

**Value Of Universal Versus Targeted  
Screening For Hypothyroidism Among  
Egyptian Pregnant Ladies**

Thesis  
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**قيمة البحث العام أو الكشف المستهدف لمرض  
قصور الغدة الدرقية بين السيدات المصريات  
الحوامل**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا

عِلْمَ لَنَا إِلَّا مَا

عَلَّمْتَنَا إِنَّكَ أَنْتَ

الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم  
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## List of Abbreviations

<b>AITD</b>	Autoimmune thyroid disease
<b>ATA</b>	American Thyroid Association
<b>BMI</b>	Body mass index
<b>BMR</b>	Basic metabolic rate
<b>D1</b>	Type I deiodinase
<b>D2</b>	Type II deiodinase
<b>D3</b>	Type III deiodinase
<b>DIT</b>	Diiodotyrosine
<b>FaSTER</b>	First and Second Trimester Evaluation of Risk
<b>FT3</b>	Free triiodothyronine (Free T3)
<b>FT4</b>	Free thyroxine (Free T4)
<b>FT4I</b>	Free thyroxine index
<b>HCG</b>	Human chorionic gonadotropin
<b>HIPH</b>	High Institute of Public Health
<b>HPT axis</b>	Hypothalamo-Pituitary-Thyroid Axis
<b>I</b>	Iodine
<b>ICCIDD</b>	International Council for the Control of Iodine Deficiency Disorders
<b>IDD</b>	Iodine deficiency disorders
<b>IOM</b>	Institute of Medicine
<b>IQ</b>	Intelligence quotient
<b>IVF</b>	In vitro fertilization
<b>LGA</b>	Large for gestational age
<b>LT4</b>	Levothyroxine
<b>ME &amp;EMR</b>	Middle East and Eastern Mediterranean Region
<b>MIT</b>	Monoiodotyrosine
<b>NHANES</b>	National Health and Nutrition Examination Survey
<b>NIS</b>	Sodium-iodide symporter
<b>PII</b>	Plasma inorganic iodide

*List of Abbreviations*

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<b>PPT</b>	Postpartum thyroiditis
<b>RAIU</b>	Radioactive iodine uptake
<b>T3</b>	Triiodothyronine
<b>T4</b>	Thyroxine
<b>TBG</b>	Thyroxine binding globulin
<b>TG</b>	Thyroglobulin
<b>TG-Ab</b>	Thyroglobulin antibody
<b>Th1</b>	T-helper type1
<b>Th2</b>	T-helper type2
<b>TPO</b>	Thyroid peroxidase
<b>TPO-Ab</b>	Thyroid peroxidase-antibody
<b>Treg</b>	Regulatory T cells
<b>TREs</b>	Thyroid hormone- responsive elements
<b>TRH</b>	Thyrotropin-releasing hormone
<b>TRs</b>	Thyroid hormone receptors
<b>TSH</b>	Thyroid-stimulating hormone, Thyrotropin
<b>UIC</b>	Urinary iodine concentration
<b>UNICEF</b>	United Nations International Children's Emergency Fund
<b>WHO</b>	World Health Organization

## **Introduction**

During pregnancy, proper maternal thyroid function is important for both the mother and child (*LaFranchi et al., 2005*). This is especially true during the first trimester, when the developing fetus is completely dependent on the mother for thyroid hormones that are critical for optimal development (*De Escobar et al., 2004*).

Developments in the understanding of thyroid physiology and immunology in pregnancy as well as improvements in thyroid function testing have highlighted the importance of recognizing and providing appropriate therapy to women with gestational thyroid disorders (*Lazarus et al., 2012*).

Maternal thyroid dysfunction during pregnancy has been shown to be associated with a number of adverse outcomes. For example, elevated maternal thyroid-stimulating hormone (TSH) has been associated with an increased risk of pre-term birth, placental abruption, fetal death and impaired neurological development in the child (*Casey et al., 2006*). Similarly, the presence of antibodies to thyroid peroxidase (TPO-Ab) has been associated with increased risk of

miscarriage, pre-term birth, and maternal post partum thyroid disease (*Stagnaro-Green and Glinioer, 2004*).

These findings have triggered a debate whether all pregnant women should be screened for hypothyroidism. The recent consensus guidelines from an expert panel sponsored by the American Thyroid Association, the American Association of clinical Endocrinologists and the Endocrine society did not advocate universal screening of thyroid function during pregnancy, but recommend “aggressive case finding” in high-risk pregnant women, who have a family or personal history of thyroid disorders, a personal history of type 1 diabetes or other autoimmune disorders, or clinical features suggestive of a thyroid disorder(*Brent, 2007*).

However, testing only the high-risk pregnant women, as the consensus guidelines recommend, would miss about one-third of women with hypothyroidism and subclinical hypothyroidism .Therefore, with the growing evidence for an association between maternal subclinical hypothyroidism and adverse pregnancy outcomes but lack of intervention trials showing beneficial effect of thyroxin in preventing these adverse outcomes, the

## *Introduction*

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controversy between “targeted high-risk case” findings and universal screening continues (*Vaidya et al, 2007*).

When the potential adverse outcomes are so significant and the tools to diagnose and intervene are easily accessible, however leaving maternal thyroid disease undiagnosed, even in one third of pregnant women, is no longer acceptable (*Brent, 2007*).

## **Aim Of The Work**

Is to determine:

- The prevalence of thyroid dysfunction among pregnant Egyptian ladies.
- The efficacy of universal screening versus targeted high-risk screening among pregnant Egyptian ladies.