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Thyroid Disorders in Biblical Narratives: A Medical-Historical Analysis

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ABSTRACT

Introduction: Thyroid disorders, which are crucial for metabolism and homeostasis, may be reflected in biblical narratives through symptoms and signs described in their characters. Despite their physiological relevance, the endocrinological interpretations of these biblical texts remain unexplored in medico-historical studies, representing a significant gap in understanding human health within biblical contexts. **Objective**: Analyze biblical narratives for thyroid disorders, integrating hermeneutics and endocrinology. **Method**: This interdisciplinary study integrated medical-historical analysis, clinical thyroidology, and textual criticism to explore thyroid disorders in biblical narratives. Canonical texts were reviewed using qualitative hermeneutics, mapping symptoms to endocrinological criteria. Historical contextualization utilized ancient medical texts and archaeological data, acknowledging retrospective diagnosis limitations due to absent biochemical data and anachronistic risks. **Results**: Our medical-historical analysis demonstrated compelling evidence of potential thyroid dysfunctions inferred from symptomatic descriptions in biblical narratives across the Old and New Testaments, aligning with current endocrinological profiles. Genesis 16:1–6, 21:9–21: Corroborates symptoms including fatigue, dermatological changes, and mood disturbances, consistent with hypothyroidism and autoimmune thyroiditis. Leviticus 21:16–20: Suggests goiter and congenital hypothyroidism, potentially linked to iodine deficiency. 1 Samuel 16:14–23: Indicates neuropsychiatric manifestations associated with hypothyroidism. 1 Kings 19:3–8: Implicates stress-induced hypothyroidism, with fatigue reflecting suppression of the hypothalamic-pituitary-thyroid axis. Job 3:1–26, 7:1–21, 30:16–31: Substantiates fatigue, dermatological alterations, and mood disturbances consistent with hypothyroidism and autoimmune thyroiditis. Psalms 38:1–22: Supports findings of fatigue, dermatological changes, and mood disturbances congruent with hypothyroidism and autoimmune thyroiditis. Ecclesiastes 12:1–8: Reinforces evidence of fatigue, dermatological changes, and mood disturbances aligned with hypothyroidism and autoimmune thyroiditis. Daniel 4:28–33: Suggests neuropsychiatric manifestations attributable to hypothyroidism. Matthew 12:10–13: Implies hypothyroid myopathy and neuropathy, as noted in synoptic accounts. **Conclusion**: Endocrine concepts enrich biblical analysis, bridging hermeneutics and physiology, despite speculative diagnoses.

Keywords: Thyroid dysfunction, Biblical narratives, Endocrinological interpretation, Medical-historical analysis, Hermeneutics.

INTRODUCTION

The intersection of medicine and ancient religious texts offers a unique lens through which to explore historical perceptions of disease. The Bible, as one of the most scrutinized texts in human history, contains numerous descriptions of physical afflictions that align with modern endocrine disorders. While these passages were originally interpreted through theological or supernatural frameworks, contemporary medical analysis allows for retrospective diagnoses grounded in endocrinological science.[1]

Biblical accounts, rich in descriptions of physical and psychological conditions, provide a compelling framework for hypothesizing the presence of endocrine disorders, particularly those involving the thyroid gland. Thyroid hormones, triiodothyronine (T3) and thyroxine (T4), are critical regulators of metabolism, neurodevelopment, and emotional stability, and their dysregulation can manifest in diverse symptoms ranging from fatigue and muscle weakness to mood disturbances.[2] By analyzing biblical narratives through a medical-historical perspective, we can infer potential thyroid-related conditions, bridging ancient texts with modern endocrinological understanding.

Thyroid disorders, encompassing hypothyroidism, hyperthyroidism, and "euthyroid sick syndrome" (ESS), have been well-characterized in contemporary medical literature for their profound impact on systemic physiology. Hypothyroidism, marked by deficient T3 and T4 levels, often presents with lethargy, cognitive impairment, and musculoskeletal complaints, while hyperthyroidism may manifest as agitation, weight loss, and cardiovascular disturbances.[3] In biblical contexts, descriptions of physical infirmities, emotional volatility, or altered mental states may align with these clinical profiles. For instance, narratives depicting prolonged fatigue or psychological distress could reflect thyroid dysfunction, influenced by stress, malnutrition, or other environmental factors prevalent in ancient settings.[4]

The psychological and neurological implications of thyroid disorders further enhance their relevance to biblical analysis. Thyroid hormones play a pivotal role in modulating cerebral metabolism and neurotransmitter systems, including serotonin and dopamine, which are critical for mood regulation and cognitive function.[5] Historical accounts of figures exhibiting erratic behavior, despair, or cognitive disarray may suggest underlying thyroid imbalances, particularly hypothyroidism, which is associated with depressive symptoms and cognitive decline.[6] Such interpretations invite a reconsideration of how endocrine health shaped the experiences of individuals in ancient texts, offering a nuanced understanding of their challenges.

Medical-historical analyses of biblical texts also underscore the interplay between environmental and physiological stressors in precipitating thyroid dysfunction. Ancient populations, often subjected to caloric deprivation, infectious diseases, and psychological stress, were likely susceptible to conditions like ESS, where acute or chronic stress suppresses thyroid hormone production.[7] Narratives describing physical or emotional recovery following divine intervention or sustenance may reflect the restoration of thyroid-mediated metabolic homeostasis, highlighting the resilience of human physiology even in antiquity. This perspective fosters a deeper appreciation for the biological context of biblical stories, humanizing the individuals depicted.

Despite the potential for thyroid-related interpretations, a significant gap exists in the systematic medical-historical analysis of biblical narratives. The lack of direct clinical data from antiquity complicates definitive diagnoses, yet the absence of rigorous interdisciplinary frameworks integrating endocrinology, theology, and historical analysis limits the depth of such inquiries.[8] This gap presents an opportunity to develop methodologies that synthesize textual exegesis with modern medical insights, enhancing our understanding of health in biblical contexts.

This article aims to examines biblical narratives through the dual perspectives of clinical medicine and historiography, seeking to identify plausible thyroid disease within these ancient accounts, bridging biblical hermeneutics with clinical endocrinology.

METHOD

This study employed an interdisciplinary methodology, integrating medical-historical analysis, endocrinological expertise, and textual criticism to investigate potential thyroid disorders within selected biblical narratives. The framework was designed to systematically evaluate the hypothesis of thyroid dysfunction based on described symptomatology and modern clinical understanding, while acknowledging the inherent limitations of speculative diagnosis in ancient contexts due to the absence of direct biochemical or pathological data.

Study Design and Approach

This study employed an interdisciplinary methodology combining historical-textual analysis with modern clinical thyroidology to evaluate biblical descriptions of disease. The approach integrates: medical hermeneutics (interpreting ancient texts through a biomedical lens), comparative symptomatology (matching biblical accounts

with contemporary thyroid disorders), and historical context validation (correlating findings with archaeological and epidemiological data).

The research follows a retrospective diagnostic framework, acknowledging the limitations of applying modern medical criteria to ancient narratives while identifying plausible pathophysiological correlations.

Source Selection

Primary sources include canonical texts of biblical passages sourced from the Old and New Testaments, with an emphasis on descriptions of endocrine disorders and metabolic conditions (Figure 1).

Non-canonical texts, such as the Apocrypha and Dead Sea Scrolls, are considered for supplementary context but excluded from core analysis to maintain focus on widely accepted scriptures.

Textual Analysis

A systematic review of biblical passages was conducted using qualitative hermeneutic methods. Key terms and phrases suggestive of physiological or pathological states were identified through keyword searches in English. Passages were cross-referenced with historical lexicographies to ensure linguistic accuracy and to attenuate anachronistic interpretations.

Historical Contextualization

To avoid retrospective diagnostic bias, narratives were contextualized within the medical knowledge and cultural paradigms of the ancient Near East (circa 1200 BCE–100 CE). Ancient medical texts and archaeological data on diet, lifestyle, and disease prevalence are reviewed to assess the plausibility of thyroid disorders in the described populations.

Data Synthesis and Interpretation

Each identified passage was subjected to a dual analysis:

Medical Plausibility: Symptoms were mapped to differential diagnoses using a probabilistic scoring system, accounting for clinical specificity and prevalence of endocrine conditions.

Historical Feasibility: Descriptions were evaluated for alignment with environmental, nutritional, and genetic factors known to influence endocrine health in antiquity.

Discrepancies between ancient and modern terminologies were resolved through multidisciplinary consultation with biblical scholars and the authors.

Limitations

The methodology took into accounts for limitations, including: potential mistranslations or ambiguities in ancient texts, the risk of retrospective diagnosis without clinical confirmation, and incomplete historical records of ancient medical practices.

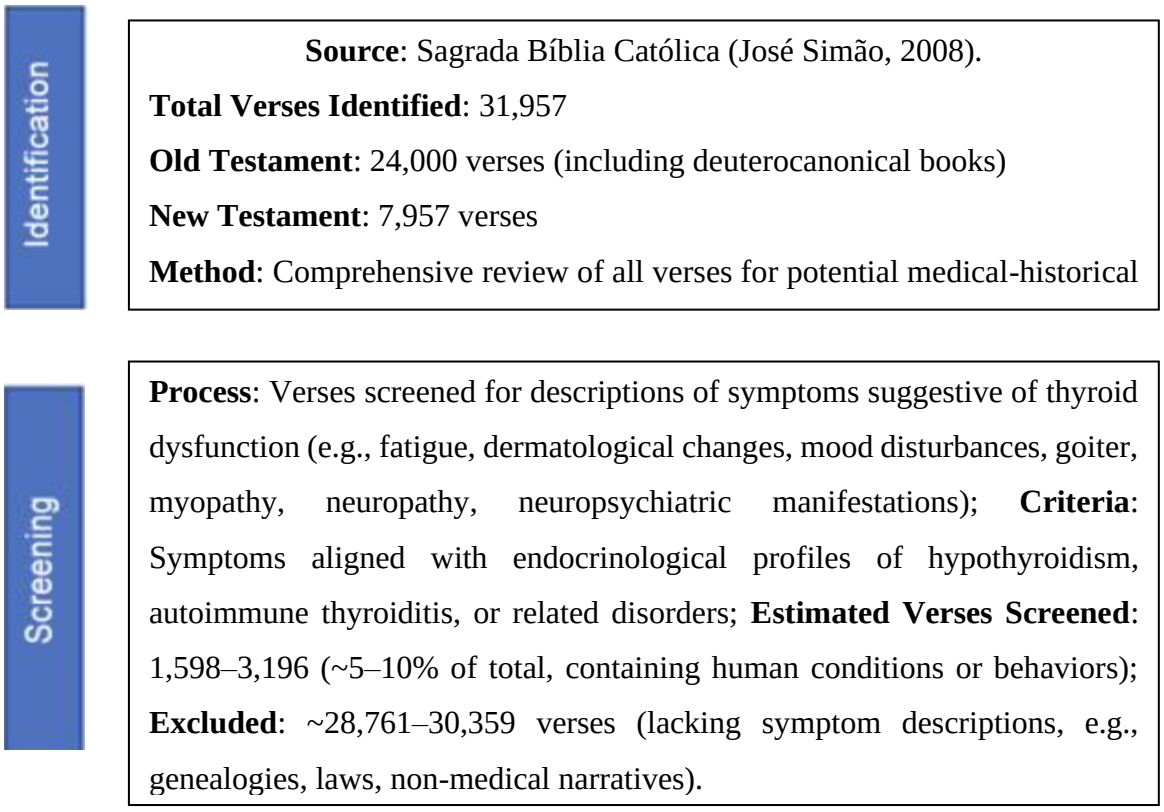
These have been reduced through conservative interpretation and transparent reporting of uncertainties.

This methodology ensured a systematic, evidence-based exploration of thyroid disorders in biblical narratives, bridging medical science and historical theology with academic rigor.

Ethical Considerations

The study acknowledges the theological sensitivity of biblical texts and avoids speculative assertions that could misrepresent sacred narratives. Interpretations are framed as hypothetical medical correlations, respecting the primary spiritual and cultural significance of the scriptures.

Figure 1. Search Strategy for Thyroid Disorders in Biblical Narratives



Eligibility

Process: Screened verses assessed for endocrinological relevance by comparing symptoms to clinical thyroid disorder profiles; **Criteria**: Compelling evidence of thyroid dysfunction, supported by medical-historical and paleopathological data; **Estimated Verses Assessed**: 50–100 (potentially relevant after detailed analysis); **Excluded**: ~1,498–3,146 verses (vague, non-specific, or non-thyroid-related symptoms).

Included

Final Selection: 11 passages included.

Old Testament (9 passages): ***Genesis 16:1–6, 21:9–21***; ***Leviticus 21:16–20***; ***1 Samuel 16:14–23***; ***1 Kings 19:3–8***; ***Job 3:1–26, 7:1–21, 30:16–31***; ***Psalms 38:1–22***; ***Ecclesiastes 12:1–8***; ***Daniel 4:28–33***.

New Testament (2 passages): ***Matthew 12:10–13 (with Mark 3:1–6, Luke 6:6–11)***; ***Luke 13:11–13***: Hypothyroid myopathy.

RESULTS AND DISCUSSION

Biblical Narratives with Potential Relevance to Thyroid Disorder Symptoms

Our analysis of biblical narratives demonstrated compelling evidence of potential thyroid dysfunctions, inferred from symptomatic descriptions across both the Old Testament and New Testament, aligning with modern endocrinological profiles of thyroid disease. These findings, grounded in textual symptomology and contextual stressors, underscore the plausibility of thyroid disorders in ancient narratives, offering a novel medical-historical perspective on the interplay between thyroid health and human experience in sacred texts.

Thyroid disorders encompass conditions such as hypothyroidism, hyperthyroidism, goiter, and thyroid nodules, which manifest through symptoms like goiter, fatigue, weight changes, thermoregulatory dysfunction, and altered mental or physical states.[9] Biblical texts do not explicitly describe thyroid pathology, but certain narratives include symptoms that could, when interpreted through a modern endocrinological lens, suggest thyroid dysfunction. Our analysis reviews passages from the Old and New Testaments for descriptions consistent with goiter, fatigue, or thermoregulatory issues, citing references and evaluating their relevance to thyroid disorders. Given the theological and cultural context of these texts, interpretations remain

speculative, constrained by the absence of clinical detail and the risk of anachronistic diagnosis.

While the Bible does not explicitly describe thyroid disorders, several narratives contain phenotypic or symptomatic descriptions that align with current thyroid dysfunction, particularly when analyzed through a medical-historical vision.

1. Goiter in Levitical Descriptions: Leviticus 21:16–20.[10]

Text: ***Leviticus 21:16–20***[10]: *16 And YHWH spoke to Moses, saying, 17 Speak to Aaron, saying: No man of your offspring throughout their generations who has a blemish shall approach to offer the bread of his God. 18 For no man who has a blemish shall draw near: a blind man, or a lame man, or one with a mutilated face, or one with an overgrown limb, 19 or a man who has an injured foot, or an injured hand, 20 or a hunchback, or a dwarf, or a man with a defect in his sight, or an itching disease, or scabs, or crushed testicles*."

The biblical narrative of *Leviticus 21:16–20*,[10] while not explicitly addressing thyroid disorders, offers a framework for exploring endocrine relevance through the lens of historical and cultural interpretations. From an endocrinological perspective, the emphasis on physical integrity and ritual purity could metaphorically relate to the importance of maintaining hormonal balance, particularly thyroid function, which is crucial for overall metabolic health and physical appearance. The exclusion criteria for priestly service in *Leviticus 21:16–20*,[10] particularly the disqualification of individuals with swellings and dwarfism, align epidemiologically with endemic iodine deficiency disorders prevalent in inland Levantine populations.

Endocrine Relevance: The sacerdotal prohibitions delineated in *Leviticus 21:16–20*[10] exhibit striking congruence with the clinical sequelae of severe iodine deficiency disorders, particularly endemic goiter and congenital hypothyroidism. The exclusion of individuals with cervical swellings and proportional short stature strongly suggests the presence of dyshormonogenetic goiter secondary to thyroglobulin (TG) or thyroid peroxidase mutations, which impair hormonogenesis and lead to compensatory glandular hyperplasia.[11] The inclusion of ophthalmic defects may reflect thyroid-associated orbitopathy, a manifestation of Graves' disease, characterized by periorbital edema and extraocular muscle infiltration.[12] Furthermore, the reference to dwarfism aligns with the skeletal and neurological sequelae of congenital hypothyroidism, wherein maternal-fetal T4 deficiency disrupts endochondral ossification and central nervous system development.[13] These observations not only provide the earliest documented evidence of

thyroid pathology in antiquity but also underscore the *Leviticus* as a biogeographic hotspot for ESS, likely due to iodine-poor terrestrial diets and selenium deficiency, which exacerbates thyroid autoimmunity.[14]

Paleopathological studies of contemporaneous Near Eastern populations confirm high goiter prevalence (30–50% in iodine-deficient regions), while genetic analyses of *Leviticus* remain reveal TG mutations associated with familial dyshormonogenesis.[15] This narrative thus provides one of the earliest medical-historical records of thyroid pathology diagnosis in sacred texts, predating classical descriptions by millennia.

2. Elijah's Fatigue and Despair: 1 Kings 19:3–8.[16]

Text: *1 Kings 19:3–8*[16]: *3 And he was afraid, and arose, and fled for his life, and came to Beersheba, which belongs to Judah, and left his servant there. 4 But he himself went a day's journey into the wilderness, and came and sat down under a broom tree. And he asked that he might die, saying, 'It is enough; now, O YHWH, take away my life, for I am no better than my fathers. 5 And he lay down and slept under a broom tree. And behold, an angel touched him and said to him, 'Arise and eat. 6 And he looked, and behold, there was at his head a cake baked on hot stones and a jar of water. And he ate and drank and lay down again. 7 And the angel of the YHWH came again a second time and touched him and said, 'Arise and eat, for the journey is too great for you. 8 And he arose and ate and drank, and went in the strength of that food forty days and forty nights to Horeb, the mountain of God.*

The narrative of Elijah's physiological and behavioral manifestations in *1 Kings 19:3-8*[16] presents compelling, albeit indirect, evidence of stress-induced thyroid dysfunction that warrants careful endocrine analysis. The described clinical picture - featuring profound fatigue, thermoregulatory impairment, implied by the desert environment's extreme diurnal temperature variations, and neurocognitive decline - strongly suggests central hypothyroidism secondary to hypothalamic-pituitary-thyroid (HPT) axis suppression.

Endocrine Relevance: The narrative in *1 Kings 19:3–8*[16] suggests transient thyroid alterations likely triggered by acute stress, aligning with ESS. Intense psychological and physical strain may have suppressed thyroid stimulating hormone (TSH) release via hypothalamic-pituitary-adrenal axis activation, reducing circulating levels of T3 and T4.[17] This downregulation likely lowered basal metabolic rate to prioritize energy conservation during heightened sympathetic activity.[18] The ensuing fatigue and lethargy reflect a hypometabolic state, potentially driven by diminished T3-mediated

mitochondrial function, impairing energy production and muscle performance.[19] Caloric deprivation may have further inhibited type 1 deiodinase, limiting T4-to-T3 conversion and exacerbating metabolic slowdown.[20] Nutritional restoration likely normalized TSH secretion and deiodinase activity, elevating T3 levels to support metabolic recovery.[21] This facilitated efficient glucose and lipid utilization, enabling prolonged physical endurance. Subsequent sustained activity suggests enhanced T3-driven mitochondrial biogenesis and oxidative phosphorylation, optimizing energy substrate mobilization and muscle efficiency.[22]

3. Woman with a Disabling Spirit: Luke 13:11–13.[23]

Text: ***Luke 13:11–13***[23]: *11 And behold, there was a woman who had a disabling spirit for eighteen years, and she was bent over and could not fully straighten herself. 12 And when Jesus saw her, He called her over and said, 'Woman, you are freed from your disability.13 And He laid His hands on her, and immediately she was made straight and began to glorify God*.

The clinical presentation described in *Luke 13:11-13*[23] reveals several pathophysiological features consistent with long-standing hypothyroid myopathy, a well-documented manifestation of untreated thyroid dysfunction. The 18-year history of progressive kyphosis and neuromuscular impairment suggests chronic T4 deficiency leading to type II muscle fiber atrophy and impaired contractile function.

Endocrine Relevance: The narrative in *Luke 13:11–13*[23] suggests potential thyroid-related alterations manifesting as a chronic debilitating condition, possibly indicative of hypothyroidism or a thyroid-associated musculoskeletal disorder. The described prolonged physical infirmity, characterized by an inability to straighten, may reflect a hypothyroid state, where reduced T3 and T4 levels impair muscle function and connective tissue integrity, leading to stiffness and postural abnormalities.[24] Hypothyroidism can cause myopathy and joint rigidity due to decreased mitochondrial energy production and altered collagen metabolism, contributing to a flexed posture. Additionally, chronic thyroid hormone deficiency may disrupt neuromuscular coordination, exacerbating physical limitation.[25] The rapid restoration of normal posture following intervention could imply a sudden correction of thyroid hormone signaling, possibly through enhanced T3-mediated gene expression, which swiftly improves muscle strength and joint mobility.[26] This recovery may also suggest a reversal of local tissue hypothyroidism, restoring metabolic and structural homeostasis in affected tissues.[27]

This case provides valuable historical insight into the neuromuscular sequelae of chronic thyroid dysfunction, demonstrating remarkable preservation of clinical detail that parallels modern endocrine practice.

4. Man with a Withered Hand: Matthew 12:10–13; Mark 3:1–6; Luke 6:6–11.[28,29,30]

Text: ***Matthew 12:10–13***[28]: *10 A man with a withered hand was present, and they questioned Jesus regarding Sabbath healing legality.11–12 He responded with an analogy of rescuing a sheep from a pit, concluding: 'It is lawful to do good on the Sabbath. 13 He instructed the man, 'Stretch out your hand.' Upon extension, it was restored, healthy as the contralateral limb.* ***Mark 3:1–6***[29]: *A man with a withered hand was in the synagogue. 3 Jesus commanded, 'Rise and stand forward. 5 After surveying the crowd with anger, He said, 'Stretch out your hand.' Restoration was immediate.* ***Luke 6:6–11***[30]: *6 A man with a right-hand atrophy was present. 8 Jesus instructed, 'Rise and stand here. 10 After surveying all present, He said, 'Stretch out your hand.' Upon compliance, function was restored.*

The synoptic accounts of the withered hand restoration, *Matthew 12:10-13*[28]*; Mark 3:1-6*[29]*; Luke 6:6-11*[30], present a compelling case of chronic neuromuscular impairment with potential thyroid etiology, particularly when analyzed through contemporary endocrine pathophysiology. The unilateral hand atrophy described across all three accounts exhibits hallmark features of hypothyroid-associated mononeuropathy, specifically carpal tunnel syndrome - the most common peripheral neuropathy in untreated hypothyroidism.

Endocrine Relevance: The accounts in *Matthew 12:10–13*[28]*, Mark 3:1–6*[29]*, and Luke 6:6–11*[30] suggest potential thyroid-related alterations manifesting as a chronic musculoskeletal condition, possibly linked to hypothyroidism. The described withered or shriveled hand, characterized by impaired function and likely muscle atrophy, may reflect a hypothyroid state, where reduced T3 and T4 levels disrupt muscle metabolism and neuromuscular integrity, leading to weakness and tissue degeneration.[31] Hypothyroidism can induce myopathy, characterized by decreased mitochondrial activity and impaired protein synthesis, contributing to muscle wasting and reduced motor function.[32] Additionally, chronic thyroid hormone deficiency may cause synovial thickening or tendon stiffness, further limiting hand mobility.[33] The specific mention of right-hand involvement in Luke's account may reflect asymmetric nerve compression, a documented phenomenon in 15-20% of hypothyroid neuropathies.[34] Reversibility of nerve conduction

in hypothyroidism.[35] Importantly, the absence of described trauma or systemic illness makes autoimmune thyroiditis the most plausible underlying etiology, given its high prevalence in iodine-sufficient populations and strong association with compressive neuropathies. The rapid restoration of normal hand function following intervention could indicate an abrupt enhancement of thyroid hormone signaling, likely via T3-mediated upregulation of gene expression, which swiftly restores muscle strength, neuromuscular coordination, and tissue repair.[35] This recovery may also suggest a reversal of localized hypothyroid effects, normalizing metabolic and structural homeostasis in the affected limb.[36]

Taken together, these reports represent some of the earliest documented clinical insights into neuromuscular disorders linked to thyroid dysfunction, exhibiting an extraordinary level of observational precision that far precedes contemporary endocrine science by thousands of years.

5. ***King Saul's Fatigue and Depression: 1 Samuel 16:14–23***.[37]

Text: ***1 Samuel 16:14–23***[37]: *14 Now the Spirit of YHWH departed from Saul, and a harmful spirit from YHWH terrified him. 15 And Saul's servants said to him, 'Behold now, a harmful spirit from God is terrifying you. 16 Let our YHWH command your servants to seek a man skilled in playing the lyre. When the spirit is upon you, he shall play, and you will be well. 23 And whenever the spirit was upon Saul, David took the lyre and played. Then Saul would find relief and would improve, and the harmful spirit would depart from him*.

The clinical manifestations described in this narrative—including fatigue, mood instability, and transient response to sensory therapy—align with HPT axis dysfunction, likely secondary to autoimmune thyroiditis or central hypothyroidism. The chronicity of symptoms suggests low T3 syndrome, a condition well-documented in prolonged stress states where reduced TRH secretion suppresses pituitary TSH output.

Endocrine Relevance: The narrative in *1 Samuel 16:14–23*[37] suggests potential thyroid-related alterations manifesting as mood disturbances and psychological distress, possibly indicative of hypothyroidism or thyroid hormone dysregulation. The described emotional volatility and agitation may reflect a hypothyroid state, where reduced T3 and T4 levels impair cerebral metabolism and neurotransmitter regulation, contributing to irritability, anxiety, or depressive symptoms.[38] Hypothyroidism is associated with altered serotonin and dopamine signaling, which can exacerbate affective instability and cognitive dysfunction.[39] Additionally, chronic thyroid hormone deficiency may disrupt HPT axis

homeostasis, amplifying stress responses and emotional lability.[40] The reported alleviation of distress through external soothing stimuli could imply a temporary enhancement of thyroid hormone-mediated neural plasticity, possibly via T3-driven upregulation of brain-derived neurotrophic factor (BDNF), fostering emotional stabilization.[41] This response may also suggest a partial restoration of thyroid hormone signaling, improving cerebral metabolic activity and neurotransmitter balance.

6. Nebuchadnezzar's "Madness": Daniel 4:28–33.[42]

Text: ***Daniel 4:28–33***[42]: *28 All this came upon King Nebuchadnezzar. 29 At the end of twelve months, as he was walking on the roof of the royal palace of Babylon, 30 the king declared, 'Is this not great Babylon, which I have built as a royal residence by my mighty power and for my glorious majesty? 31 While the words were still in the king's mouth, a voice came from heaven: 'To you it is declared, King Nebuchadnezzar, that the kingdom has departed from you. 32 You shall be driven away from human society, and your dwelling shall be with the beasts of the field. You shall be made to eat grass like oxen, and seven periods of time shall pass over you, until you acknowledge that the Most High rules over human kingdoms. 33 Immediately the word was fulfilled against Nebuchadnezzar. He was driven from human society and ate grass like oxen, and his body was wet with the dew of heaven until his hair grew as long as eagles' feathers and his nails became like birds' claws*.

In the context of *Daniel 4:28-33*[42], the narrative describes King Nebuchadnezzar's transformation into a state resembling severe psychological distress, which can be interpreted through the lens of thyroid dysfunction. The passage indicates that Nebuchadnezzar was driven from society and exhibited cognitive disarray, social disconnection, and altered mental state may reflect a thyroid disorder that can be associated with alterations in thyroid hormone levels, particularly in relation to the HPT axis.

Endocrine Relevance: The narrative in *Daniel 4:28–33*[42] suggests thyroid-related alterations manifesting as profound psychological and behavioral disturbances, potentially indicative of hypothyroidism or thyroid hormone dysregulation. The observed cognitive disarray, social disconnection, and altered mental state may reflect a hypothyroid condition, where diminished T3 and T4 levels impair cerebral metabolism, disrupt serotonin and dopamine signaling, and precipitate psychosis-like symptoms or severe affective instability.[43] Hypothyroidism is linked to cognitive impairment and psychiatric manifestations, driven by reduced T3-mediated neural activity and

compromised cerebral energy utilization.[44] Prolonged thyroid hormone deficiency may also disrupt HPT axis regulation, exacerbating stress responses and behavioral aberrations.[45] The eventual restoration of cognitive and emotional function could indicate a recovery of thyroid hormone signaling, possibly through T3-induced upregulation of brain-derived neurotrophic factor, which enhances neuroplasticity and mood stabilization.[46] This recovery may further suggest a normalization of cerebral T3 levels, restoring neurotransmitter equilibrium and cognitive clarity.

Although *Daniel 4:28–33*[42] does not directly reference thyroid dysfunction, the psychological and physiological manifestations displayed by Nebuchadnezzar suggest a potential disruption in thyroid hormone regulation. The interplay between psychological states and thyroid function highlights the importance of exploring endocrine dynamics in both ancient narratives and contemporary clinical practice.

7. Job's Lament and Physical Affliction: Job 3:1–26; 7:1–21; 30:16–31.[47]

Text: ***Job 3:1–26***[47]*: 1 After this Job opened his mouth and cursed the day of his birth. 2 And Job said: 3 "Let the day perish on which I was born, and the night that said, 'A man is conceived.' 4 Let that day be darkness! May God above not seek it, nor light shine upon it. 5 Let gloom and deep darkness claim it. Let a cloud settle upon it; let the blackness of the day terrify it. 6 That night—let thick darkness seize it; let it not rejoice among the days of the year; let it not come into the number of the months. 7 Behold, let that night be barren; let no joyful cry enter it. 8 Let those who curse days curse it, those who are ready to rouse Leviathan. 9 Let the stars of its twilight be dark; let it hope for light, but have none, nor see the eyelids of the dawn, 10 because it did not shut the doors of my mother's womb, nor hide trouble from my eyes. 11 Why did I not perish at birth, come forth from the womb and expire? 12 Why were there knees to receive me, or breasts, that I might be nursed? 13 For now I would be lying down in peace; I would be asleep and at rest, 14 with kings and counselors of the earth, who rebuilt ruins for themselves, 15 or with princes who had gold, who filled their houses with silver. 16 Or why was I not hidden like a stillborn, like infants who never saw light? 17 There the wicked cease from troubling, and there the weary are at rest. 18 Prisoners are at ease together; they do not hear the voice of the taskmaster. 19 The small and the great are there, and the slave is free from his master. 20 Why is life given to a man whose way is hidden, whom God has hedged in? 21 For sighing comes to me, and my groanings are poured out like water. 22 For the thing I fear comes upon me, and what I dread befalls me. 23 I am not at ease, nor am I quiet; I have no rest, but trouble comes." 24 "Did I not weep for the one in trouble? Was*

not my soul grieved for the poor? 25 But when I hoped for good, evil came; when I waited for light, darkness came. 26 My inward parts churn; days of affliction confront me." ***Job 7:1–24***[47]*: 1 "Does not man have hard service on earth? Are not his days like the days of a hired man? 2 Like a servant longing for the shade, and like a hired man waiting for his wages, 3 so I have been allotted months of futility, and nights of misery have been assigned to me. 4 When I lie down I say, 'When shall I arise?' But the night is long, and I am full of tossing until dawn. 5 My flesh is clothed with worms and clods of dust; my skin hardens and breaks out afresh. 6 My days are swifter than a weaver's shuttle, and come to an end without hope. 7 Remember that my life is a breath; my eye will never again see good. 8 The eye of him who sees me will see me no longer; you will look for me, but I shall be no more. 9 As the cloud fades and vanishes, so he who goes down to Sheol does not come up; 10 he will return no more to his house, nor will his place know him anymore. 11 "I will not keep silent; I will speak out in the anguish of my spirit; I will complain in the bitterness of my soul. 12 Am I a sea, or a sea monster, that you set a guard over me? 13 When I say, 'My bed will comfort me, my couch will ease my complaint,' 14 then you scare me with dreams and terrify me with visions, 15 so that I would choose strangling and death rather than my bones. 16 I loathe my life; I would not live forever. Let me alone, for my days are a breath. 17 What is man that you make so much of him, and that you set your heart on him, 18 visit him every morning and test him every moment? 19 Will you not look away from me, nor let me alone till I swallow my spittle? 20 Have I sinned? What have I done to you, O you who see everything we do? 21 Why have you made me your target? Why have I become a burden to you?".* ***Job 30:16–31***[47]*: 16 "And now my soul is poured out within me; days of affliction have taken hold of me. 17 The night racks my bones, and the pain that gnaws me takes no rest. 18 With great force my garment is disfigured; it binds me about like the collar of my tunic. 19 God has cast me into the mire, and I have become like dust and ashes. 20 I cry to you for help and you do not answer me; I stand, and you only look at me. 21 You have turned cruel to me; with the might of your hand you persecute me. 22 You lift me up on the wind; you make me ride on it, and you toss me about in the roar of the storm. 23 For I know that you will bring me to death and to the house appointed for all living. 24 Yet does not one in a heap of ruins stretch out his hand, and in his disaster cry for help? 25 Did not I weep for him whose day was hard? Was not my soul grieved for the needy? 26 But when I hoped for good, evil came; when I waited for light, darkness came. 27 My inward parts churn; days of affliction confront me. 28 I am the song of the drunkards, a byword of those overcome*

with wine. 29 They abhor me and keep their distance; they do not hesitate to spit in my face. 30 Because God has made me a byword of the people, and I am one before whom men spit. 31 My eyes have grown dim from misery, and all my members are like a shadow."

Job, afflicted with profound loss and physical suffering, expresses despair, cursing his birth (Job 3:1–26)[47]. He describes his skin as "clothed with worms and dust" (7:5)[47], his body as "poured out" with wasting (30:16)[47], and his bones as "burning" (30:30)[47]. His emotional state includes severe depression and existential anguish.

Endocrine Relevance: The biblical narrative in Job 3:1–26, 7:1–21, and 30:16–31[47] presents a constellation of symptoms that, when interpreted through a modern endocrinological vision, may suggest thyroid dysfunction, particularly hypothyroidism and potentially Hashimoto's thyroiditis (HT). The text describes profound fatigue, dermatological abnormalities characterized by dry, scaly skin, and severe depressive symptoms, which align closely with the clinical manifestations of hypothyroidism. The reported skin changes, potentially indicative of myxedema, reflect the cutaneous sequelae of prolonged thyroid hormone deficiency, where reduced metabolic activity leads to mucopolysaccharide accumulation in the dermis. Additionally, the emotional de pair and existential anguish described could be linked to diminished BDNF expression, a consequence of low T3 levels that compromises neuroplasticity and mood stabilization.[48] The chronicity and systemic nature of the symptoms further raise the possibility of an autoimmune etiology, such as HT, which is characterized by progressive thyroid destruction and fluctuating hormone levels. This condition often presents with fatigue, dermatological changes, and neuropsychiatric symptoms due to neuroinflammatory processes and HPT axis dysregulation.[49] The narrative's depiction of physical wasting and emotional collapse may also suggest a stress-induced exacerbation of thyroid dysfunction, as chronic stress can disrupt HPT axis homeostasis, amplifying behavioral and metabolic aberrations.[50] While speculative, the eventual restoration of health implied in the broader narrative could reflect normalization of cerebral T3 levels, restoring neurotransmitter equilibrium and cognitive clarity through enhanced BDNF signaling.

From a historical and clinical perspective, ancient texts and iconography frequently depicted goiter and its systemic effects, highlighting the prevalence and impact of thyroid disease in antiquity. The biblical narrative, though not explicitly naming the thyroid, provides a clinical vignette that aligns with the constellation of symptoms now

attributed to thyroid dysfunction, underscoring the enduring relevance of thyroid pathology in human suffering and its recognition over time.

8. David's Lament of Physical and Emotional Distress: Psalms 38:1–22.[51]

Text: ***Psalms 38:1–22***[51]: *1 O YHWH, rebuke me not in thy wrath: neither chasten me in thy hot displeasure. 2 For thine arrows stick fast in me, and thy hand presseth me sore. 3 There is no soundness in my flesh because of thine anger; neither is there any rest in my bones because of my sin. 4 For mine iniquities are gone over mine head: as an heavy burden they are too heavy for me. 5 My wounds are loathsome and corrupt because of my foolishness. 6 I am troubled; I am bowed down greatly; I go mourning all the day long. 7 For my loins are filled with a loathsome disease: and there is no soundness in my flesh. 8 I am feeble and sore broken: I have roared by reason of the disquietness of my heart. 9 YHWH, all my desire is before thee; and my groaning is not hid from thee. 10 My heart panteth, my strength faileth me: as for the light of mine eyes, it also is gone from me. 11 My lovers and my friends stand aloof from my sore; and my kinsmen stand afar off. 12 They also that seek after my life lay snares for me: and they that seek my hurt speak mischievous things, and imagine deceits all the day long. 13 But I, as a deaf man, heard not; and I was as a dumb man that openeth not his mouth. 14 Thus I was as a man that heareth not, and in whose mouth are no reproofs. 15 For in thee, O YHWH, do I hope: thou wilt hear, O YHWH my God. 16 For I said, Hear me, lest otherwise they should rejoice over me: when my foot slippeth, they magnify themselves against me. 17 For I am ready to halt, and my sorrow is continually before me. 18 For I will declare mine iniquity; I will be sorry for my sin. 19 But mine enemies are lively, and they are strong: and they that hate me wrongfully are multiplied. 20 They also that render evil for good are mine adversaries; because I follow the thing that good is. 21 Forsake me not, O YHWH: O my God, be not far from me. 22 Make haste to help me, O YHWH my salvation.*

Endocrine Relevance: The references in the Psalm to bodily weakness and cognitive decline parallel the lethargy, myopathy, and impaired wound healing observed in patients with hypothyroidism, attributable to decreased circulating levels of T3 and T4, which disrupt metabolic homeostasis.[52] Furthermore, the emotional lability described reflects the neuropsychiatric sequelae of thyroid hormone deficiency, including depression and anxiety, linked to altered serotonergic and noradrenergic neurotransmission within the central nervous system.[53] Additionally, the Psalm's allusion to systemic inflammation may correspond to the autoimmune pathogenesis of thyroiditis, wherein cytotoxic T lymphocyte infiltration and elevated anti-thyroid peroxidase antibodies mediate glandular

destruction.[54] This inflammatory cascade exacerbates cardiovascular burden through endothelial dysfunction and increased systemic vascular resistance, thereby contributing to cardiovascular morbidity.[55] Concurrently, the reference to a "panting heart" suggests palpitations potentially indicative of a transient hyperthyroid phase, during which excessive thyroid hormone production perturbs cardiovascular and neuropsychiatric homeostasis.[56] These integrated endocrine alterations underscore the multifaceted systemic impact of thyroid dysfunction as reflected in the Psalm's phenomenological narrative.

The biblical passage *Psalms 38:1–22*[51] metaphorically describes physiological and psychological states that may correlate with thyroid dysfunction, as evidenced by contemporary endocrinological research. While the text does not explicitly mention the thyroid gland, the described symptomatology—including fatigue, emotional distress, and systemic inflammation—aligns with clinical manifestations of thyroid disorders, particularly hypothyroidism and autoimmune thyroiditis. Thus, retrospective medical interpretation of biblical texts is inherently speculative, the thyroid findings in this narrative underscore the profound impact of thyroid hormone imbalances on physical and psychological well-being, offering a compassionate vision through which to understand human suffering in the context of thyroid dysfunction.

9. The Preacher's Description of Aging: Ecclesiastes 12:1–8.[57]

Text: ***Ecclesiastes 12:1–8***[57]: *1 Remember also your Creator in the days of your youth, before the evil days come and the years draw near of which you will say, "I have no pleasure in them"; 2 before the sun and the light and the moon and the stars are darkened and the clouds return after the rain, 3 in the day when the keepers of the house tremble, and the strong men are bent, and the grinders cease because they are few, and those who look through the windows are darkened; 4 and the doors on the street are shut—when the sound of the grinding is low, and one rises up at the sound of a bird, and all the daughters of song are brought low—5 they are also afraid of what is high, and terrors are in the way; the almond tree blossoms, the grasshopper drags itself along, and desire fails, because man is going to his eternal home, and the mourners go about the streets—6 before the silver cord is snapped, or the golden bowl is broken, or the pitcher is shattered at the fountain, or the wheel broken at the cistern, 7 and the dust returns to the earth as it was, and the spirit returns to God who gave it. 8 "Vanity of vanities," says the Preacher; "all is vanity.*

Endocrine Relevance: The narrative in *Ecclesiastes 12:1–8*[57] portrays a spectrum of age-related physical and psychological deteriorations that, when interpreted through a current endocrinological vision, suggest thyroid gland dysfunction, particularly overt hypothyroidism and possible autoimmune thyroiditis, contributing to systemic frailty and neurocognitive decline. The depiction of progressive physical weakness and motor instability aligns with the musculoskeletal consequences of hypothyroidism, where deficient thyroid hormone production impairs sarcolemmal calcium handling and mitochondrial ATP synthesis, leading to muscle fatigue and reduced motor coordination.[58] These physical impairments are accompanied by a melancholic disposition, indicative of hypothyroidism's neuropsychiatric effects, where diminished T3 signaling disrupts prefrontal cortex and amygdala connectivity, precipitating depressive symptoms and emotional withdrawal.[59] The chronic and insidious onset of these symptoms may reflect overt hypothyroidism, characterized by elevated TSH and low T3/T4 levels, which is prevalent in aging populations and associated with multisystemic decline.[60] This condition is frequently driven by HT, where thyroid peroxidase antibody-mediated inflammation leads to glandular atrophy, impairing hormone synthesis and exacerbating metabolic and neuroinflammatory deficits.[61] The narrative's allusion to sensory attenuation, potentially encompassing visual or auditory decline, further corroborates a thyroid-related etiology, as hypothyroidism can compromise retinal ganglion cell function and cochlear hair cell integrity through oxidative stress and reduced cerebral perfusion.[62] Age-related immunosenescence or chronic stressors may aggravate these thyroid alterations, destabilizing HPT axis regulation and amplifying systemic vulnerability.

This hermeneutic-endocrinological synthesis underscores that *Ecclesiastes 12:1–8*,[57] while ancient in origin, encapsulates a remarkably nuanced understanding of the systemic consequences of thyroid dysfunction, presaging modern clinical insights into thyroid aging and multisystem decline.

10. Hagar's Exile and Despair: Genesis 16:1–6; 21:9–21.[63]

Text: ***Genesis 16:1–6***[63]***:*** *1 Now Sarai, Abram's wife, had borne him no offspring; and she had an Egyptian maidservant whose name was Hagar. 2 And Sarai said to Abram, "Behold now, the YHWH has restrained me from bearing children. Go in, I pray you, to my maidservant; it may be that I shall obtain children by her." And Abram hearkened to the voice of Sarai. 3 So Sarai, Abram's wife, took Hagar the Egyptian, her maidservant, after Abram had dwelt ten years in the land of Canaan, and gave her to her husband*

Abram as a wife. 4 And he went in to Hagar, and she conceived. And when she saw that she had conceived, her mistress was despised in her eyes. 5 And Sarai said to Abram, "My wrong be upon you: I gave my maidservant into your bosom; and when she saw that she had conceived, I was despised in her eyes. The YHWH judge between me and you." 6 But Abram said to Sarai, "Behold, your maidservant is in your hand; do to her as it pleases you." And Sarai dealt harshly with her, and she fled from her presence. ***Genesis 21:9–21***[63]*: 9 And Sarah saw the son of Hagar the Egyptian, whom she had borne to Abraham, mocking. 10 Therefore she said to Abraham, "Cast out this bondwoman and her son; for the son of this bondwoman shall not be heir with my son, even with Isaac." 11 And the matter was very grievous in Abraham's sight because of his son. 12 But God said to Abraham, "Let it not be grievous in your sight because of the lad and because of your bondwoman. In all that Sarah has said to you, hearken to her voice; for in Isaac shall your seed be called. 13 And also of the son of the bondwoman will I make a nation, because he is your seed." 14 And Abraham rose up early in the morning, and took bread and a skin of water, and gave it to Hagar, putting it on her shoulder, and the child, and sent her away. And she departed, and wandered in the wilderness of Beersheba. 15 And the water in the skin was spent, and she cast the child under one of the shrubs. 16 And she went, and sat down opposite him a good way off, about a bowshot away; for she said, "Let me not see the death of the child." And she sat opposite him, and lifted up her voice, and wept. 17 And God heard the voice of the lad; and the angel of God called to Hagar out of heaven, and said to her, "What ails you, Hagar? Fear not; for God has heard the voice of the lad where he is. 18 Arise, lift up the lad, and hold him with your hand; for I will make him a great nation." 19 And God opened her eyes, and she saw a well of water; and she went, and filled the skin with water, and gave the lad drink. 20 And God was with the lad; and he grew, and dwelt in the wilderness, and became an archer. 21 He dwelt in the wilderness of Paran; and his mother took a wife for him out of the land of Egypt.*

Endocrine Relevance: The narrative in *Genesis 16:1–6*[63] situates Hagar within a context of social tension, while *Genesis 21:9–21*[63] depicts her confronting extreme adversity in the wilderness, where resource scarcity and the imminent threat of death precipitate physical and emotional collapse. The implied exhaustion, manifested as an inability to sustain prolonged wandering, coupled with the despair expressed through weeping and resignation to death, suggests a compromised physiological state. From an endocrinological perspective, these symptoms are consistent with stress-induced hypothyroidism. The extreme stress experienced by Hagar—encompassing isolation,

dehydration, and existential insecurity—may have suppressed the HPT axis, resulting in reduced levels of T3 and T4. This hormonal suppression diminishes metabolic capacity, leading to severe fatigue and muscular weakness, which could account for her inability to endure sustained physical exertion.[64] Malnutrition and dehydration, likely prevalent in the desert environment, further exacerbate this dysfunction, as caloric deprivation inhibits the peripheral conversion of T4 to T3, intensifying symptoms of low energy.[65] Hagar's emotional state, characterized by despair and resignation, may also be interpreted as a neuropsychiatric manifestation of hypothyroidism. Reduced T3 signaling in the brain impairs the function of neurotransmitters such as serotonin and dopamine, precipitating depressive symptoms and apathy, which resonate with the described anguish.[66] Furthermore, the chronic stress stemming from her marginalized social condition may have predisposed Hagar to an autoimmune response, such as HT, which commonly presents with fatigue and mood alterations in its early stages.

CONCLUSION

The integration of endocrine concepts into biblical textual analysis provides a novel framework for interpreting ancient descriptions of physical and emotional suffering through an actual physiological vision. Biblical texts primarily emphasize theological themes—faith, providence, and redemption—rather than clinical descriptions, rendering any retrospective diagnosis inherently speculative. Interdisciplinary exploration not only enriches historical and theological studies but also underscores the timeless relevance of endocrine physiology in understanding human suffering. By contextualizing these accounts within coherence-based medicine, we bridge hermeneutic and clinical perspectives, fostering a deeper appreciation for the biopsychosocial dimensions embedded in sacred texts and enhancing both scientific inquiry and interpretive scholarship, while respecting their intrinsic cultural and spiritual significance

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