



شبكة المعلومات الجامعية  
التوثيق الإلكتروني والميكرو فيلم

# بسم الله الرحمن الرحيم



**MONA MAGHRABY**



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# شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

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### يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



**MONA MAGHRABY**



# **Nutritional Assessment in Patients with Inflammatory Bowel Disease**

Thesis

Submitted for Partial Fulfillment of Master  
Degree in **Internal Medicine**

By

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سببنا انك لا تعلم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

صدق الله العظيم

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# List of Contents

Title	Page No.
List of Tables .....	i
List of Figures .....	iii
List of Abbreviations .....	iv
Introduction.....	1
Aim of the Work.....	3
Review of Literature	
Inflammatory Bowel Disease .....	4
Nutrition and Risk of IBD .....	70
Materials and Methods .....	82
Results.....	85
Discussion.....	113
Summary.....	122
Conclusion .....	126
Recommendations.....	127
References.....	128
Arabic Summary.....	---

# List of Tables

Table No.	Title	Page No.
<b>Table (1):</b>	World Health Organization diagnostic criteria for Crohn's disease.....	42
<b>Table (2):</b>	Features for differentiating between UC and CD.....	43
<b>Table (3):</b>	Two common scoring indices for the severity of Crohn's disease (CD) and ulcerative colitis (UC).....	44
<b>Table (4):</b>	Two common scoring indices for the severity of Crohn's disease (CD) and ulcerative colitis (UC).....	45
<b>Table (5):</b>	Two common scoring indices for the severity of Crohn's disease (CD) and ulcerative colitis (UC).....	46
<b>Table (6):</b>	Main differential diagnoses for ulcerative colitis and Crohn's disease.....	46
<b>Table (7):</b>	Distinguishing between tuberculosis and Crohn's disease.....	47
<b>Table (8):</b>	Potential future agents for the treatment of IBD .....	60
<b>Table (9):</b>	Demographic data and characteristics of the studied patients .....	85
<b>Table (10):</b>	Characteristics of the disease among the studied patients.....	88
<b>Table (11):</b>	Treatment used by the studied patient .....	91
<b>Table (12):</b>	Shows digestive symptoms among the studied patients.....	94
<b>Table (13):</b>	Nutritional program followed by the patients .....	96
<b>Table (14):</b>	Regular meals among studied patients .....	96
<b>Table (15):</b>	Beverage intake among studied patients .....	98
<b>Table (16):</b>	Food intake among studied patients .....	100
<b>Table (17):</b>	Anthropometric measures among the studied patients.....	106
<b>Table (18):</b>	Laboratory results among the studied patient.....	107



## List of Tables (cont...)

Table No.	Title	Page No.
<b>Table (19):</b>	Clinical and endoscopic assesement of severity of IBD among UC and UDcolitis studied patients.....	109
<b>Table (20):</b>	Assesement of severity Of crohns disease among the studied patient.....	111

# List of Figures

Fig. No.	Title	Page No.
<b>Figure (1):</b>	Immunopathogenesis of IBD.....	13
<b>Figure (2):</b>	Sex distribution among the studied cases .....	86
<b>Figure (3):</b>	Smoking among the studied cases .....	86
<b>Figure (4):</b>	Occupation among the studied cases .....	87
<b>Figure (5):</b>	Marital status of the studied cases .....	87
<b>Figure (6):</b>	Shows percentage of types of IBD among the studied patients .....	89
<b>Figure (7):</b>	Shows percentages of the site of disease affliction.....	89
<b>Figure (8):</b>	Shows complication of IBD among studied patients.....	90
<b>Figure (9):</b>	Treatment of the studied patient .....	92
<b>Figure (10):</b>	Nutritional program among studied patients .....	93
<b>Figure (11):</b>	Shows regular meals eaten by the studied patients.....	93
<b>Figure (12):</b>	Regular meals eaten by the patients.....	97
<b>Figure (13):</b>	Mayo score assesement.....	110
<b>Figure (14):</b>	True Love ccc for clinical assesement.....	110
<b>Figure (15):</b>	Simple endoscopic score activity index among UC Patients .....	112
<b>Figure (16):</b>	Crohns disease index among the studied patients.....	112

# List of Abbreviations

Abb.	Full term
<i>5-ASA</i> .....	<i>5-aminosalicylic acid</i>
<i>AGA</i> .....	<i>American gastroenterological association</i>
<i>ALA</i> .....	<i>Alpha linoleic acid</i>
<i>ASCA</i> .....	<i>Anti Saccharomyces cerevisiae antibodies</i>
<i>ASGE</i> .....	<i>American Society for Gastrointestinal Endoscopy</i>
<i>ASOs</i> .....	<i>Antisense oligonucleotides</i>
<i>ATG16L1</i> .....	<i>Autophagy related 16 like 1</i>
<i>BMI</i> .....	<i>Body mass index</i>
<i>BW</i> .....	<i>Body weight</i>
<i>CCL20</i> .....	<i>Chemokine ligand 20</i>
<i>CD</i> .....	<i>Crohn's disease</i>
<i>CDAI</i> .....	<i>Crohn s disease activity index</i>
<i>CDED</i> .....	<i>Crohn's Disease Exclusion Diet</i>
<i>CRC</i> .....	<i>Colorectal cancer</i>
<i>CRP</i> .....	<i>C reactive protein</i>
<i>CXR</i> .....	<i>Chest radiography</i>
<i>DCs</i> .....	<i>Dendretic cells</i>
.....	<i>ECCO european crohns and colitisorganisation</i>
<i>EEN</i> .....	<i>Exclusive enteral nutrition</i>
<i>ELISA</i> .....	<i>Enzyme-linked immunosorbent assay</i>
<i>EPIC</i> .....	<i>European prospective investigation into cancer and nutrition</i>
<i>EUS</i> .....	<i>Endoscopic ultrasonography</i>
<i>FCS</i> .....	<i>Food consumption score</i>
<i>FFQ</i> .....	<i>Food frequency questionnaire</i>
<i>FMT</i> .....	<i>Faecal microbiota transplant</i>
<i>FODMAP</i> .....	<i>Fermentable oligosaccharides, disaccharides, and monosaccharides and polyols</i>

# List of Abbreviations (cont...)

Abb.	Full term
<i>GALT</i> .....	<i>Gut-associated lymphoid tissue</i>
<i>GITB</i> .....	<i>Gastrointestinal TB</i>
<i>GWAS</i> .....	<i>Genome-wide association studies</i>
<i>HBV</i> .....	<i>Hepatitis B virus</i>
<i>HCV</i> .....	<i>Hepatitis C virus</i>
<i>HIV</i> .....	<i>Human immunodeficiency virus</i>
<i>IBD</i> .....	<i>Inflammatory bowele disease</i>
<i>ICAM-1</i> .....	<i>Intercellular adhesion molecule-1</i>
<i>ICV</i> .....	<i>Ileocecal valve</i>
<i>IDA</i> .....	<i>Iron deficiency anemia</i>
<i>IEC</i> .....	<i>Intestinal epithelial cells</i>
<i>IFN <math>\gamma</math></i> .....	<i>Interferon gamma</i>
<i>IgG</i> .....	<i>Immunoglobulin G</i>
<i>IGRA</i> .....	<i>Interferon gamma release assay</i>
<i>IL23</i> .....	<i>Interleuken23</i>
<i>INR</i> .....	<i>International normalized ratio</i>
<i>IPAA</i> .....	<i>Ileal pouch–anal anastomosis</i>
<i>IQR</i> .....	<i>Iterquartile range</i>
<i>JNK</i> .....	<i>c-jun N-terminal kinases</i>
<i>MAPK</i> .....	<i>Mitogen activated protein kinase</i>
<i>MDP</i> .....	<i>Muramyl dipeptide</i>
<i>MDSC</i> .....	<i>Myeloid-Derived Suppressor Cells</i>
<i>MLNs</i> .....	<i>Mesenteric lymph nodes</i>
<i>NF<math>\kappa</math>B</i> .....	<i>Nuclear factor kappa B</i>
<i>NLR</i> .....	<i>Nod-like receptor</i>
<i>NOD2</i> .....	<i>Nucleotide-binding oligomerization domain 2</i>
<i>NSAIDs</i> .....	<i>Nonsteroidal anti-inflammatory drugs</i>
<i>PAMPs</i> .....	<i>pathogen associated molecular pattern</i>

# List of Abbreviations (cont...)

Abb.	Full term
<i>p</i> -ANCA .....	<i>Perinuclear antineutrophil cytoplasmic antibody</i>
<i>PML</i> .....	<i>Multifocal Leukoencephalopathy</i>
<i>PPD</i> .....	<i>Purified protein derivative</i>
<i>PRRs</i> .....	<i>Pattern recognition receptors</i>
<i>PSC</i> .....	<i>Primary sclerosis cholangitis</i>
<i>PUFAs</i> .....	<i>Polyunsaturated fatty acids</i>
<i>QoL</i> .....	<i>Quality of life</i>
<i>RIP 2</i> .....	<i>Receptor interacting protein</i>
<i>S1P</i> .....	<i>Sphingosine-1-phosphate</i>
<i>SCD</i> .....	<i>Specific carbohydrate diet</i>
<i>SD</i> .....	<i>Standard deviation</i>
<i>SNP</i> .....	<i>Single-nucleotide polymorphisms</i>
<i>STAT4</i> .....	<i>Signal transducer and activator of transcription 4</i>
<i>sTFR</i> .....	<i>The soluble transferrin receptor</i>
<i>TB</i> .....	<i>Tuberculosis</i>
<i>TGF</i> .....	<i>Transforming growth factor</i>
<i>TH1</i> .....	<i>T helper 1</i>
<i>Th17</i> .....	<i>T helper 17</i>
<i>TH2</i> .....	<i>T Helper 2</i>
<i>TLR</i> .....	<i>Toll like receptor</i>
<i>TNF</i> .....	<i>Tumor necrosis factor</i>
<i>TPMT</i> .....	<i>Thiopurine S-methyltransferase</i>
<i>TSLP</i> .....	<i>Thymic stromal lymphopoietin</i>
<i>UC</i> .....	<i>Ulcerative colitis</i>
<i>VZV</i> .....	<i>Varicella zoster virus</i>
<i>WHO</i> .....	<i>World Health Organization</i>

## ABSTRACT

**Background:** Inflammatory bowel disease (IBD) is a chronic inflammatory disease of the gastrointestinal tract, which clinically contains Crohn's disease, ulcerative colitis, and other conditions. The inflammation of the intestinal mucosa in IBD is characterized by episodes of abdominal pain, diarrhea, bloody stools, weight loss, and the influx of neutrophils and macrophages that produce cytokines, proteolytic enzymes, and free radicals that result in inflammation and ulceration.

**Aim of the Work:** The aims of our study is to assess the nutrient status of individuals with CD and UC in relation to the recommended nutrient intake values, anthropometric measures, and biochemical indices of nutrition, and to determine the extent to which reduced food and nutrient intake contributes to the nutrition deficiencies in this population.

**Materials and Methods:** This was across-sectional study was conducted on patients with IBD, including Crohn's disease (CD), ulcerative colitis (UC) and undetermined colitis, who attended to the outpatient clinic for IBD of the Department of Internal Medicine, University Hospital of Ain Shams University, between January 2020 to July 2020. 90 patients with IBD (65 UC patients, 22 CD patients and 3 UD colitis) were included in the study.

**Results:** Our study show that The majority of our IBD patients showed a normal BMI indicating that malnutrition, especially underweight, is not as common as described in former studies with up to 85% in IBD patients. Our study show that majority of patients are suffering from GI upset following certain meals, all of them are suffering from flatulence, some of them suffering from nausea, vomiting, heart burn and 79(87.7%) patients are suffering from diarrhea, most of patients with Crohn's disease are suffering from constipation, and some of them are suffering from intestinal colic.

**Conclusion:** The worldwide rising incidence of IBD is paralleled by a "Westernization" of dietary habits in developing countries. It is therefore obvious that, in addition to a genetic influence, environmental factors, especially diet, undoubtedly play a major role in the development of IBD. Impairment of nutritional status in IBD patients has a multifactorial etiology. Main reasons include suboptimal energy intake, malabsorption, enteric nutrient loss, increased basal energy expenditure, and medications.

**Keywords:** Nutritional assessment - inflammatory bowel disease

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## INTRODUCTION

Inflammatory bowel disease (IBD) is a chronic inflammatory disease of the gastrointestinal tract, which clinically contains Crohn's disease, ulcerative colitis, and other conditions (*Szigethy et al., 2010*).

The inflammation of the intestinal mucosa in IBD is characterized by episodes of abdominal pain, diarrhea, bloody stools, weight loss, and the influx of neutrophils and macrophages that produce cytokines, proteolytic enzymes, and free radicals that result in inflammation and ulceration (*Szigethy et al., 2010*).

IBD is a lifelong disease occurring early in life in both males and females. The incidence and prevalence of IBD markedly increased over the second half of the 20th century, and since the beginning of the 21st century, IBD has been considered one of the most prevalent gastrointestinal diseases with accelerating incidence in newly industrialize countries (*Shi et al., 2018*).

The highest prevalence of IBD was reported in Europe (ulcerative colitis 505 per 100, 000 persons in the southeast of Norway; Crohn's disease 322 per 100, 000 persons in Hesse, Germany) and North America (ulcerative colitis 286.3 per 100, 000 persons in Olmsted County, USA; Crohn's disease 318.5 per 100, 000 persons in Nova Scotia, Canada) (*Shi et al., 2018*).