goitre (Koseva et al., 2021).

About the implications presented by the presence of the different aspects pathophysiological in patients with thyroid problems, it is clearly shown that they are closely linked to the type of disease that the patient presents, only through a clear, precise, and coherent diagnosis, under the disciplinary work of different medical currents, the development of individuals can be facilitated in a context particularly adjusted to their organic conditions; Well, this gland controls many of the body's activities human, there will be a speed in burning calories, an increase in heartbeat, fatigue, activation, gaining and losing weight, women are the most likely to suffer from the disease compared to men, especially after pregnancy or after menopause (Ortega et al., 2021). In addition, it is essential to note that during adolescence, physical appearance changes manifest themselves in various ways. These changes include acne, increased hair thickness, enlarged breast growth, and higher sensitivity to variations in the temperature of the surrounding environment, among other things (Trifu et al., 2020).

Each of the preceding considerations provides continuity to the article's theoretical content. Additionally, it makes it easier to effectively select the method, type of research, techniques, and analysis that correspond to the events that characterize the topic. This is done to provide the topic with its fundamental structure and analyze the pathophysiological aspects of patients with thyroid problems.

**METHOD:** To highlight the relevant process selection, the characteristics that compose the article's keywords lead to the choice of a method. Through this technique, the analysis corresponding to the article's content is carried out in a critical and functional form as a practical means to make the desired development in your process. A detective is working. For this reason, it is essential to correlate with what Barrero (2018) states, "a method helps any writer to develop general considerations to indicate his ideas." This is because it is necessary to provide flexibility to the various events that structure the theme. (on page 36) Based on the information cited, the author

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can indicate that to provide the article with the appropriate scientific action, we will select a different method. According to Barrero (ob. cit), the procedure for this method consists of "gathering several cases in which events are observed that produce an effect and then explaining it in a general way." This is page 43. Based on the information presented above, we can comprehend that by Applying the different methods, precise positions can be established regarding the various aspects directly related to the pathophysiology in patients with thyroid problems. This is done to conclude fundamental arguments regarding the significance of these aspects in individuals diagnosed with any disease caused by the thyroid gland.

### **Methodology:**

When attempting to develop the events that characterize the methodological framework in a research project, it is necessary to identify the type. The study was carried out according to the definition provided by Carrero (2017) regarding the documentary type, which states that "it is a documentary."

Focuses on the investigation of issues that are presented on a theoretical level, as well as the information that is necessary to solve them. It is usually found in printed, audiovisual, and electronic products" (p.41). Due to this definition, it can be indicated that to comply with the previous characteristics that identify the work, a series of activities were carried out concerning the review of sources and primary studies referring to the pathophysiological aspects in patients with thyroid problems and then adjust your selection accordingly to your research needs. According to Carrero (ob. cit), "appreciating, breaking down, and indicating in analytical form all the facts of a problem" defines the circumstances determining its descriptive level. To accomplish this, he established the conditions that determine its descriptive level.

### **Techniques Used in Documentary Filmmaking:**

To adjust the different assessments within order, coherence, and pertinence, it is essential to look for suitable mechanisms to ensure the investigative process's continuity. Therefore, it is relevant to include documentary techniques as bibliographic support responsible for providing the Relative adaptability to the material being discussed. This is what Carrero (ob. cit) describes as "the process of analytically interpreting the content of a text to present ideas that are coherent and binding among themselves" (p.54).

Similarly, it is possible to assert that documentary techniques functioned as a means of confronting concepts, making it feasible to take generic facts and break them down into their parts, enabling individuals to construct their unique appreciations. In other words, the contents were assembled in

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general terms to eventually form a global structure of the facts that would be covered. The continuity of the methodological activities leads to the completion of a set of tasks before finally indicating locating the content within an interpretive action, which is why techniques based on reading are selected as an essential element to give the respective organization of information from a general perspective to reach the particular and go back in the other direction to know the realities in their entirety. Following that, we continued to discover the general aspects of the once-understood theme. These elements were then merged acceptably to respond to each scenario in your development course.

However, the work of the method, when accompanied by a technique, such as underlining and signing as alternatives for the review and final selection of the aspects of interest, at the discretion of Salazar (ob. cit), "are combined actions to help the researcher detect the materials and adapt them to his interests." This occurs when the method is used in conjunction with a technique. As soon as the earlier stages were finished, a series of phases connected to successfully respond to the broad methods were implemented (Chereshnev et al., 2021). The general conditions associated with the subject matter being examined were estimated to accomplish this. Following this, the events that contained the elements to be investigated were evaluated based on the review of the material resources, which included books, magazines, newspapers, and technology resources.

This leads to clearly constructing the general contributions that characterize a situation or feasible content to be researched and provides insight into the particular appreciations that give rise to general interpretations to build conclusions. This will allow you to accomplish this goal (Zhu et al., 2020). Consequently, to broaden the general elements anticipated to be of interest in this article, we have developed the results that are accountable for supplying the respective orientations that describe the pathophysiological aspects in patients with difficulties with their thyroid. In other words, after the review, selection, and preparation of the material that would be incorporated into the content of the research article, we moved on to the elaboration and development of the various functional elements that characterize the theme. As a result, it was possible to provide the study with the respective interpretative body required for its scientific evaluation.

## **RESULT:**

The study of the pathophysiological aspects in patients with thyroid difficulties is broken down into functions to the corresponding gland's general characteristics. The thyroid gland is one of the largest organs in the human body, and it is placed at the bottom of the body with the physiological structure. It is located on the neck's anterior and lateral portions of the trachea. It has been stated

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that they are provided to in the following, you will find various occurrences responsible for the respective direction of the findings.

### **PHYSIOLOGY OF THE THYROID:**

The thyroid gland is the first endocrine gland to become visible during fetal development. It is possible to identify it between 16 and 17 days of gestation. Between 20 and 24 weeks, the thyroid hormone begins to be secreted. It weighs between one and three grams at birth, but by the time it is an adult, it weighs around twenty grams. It comprises two lobes in total, found on both sides of the upper portion of the trachea, and is connected by an isthmus.

It should be noted that the isthmus may occasionally contain a pyramidal lobe. As a unique characteristic, it is possible to investigate it through palpation, just like the testicles. It is one of the most prominent endocrine glands and the only one that can store vast quantities of hormone in an extracellular site within a proteinaceous material called thyroid colloid. Iodine, a trace element, is necessary to produce thyroid hormones, the only hormones that require it. It is vital to remember that the thyroid gland is responsible for the secretion of two essential hormones, namely T4 and T3, which are thyroxine and triiodothyronine, respectively. Adenohypophysis is accountable for producing thyrotropin (TSH), the hormone that regulates its secretion.

Normal development, growth, and metabolism are vital because they affect different tissues. The essential metabolic processes are altered by either an absence of secretion or an excessive amount. As a result, it is formed by glandular acinis or follicles, which are irrigated by a vibrant capillary network; the follicle wall is composed of a single row of cells cuboidal epithelial cells, which rest on a basement membrane composed of mucopolysaccharides; the interior of the follicle is filled with a clear, proteinaceous fluid known as acinar colloid, which constitutes the majority of the thyroid mass; the follicle is filled with acinar colloid, which is the majority of the thyroid mass.

Because of this, the colloid contains thyroglobulin, a significant protein weighing around 650,000 MW. It is a transport and storage facility for thyroid hormones during manufacture and completion; thyroglobulin depends on TSH. Twenty to forty of these follicles may come together to produce a lobule to which arterial blood supplies irrigating fluid and is separated from the other lobules by connective tissue. Parafollicular cells, called C cells, are an essential endocrine cell type in the APUD system. These cells are responsible for the production of calcitonin, which is a hormone that regulates calcium levels.

The superior and inferior thyroid arteries supply the thyroid; they are unusually wellvascularized. They have a blood flow of 4 and 6 millilitres per gram of thyroid tissue per minute, approximately

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twice as much as the kidney's flow. In terms of the capacity to concentrate iodine, this is considered to be a significant physiological factor. In this way, it is possible to carry out the respective physiological regulation process that is no more than a negative feedback mechanism that causes increased levels of free T4 (transformed into the pituitary and hypothalamus at T3), stops the production of TSH and also TRH you are thyrotropin-releasing hormone, where other essential organs of the human body intervene such as the hypothalamus, pituitary gland and thyroid, their combination makes it possible for individuals to comply with the respective physiological regulation regarding the lasts in charge of producing by the gland above, figure 1 is presented below, which seeks to indicate the presence of the respective axis as a fundamental means for the comprehensive well-being of individuals.

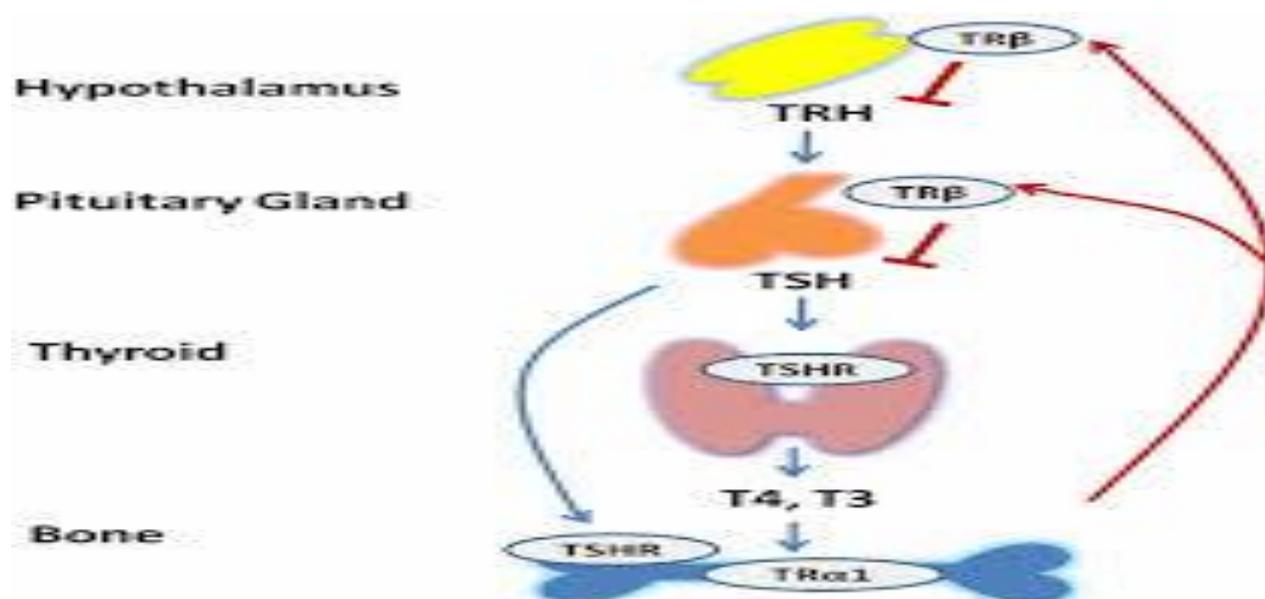


Figure No 1: Regulation of Thyroid Hormones Through Physiological Processes Concerning the First Mechanism.

It is more significant; nevertheless, an increase in TRH (transported by the portal venous system of the pituitary stalk) promotes the synthesis of both TSH and Prolactin. The second mechanism is less significant. The thyrotropin-induced increase in thyroid epithelial endocytosis also leads to an increase in the release of thyroid hormone into the circulation. TSH binds to receptors found on thyroid epithelial cells, which promotes the creation of the sodium pump or iodide transporter, thyroid peroxidase, and thyroglobulin. Although mechanisms guarantee maximum extraction of iodine from the blood for thyroxynogenesis, these mechanisms may fail in the case of long-standing iodine deficiencies. This is because, according to physiological regulation, it is possible

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to understand that the formation of thyroid hormones depends on an adequate supply of iodine. It is via the consumption of this halogen, which can be found in food and water, but particularly in iodized salt, that the iodine balance is maintained. In addition, the administration of pharmaceuticals or iodinated contrast media is another source of iodine. The average daily intake of micrograms in the diet of people living in nations such as the United States is approximately 500 micrograms. However, this quantity is higher in Japan, and in other places, it is slightly lower.

Table 1: Hormones that are Extracted from the Thyroid

Hormones	An overactive thyroid	It is hyperthyroidism.
Free Thyroxine (FT4).	↑ o normal	↓ o normal
TL3 stands for tri-iodo-tyrosine	↑	↑
TSH-US, also known as ultrasound-sensitive pituitary thyrostimulin	↓ ↓ ↓ BASEDOW	↑ ↑ ↑ HASHIMOTO
antibodies produced by the body	TPO ↑ TR ↑	TPO ↑ ↑ ↑ TG ↑

### **WATER SOURCE:**

As a result, the distribution of iodine throughout the body differs depending on the region or tissue in which it is located. Following the transformation of the element iodine into the iodide ion, the gut is responsible for the thin absorption of the iodide ion (about 500 mcg per day), with approximately half of the iodide ion being passed into the extracellular fluid. There is a continuous removal of plasma iodide, which either enters or re-enters the thyroid by 20% (daily, it catches 120 and returns 60 mcg, which arises from the dehalogenation of tyrosines). This mechanism is responsible for the removal of plasma iodide.

Seventy-seven per cent is lost by urine (an average of 488 mcg daily), while the renal tubules passively reabsorb significantly. The remaining three per cent, twelve mcg, is excreted through

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faeces. There are 600 micrograms of iodine in the total thyroid hormone in the blood, mainly thyroxine. 8 milligrams of the halogen. The gland, which is the location with the highest concentration, is where they can be discovered. This is the same quantity detected in a drop of Lugol's solution simultaneously with another decline of saturated potassium iodide solution containing fifty milligrams. As a result of the previous considerations, we can emphasize that the regulation process in the thyroid gland, which functionally fulfils its characteristics, makes it possible to maintain optimal levels of thyroxine in the human body. However, when changes occur in its levels, whether low or high, a pathology is added, and changes in the body will characterize that. As a result, the individual who suffers from the disease, whether they are a boy, girl, adolescent, adult, pregnant, or elderly, must be treated by the appropriate specialists to provide the disease with the proper treatment and reduce the present consequences.

#### **PATHOLOGICAL OF THE THYROID:**

To gain an understanding of the meaning of pathology, it is possible to state that it is a branch of medicine that investigates the anatomical and physiological problems of ill tissues and organs, as well as the symptoms and signs that are caused by diseases and the factors that cause them to present themselves. In this view, it is possible to emphasize that the thyroid gland is associated with various diseases described by Lares (2014). These pathologies include but are not limited to, goitre, hyperthyroidism, hypothyroidism, thyroid orbitopathy, thyroid nodules, and cancer of the thyroid. As follows, we will describe them:

#### **A GOITER:**

An abnormal expansion of the thyroid gland causes this condition. There is a butterfly that looks like a butterfly and is located near the base of the neck, below Adam's apple. This gland is called the thyroid. A large goitre can cause coughing, trouble swallowing, and difficulty breathing, even though goitres are typically not unpleasant. The process starts when the hypothalamus, located at the brain's base and serves as a thermostat for the entire system, sends a signal to the pituitary gland to produce a hormone known as thyrotropin. A quantity of thyrotropin is secreted by the pituitary gland, which is also situated at the base of the brain. The amount of thyrotropin secreted is contingent upon the levels of thyroxine and T-3 in the blood. The thyroid gland, in turn, regulates the production of hormones, which depends on the quantity of thyrotropin it receives from the pituitary gland. The presence of a goitre does not necessarily indicate that the thyroid gland is not functioning normally most of the time. Although it may be enlarged, the thyroid gland can still

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produce appropriate hormone levels. On the other hand, you may be making an unusually high or low amount of thyroxine and T-3.

Hypothyroidism: this es el trastorno de la glándula tiroides que surge más frecuently. The situation is a clinical condition that is characterized by a deficiency in the production of tyrosine phosphatases. It is classified as a primary hypothyroidism, which occurs when the alteration is located in the glándula of the thyroid cartilage. There is a secondary form of hypothyroidism, which occurs when the alteration takes place in the hypothalamus or the hypothalamus. En otras palabras, el hipotiroidismo sub-clínico is una enfermedad asintomática en la mayoría de los casos, en la cual la disminución del funcionamiento de las tiroides no es tanto como es the requirement for the manifestation of clinical signs.

By the cause that gave rise to the abnormality, hypothyroidism can be described as follows: Due to a lack of your capability, in areas of the world where there is a lack of you in the diet, such as in some regions of Mexico, where a severe form of hypothyroidism can occur in between 5 and 15 per cent of the population. Because of this reason, it is common for you to be added to the sal de mesa. Idiopathic hypothyroidism as well. A situation in which the cause of the illness is unknown. The postablative form of hypothyroidism. Posterior to the quirúrgic extirpation of the laglándula tiroides or after the yodo radioactivo therapy has been completed. This is thyroiditis. The condition known as thyroiditis linfocítica crónica or thyroiditis of Hashimoto is characterized by inflammation of the glándula tiroides, which is caused by autoimmune symptoms. There were flaws in the development of the glándula from the tirades. One of the most common causes is during the first few months of life.

### **TUMORS OF THE THYROID:**

The estimated prevalence in the general population is close to 4.2%, with a significantly higher rate in regions with a deficiency of yodo. There is around one per cent of all nódulos are 100% quísticos, whereas the majority of the nódulos are partially quísticos with a solid component on the other hand. There is a male-to-female ratio of one to two and a half for the cancer of the thyroid. Seventy-four per cent of newly diagnosed cases are females, and the octavo cáncer most frequently diagnosed in females is the cáncer of the pulmonary artery. The prevalence rises with age, and the risk of malignancy is significantly higher in men than it is in women. There is a predisposition for the development of nódulos tiroideos at approximately five to thirty years of age among those exposed to head and neck radiation at younger ages. This predisposition is between ten and forty per cent.

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When exposed to ionizing radiation, the nuclei develop at a rate of 2% per year. The ionizing radiation causes this condition. Cancer of the thyroid: Papillary thyroid cancer, follicular thyroid cancer (which is frequently curable), and anaplastic thyroid cancer are the three types of thyroid carcinoma that are classified according to their histological characteristics. Thyroid carcinoma is the most common kind of malignant tumour in the endocrine system. Thyroid, which has a dismal outlook for the future. The most prevalent types of thyroid cancer are papillary cancer and follicular cancer. The 10-year survival rate for papillary cancer is 98%, while the survival rate for follicular cancer is 92%, and the survival rate for anaplastic cancer is 13%. Young subjects (those under the age of 20) or elderly subjects (those over the age of 65) have a worse prognosis for thyroid cancer. Thyroid cancer is twice as common in women as it is in men, although the prognosis for men is worse.

Other risk factors include having been exposed to irradiation in the past, having a big nodule (one greater than or equal to 4 centimetres), having evidence of the tumour being locally fixed, or having lymph nodes that have invaded. An overactive thyroid: One term for this condition is an overactive thyroid. This condition manifests itself when the thyroid gland generates and secretes excessive thyroid hormone. The form of the thyroid gland is similar to that of a butterfly. The location of it is in the front of his neck, just below his Adam's apple position. Thyroid hormones are responsible for regulating how your body makes use of energy. Your heart rate and the operation of your other organs are both impacted by this.

You may also see changes in your bones, muscles, and menstrual periods (if you are a female). Graves' disease is the root cause of hyperthyroidism in significantly more than seventy per cent of cases. In a normal state, the immune system protects your body against various pathogens, including bacteria, viruses, and other entities. People who suffer from autoimmune diseases are more likely to attack the organs and tissues of their bodies. Serious illness is characterized by the immune system's thyroid stimulation, which causes the thyroid to release excessive hormones. Graves' disease may be inherited, according to the doctors who have studied it. This condition is more prevalent among younger women.

#### **ORBITOPATHY OF THE THYROID:**

It is a debilitating visual system disease characterized by presenting changes in the orbital and periorbital soft tissues due to an inflammatory process. These changes are related to systemic endocrine alterations of the thyroid gland, which causes a significant change in the quality of life of those affected by the disease. The first cause of orbital disease is thyroid orbitopathy (TO),

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which has an incidence that ranges between fifty and sixty per cent in the office of an orbit surgeon where the patient is being treated. It is also known as Graves ophthalmopathy because of its association with Graves' disease, which is considered the most common extrathyroidal manifestation of this disease. However, it can occur in patients who have no history of hyperthyroidism, either in the past or in the present, as well as in patients who have hypothyroidism and Hashimoto's thyroiditis.



**Figure 2: Orbitopathy of the thyroid**

It is important to note that this pathology produces a thickening of the tear glands, which become palpable in the eyelid region, it being not uncommon that during upper blepharoplasties for the surgical rehabilitation of these patients, we encounter a ptosis or glandular hernia, which we have to repair and reposition it in its position original attached to the arcus marginalis. The gland appears mobile, firm, and painless based on the pressure. Cellular infiltration of the lacrimal gland can, in certain instances, destroy the acini, accompanied by fibrosis and a reduction in the amount of tears secreted. This can lead to worsening ocular surface abnormalities, which initially manifest as epiphora and then progress into dry eye syndrome.

Conclusion:

These individuals can draw the following conclusions based on each of the approaches that were cited throughout the process of developing this article: Thyroid hormones are responsible for regulating a wide variety of metabolic processes and play an essential part in somatic growth. To produce thyroid hormones, it is necessary to have a thyroid gland that is fully formed, to consume

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a suitable amount of iodine through nutrition, and to undergo a series of reactions that are complex sequential biochemical processes. These reactions are controlled by the hypothalamic-pituitary regulatory system and the thyroid's autoregulation. In practically every body tissue, thyroid hormones are responsible for various actions that produce these functions. Interact with multiple receptors, including coregulatory and other proteins linked with nuclear receptors.

A pupillary change is found to be associated with the pathology that is linked to the eyes. This change makes it difficult for people to carry out their daily activities and adds to the other circumstances associated with dry eyes. It is essential to emphasize that each of the diseases that are caused by insufficient thyroid function results in the emergence of a unique set of symptoms. Furthermore, it is essential to emphasize that early diagnosis gives the patient a higher quality of life.

On the other hand, Iodine therapy makes it feasible to keep the gland's physiological regulation in check even after treatment. Major way. It should be added that current medical sciences regarding the aetiology of hypothyroidism subclinical needs to be clarified. However, multiple disorders related to the risk of suffering from this condition, among which are considered previous thyroid dysfunction, goitre associated with autoimmune disorders or iodine deficiency, post-surgery or radiotherapy to the gland thyroid, non-thyroid autoimmune diseases such as type 1 diabetes mellitus, vitiligo, pernicious anaemia, autoimmune hemolytic anaemia, early grey hair, ageing and consumption of medications (lithium, amiodarone, synthetic antithyroid, radioiodine, expectorants containing potassium iodide and others). Thyroid disease, pernicious anaemia, type 1 diabetes mellitus, and thyroid insufficiency are all conditions that have been found in the medical history of these people within their families.

first adrenal gland According to the research examined, it is possible to assert that iodine is necessary to create hormones. The thyroid is primarily found in coastal regions' soil and ocean water. Individuals in underdeveloped countries, inland, or raised locations frequently have iodine deficits and may develop goitre when the thyroid enlarges to get more iodine. This is because the goitre is caused by the thyroid being enlarged. The initial iodine shortage can become even more severe if the individual consumes a diet high in foods that block the production of thyroid hormones, such as cabbage, broccoli, and cauliflower. Indeed, the primary cause of goitre in many regions of the world is a deficiency in iodine in the diet. However, this is only sometimes the case in nations where iodine is frequently added to table salt and other foods.

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