

"The Power of Nutrition During Menopause: Unlock Your Radiance" is an empowering guide designed to help women navigate menopause with confidence through smart dietary choices. As the body undergoes hormonal shifts, this book provides a science-backed roadmap to managing symptoms like hot flashes, fatigue, and weight gain. Discover the essential role of vitamins, minerals, fiber, and healthy fats in balancing hormones, supporting bone and heart health, and enhancing overall well-being. With tailored meal plans, easy recipes, and natural therapies, this holistic approach empowers women to embrace menopause proactively transforming it into a period of strength, balance, and vitality.



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The Power of Nutrition During Menopause: Unlock Your Radiance

A Holistic Nutritional Guide for Symptoms Relief,
Long Term Health and Vibrant Well-being



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About the Book

The power of nutrition during menopause is an empowering and comprehensive book designed to help women manage the transformative potential of food and nutrition during one of the most important phases of their life. As women transform to menopause, their bodies experience a range of physical and hormonal changes that can impact everything from mood and energy levels to bone health and metabolism. This book provides a detailed roadmap for managing hormonal changes through smart dietary choices, highlighting the role of specific nutrients, in alleviating common menopausal symptoms like hot flashes, night sweats, weight gain, and fatigue.

Written with practical advice and scientific nutrition insight, the power of nutrition during menopause explains how the right choice of foods can balance hormones, support heart and bone health, and boost the overall well-being of women during this phase. The book explores the crucial role of vitamins, minerals, fiber and healthy fats as well as offering tailored meal plans, easy-to-follow recipes, and simple strategies to incorporate nutrient-dense foods into daily meals. In addition to nutrition, the book delves into the benefits of hydration and natural therapies, showing how natural ingredients can complement a healthy diet to enhance menopause symptom relief.

Whether one is seeking relief from specific symptoms or aiming to optimize health during menopause, this book serves as a valuable resource for women who want to take control of their health with confidence. With a holistic approach that blends nutrition perspective, lifestyle adjustments, and natural therapies, the power of nutrition during menopause is a guide for navigating this transformative life stage with strength and simplicity. The book encourages women on a proactive and informed approach to menopause, helping not just to survive, but thrive during this important phase of life.

Foreword

For too long, the conversation surrounding menopause has often been dominated by the challenges that a woman faces including the hot flashes, the sleep disturbances, the emotional shifts. While acknowledging these experiences is crucial, this book offers a refreshing and empowering perspective on the profound and often underestimated power of nutrition in navigating this significant life transition.

The journey through menopause is a significant and often transformative phase in a woman's life. While discussions often center on the shifts and challenges that arise, this book offers an empowering and holistic perspective, firmly rooted in the profound impact of nutrition and lifestyle behavior.

Within these pages, we embark on a comprehensive exploration of menopause, moving from foundational background information and an understanding of its various phases to a deep dive into the power of nutrition. You will discover how essential nutrients like calcium, vitamin D, magnesium, and omega-3 fatty acids play a vital role in supporting your health during this time. We unravel the intricate relationship between diet and hormones, guiding you in creating personalized meal plans and highlighting the remarkable benefits of incorporating nutrient-rich superfoods.

But this book extends beyond just food. Recognizing that well-being during menopause is multifaceted, we delve into the crucial roles of hydration, herbal remedies, sleep, stress management and the importance of regular physical activity. You'll find practical strategies and techniques to integrate these elements into your daily life.

To further empower you on this journey, we offer a collection of delicious and nourishing recipes designed to support radiant health during menopause, with a focus on accessible and wholesome ingredients.

Finally, this book emphasizes the importance of embracing self-care, building supportive communities, and proactively managing your health in the post-menopausal years through continued healthy habits and regular medical consultations.

Whether you are just beginning to navigate perimenopause or are embracing life beyond menopause, this book provides an inclusive and practical roadmap to harnessing the power of nutrition and lifestyle to thrive during this remarkable chapter.

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List of Abbreviations

| | |
|------|--|
| BMI | Body Mass Index |
| CVD | Cardiovascular Disease |
| CBT | Cognitive Behavioral Therapy |
| FSH | Follicle Stimulating Hormone |
| HRT | Hormone Replacement Therapy |
| NCD | Non Communicable Diseases |
| RDA | Recommended Dietary Allowance |
| SSRI | Selective Serotonin Reuptake Inhibitors |
| SNRI | Serotonin-Norepinephrine Reuptake Inhibitors |

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Glossary

Insomnia: Common sleep disorder that can make it hard to fall asleep, stay asleep, or cause you to wake up too early. Even though you may feel tired, you might have trouble sleeping or feel like you're not getting enough rest.

Menstruation: is the process by which the female body sheds the lining of the uterus, typically occurring once a month as part of the menstrual cycle. It involves the discharge of blood and tissue from the uterus through the vagina and usually lasts between 3 to 7 days.

Hormone Replacement Therapy (HRT) is a medical treatment used to relieve symptoms associated with hormonal imbalances, particularly during menopause. It involves the use of medications that replace hormones (like estrogen and progesterone) that the body no longer produces in sufficient amounts after menopause or due to other conditions such as premature ovarian failure or surgical removal of ovaries.

Hydration refers to the process of supplying your body with the necessary amount of water to maintain proper bodily functions. It involves drinking fluids or consuming foods that contain water to prevent dehydration, which can occur when the body loses more fluids than it takes in.

Thermogenic properties refer to the ability of certain substances or processes to generate heat in the body. In a physiological context, thermogenesis is the process of heat production, which can be triggered by various factors such as physical activity, digestion, and metabolic processes.

Phytoestrogens are plant-derived compounds that have a similar structure to estrogen and can produce estrogen-like effects in the body. Phytoestrogen compounds can bind to estrogen receptors and exert mild estrogenic activity, which can be helpful during periods of hormonal changes, such as menopause, when natural estrogen levels decline.

Osteoporosis is a medical condition characterized by weakened bones that are more prone to fractures and breaks. It occurs when the body loses too much bone mass or doesn't produce enough bone tissue, leading to decreased bone density and strength. As a result, bones become brittle and fragile, increasing the risk of fractures, especially in areas such as the hips, spine, and wrists.

Superfoods are nutrient-rich foods considered to be particularly beneficial for health and well-being. They are typically high in vitamins, minerals, antioxidants, fiber, and other essential nutrients that promote good health and may help prevent chronic diseases.

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CHAPTER ONE

1.0 Background Information

1.1 Menopause

Menopause is a normal process of aging that happens 12 months after monthly menstruation ceases altogether. The permanent cessation of menstrual cycles is happening following the loss of ovarian follicular activity which is responsible for production of estrogen and progesterone hormones that regulate the menstrual cycle. Menopause is an important phase in a woman's life indicating the end of the reproductive life span with a major hormonal shift. A hormonal imbalance occurs due to a decrease in the production of estrogen and progesterone, leading to various physical and emotional changes, which can vary greatly between individuals. The loss of luteal phase progesterone due to missed ovulation may cause menstrual irregularity and heavy menstrual bleeding in the late premenopausal years. Women frequently suffer from perimenopause, a transition period preceding menopause in which there is a substantial reduction in estrogen and progesterone levels. Perimenopause can last between eight to ten years. Not all women are going through the unpleasant experience that are frequently reported from others. Luckily, many of the menopausal effects can be relieved with proper diet and lifestyle changes. Figure 1 below shows a female reproductive system including the ovaries.

Female Reproductive System

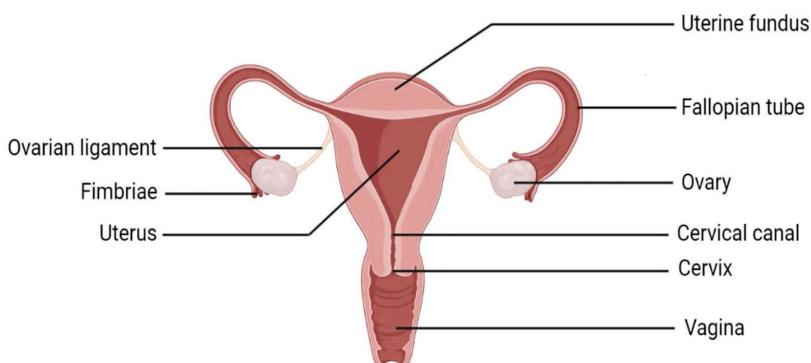


Figure 1: Female reproductive system a photo from public domain

Usually menopause begins between the ages of 45 and 55 years whereby evidence from other researchers' report that the average age is 51 years. However, a variety of factors can either accelerate or delay the onset including smoking, radiation exposure, chemotherapy, and removal of one or both ovaries which can trigger earlier menopause, whereas overweight individuals are likely to have menopause with adverse symptoms later in life. Although menopause is a conspicuous event, the menopausal transition may span several years and the health impact of postmenopausal hypoestrogenism can extend for decades, even when symptoms are no longer experienced.

The Menopause transition

Studies show that, as estrogen levels decline, the body undergoes multiple changes that affect both physical and emotional well-being. For some women, this can lead to symptoms like vaginal dryness, weight gain, and a decrease in libido. Others may experience more severe manifestations such as severe hot flashes, night sweats, and fatigue. Menopause is not just a physical event but also a psychological and social transition. While this transition is often viewed through the lens of aging, it is a natural phase of life that brings about a complex array of physical, emotional, and social changes. Understanding the menopause transition, from perimenopause to postmenopause, is essential for women to navigate this phase with greater knowledge and confidence.

1.2 Lifestyle factors for hormone health

Lifestyle factors, including regular physical activity, stress management and adequate sleep, play vital roles in promoting hormone health during menopause. Engaging in regular exercise helps maintain muscle mass and mood stability. Stress management techniques like meditation and deep breathing can help stabilize emotional fluctuations and promote overall well-being. Getting enough sleep is essential for overall well-being and menopausal symptoms management. Incorporating proper nutrition into the menopause journey can make a substantial difference in managing symptoms and promoting overall well-being. Making informed dietary choices, prioritizing nutrient-rich foods particularly vegetables and fruits and practicing healthy lifestyle, can support hormone health and help enjoy a smoother transition into this new phase of life. Further, medical advancements, including hormone replacement therapy (HRT), alternative treatments and lifestyle adjustments, have significantly altered the management of menopausal symptoms, providing women with options for improving

quality of life during this phase. However, there is still a need for education and support around menopause, as it is often a topic that is under-discussed or misunderstood in many societies.

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CHAPTER TWO

2.1 A Complete Understanding of Menopause Phases

Understanding the menopause transition, from perimenopause to post-menopause, is essential for women to navigate this phase with greater knowledge and confidence. The following are key menopause stages:

2.1.1 Perimenopause phase

Perimenopause is the transitional phase leading up to menopause, often beginning in a woman around the age of 40s, although it can start earlier. This stage typically lasts several years, averaging around 4 to 6 years, and marks the gradual decline in ovarian function and hormone production. Perimenopause is characterized by fluctuating levels of estrogen and progesterone, the two primary hormones involved in the menstrual cycle. As these hormone levels become irregular, they contribute to various physical and emotional changes that signal the body's transition toward menopause.

2.1.2 Menopause phase

Menopause is the phase in a woman's life that marks the official end of her menstrual cycles and reproductive years. It is diagnosed when a woman has not had a menstrual period for 12 consecutive months, typically occurring between the ages of 45 and 55. At this stage, the ovaries don't release eggs, and the body doesn't produce much estrogen, signaling the cessation of ovarian function and a decline in the production of key reproductive hormones. This stage follows perimenopause, the transitional phase characterized by fluctuating hormone levels.

2.1.3 Post-menopause phase

Post-menopause is the phase in a woman's life that begins after experiencing 12 consecutive months without a menstrual period, signaling the end of menopause. This stage marks the time when the body's hormonal environment has stabilized after the significant fluctuations of perimenopause and the cessation of menstruation. Post-menopause lasts for the rest of a woman's life and is characterized by lower levels of estrogen and progesterone, which influence both physical and emotional well-being. While the more intense symptoms of menopause, such as hot flashes, often decrease in severity or stop altogether, post-menopause brings with it new health concerns and challenges that require careful attention.

2.2 Hormonal changes and their impact on the body

During menopause transition, the body undergoes significant hormonal changes, particularly in the levels of estrogen, progesterone, and testosterone, which profoundly affect various physiological and emotional functions. The hormonal decline can lead to a range of symptoms, including hot flashes, mood swings, vaginal dryness, and changes in metabolism. Understanding of hormonal shifts and their impact on the body is crucial, as it helps women navigate the challenges of menopause and adopt strategies for managing their health during this transformative life stage. The hormonal changes associated with menopause not only influence immediate symptoms but can also have long-term effects on cardiovascular health, bone density, and overall well-being.

2.2.1 Hormonal changes during perimenopause to post-menopause

2.2.1.1 Declining estrogen levels

Estrogen, a key hormone responsible for regulating the menstrual cycle, begins to fluctuate during perimenopause. The fluctuations can cause irregular menstrual periods, with some cycles being shorter, longer, or skipped entirely. As the ovaries produce less estrogen, ovulation becomes less predictable, which leads to changes in the menstrual cycle. People in the postmenopausal phase are at an increased risk for osteoporosis and heart disease due to low estrogen levels. In post-menopause, the ovaries produce very little estrogen.

2.2.1.2 Decreased progesterone production

Progesterone is produced after ovulation to prepare the uterine lining for a potential pregnancy. In perimenopause, ovulation occurs less frequently, which results in reduced progesterone production. The imbalance between estrogen and progesterone can contribute to irregular periods, as well as symptoms like heavy or prolonged menstrual periods. In post menopause phase, since ovulation is no longer occurring, there is no need for progesterone to support the uterine lining. The continued lack of progesterone can contribute to the persistence of certain menopausal symptoms and health risks such as osteoporosis, cardiovascular problems, and uterine overgrowth. Thus, managing progesterone levels during and after menopause is important for mitigating these symptoms and long-term health risks.

2.2.1.3 Increased follicle-stimulating hormone

Follicle-stimulating hormone (FSH) is a hormone that stimulates the ovaries to produce estrogen and is often elevated in perimenopause as the body attempts to

compensate for the decreasing estrogen levels. High FSH levels signal the body to continue attempting to stimulate the ovaries to produce more estrogen, although the ovaries are no longer capable of responding in post-menopause phase.

2.2.1.4 Testosterone fluctuations

Though primarily considered a male hormone, small amounts of testosterone are produced in women by the ovaries and adrenal glands. In menopause, testosterone levels can also fluctuate due to hormonal changes, which may contribute to changes in libido, mood, and energy levels. However, the impact of fluctuation may be temporary and vary among individuals.

2.3 Common menopausal symptoms

Many women experience a range of physical, emotional, and psychological symptoms that can vary in severity and duration due to hormonal fluctuation and decline. The hormonal shifts can give rise to a variety of common symptoms that can range from mild to severe, with each woman's experience being unique. Among the most prevalent symptoms are hot flashes, night sweats, irregular periods, mood swings, and vaginal dryness, which are all directly linked to the body's decreasing hormonal production. Additionally, other physical changes such as sleepless, weight gain, and decreased libido are common during this phase. The impact of menopause symptoms extends beyond just physical discomfort; many women also face emotional and psychological challenges, including anxiety and depression, due to the hormonal fluctuations. While some women experience little to no symptoms, others may find the changes which are challenging, making it important to understand the wide range of potential effects and how they can be managed. Through education, support, and proper medical guidance, women can better handle this stage, maintaining their overall well-being and quality of life during and after the menopausal transition. The following are common symptoms when approaching peri-menopausal to menopause stage:

2.3.1 Irregular periods

This stage is most commonly seen in the peri-menopausal stage, where women may experience heavy bleeding periods lasting more than 7 days, and a short interval between the previous cycle and the commencement of the next spotting. This is due to fluctuation of hormone levels primarily estrogen and progesterone leading to regular ovulation and menstrual bleeding in some women. Even with declining ovarian function, ovulation can still happen sporadically. When an egg is released and not

fertilized, the usual hormonal cascade leads to the shedding of the uterine lining and menstruation. The experience is highly individual whereby some women may have very regular periods throughout this phase, while others may experience significant irregularity or even prolonged periods without bleeding.

2.3.2 Hot flashes

These can be observed as an increase in skin temperature, rapid sweat, and increased heart rate while being in well-ventilated and air-conditioned areas. This is caused by a decrease in estrogen levels. This type of symptom is most common during the perimenopausal stage or just before the last few periods of a woman's cycle.

2.3.3 Insomnia

Night perspiration may irritate the skin, making it difficult to fall asleep again. The decline in hormones, particularly estrogen and progesterone, creates a cascade of effects that disrupt the intricate mechanisms of sleep. This, combined with other physical and psychological factors such as vasomotor symptoms including hot flashes and night sweats, hormonal fluctuations, changes in neurotransmitters, changes in mood and stress may leads to the common experience of insomnia during menopause.

2.3.4 Loss of bladder control

Due to a decrease in hormone levels, urine incontinence is frequent in menopausal women. Coughing, sneezing, or lifting something heavy can cause a leak of urine. A decline and fluctuation of estrogen and progesterone hormones tends to cause the vaginal and urethral tissues to dry up. This can result in recurring urinary tract infections and painful sexual intercourse.

2.3.5 Mood swings

Women in this stage may experience crankiness, anxiety, depression, and anxiousness due to low energy and insomnia. Other factors in this stage of life, such as stress, empty nesting, caring for elderly parents, and retirement, can also have a psychological impact.

2.3.6 Weight gain and metabolic changes

Weight gain is a common concern in post-menopause, especially around the abdomen. Lower levels of estrogen and a slowdown in metabolism contribute to this shift in body

composition. In addition, the loss of muscle mass that often occurs with aging further contributes to weight gain.

2.3.7 Cognitive changes

Some women experience subtle cognitive changes in post-menopause, including memory problems, difficulty to concentrate, and mental fog. The cognitive shifts are thought to be linked to the hormonal changes primarily estrogen and progesterone as well as aging processes, although women reported to improve over time.

2.3.8 Changes in skin and hair

The decrease in estrogen also impacts the skin, leading to thinning, dryness, and loss of elasticity. Collagen production, which is responsible for skin strength and firmness, also decreases. As a result, women may notice more wrinkles and sagging skin. Hair can also become thinner and more brittle, and some women may experience increased facial hair growth due to hormonal changes particularly estrogen and progesterone.

2.3.9 Vaginal dryness and atrophy

The ongoing decrease in estrogen production leads to thinning and drying of the vaginal tissues, a condition known as vaginal atrophy. This can result in vaginal dryness, itching, and discomfort during intercourse. The lack of estrogen can also affect the elasticity of the vaginal wall, contributing to vaginal prolapse or urinary incontinence.

2.3.10 Increased risk of osteoporosis

One of the most major health concerns for postmenopausal women is osteoporosis, a condition in which bones become brittle and fragile due to the loss of bone mass. Estrogen plays a protective role in maintaining bone density, so the drop in estrogen during menopause and post-menopause accelerates bone loss. Postmenopausal women are at higher risk of fractures, particularly in the hip, spine, and wrist.

2.3.11 Cardiovascular health risk

Postmenopausal women experience an increased risk of cardiovascular disease (CVD), largely due to the decrease in estrogen's protective effects on the heart and blood vessels. Estrogen helps maintain healthy cholesterol levels and promotes the dilation of blood vessels, which protects against high blood pressure. With the loss of estrogen, women are more susceptible to conditions like high blood pressure, elevated

cholesterol levels, and atherosclerosis, which increase the risk of heart disease and stroke.

2.3.12 Weight gain and metabolism changes

Weight gain especially around the abdomen is a common concern in post-menopause. Lower levels of estrogen and a slowdown in metabolism contribute to this shift in body composition. In addition, the loss of muscle mass that often occurs with aging further contributes to weight gain.

2.3.13 Mood changes and depression

While mood swings often diminish after menopause, some women may still experience depression, anxiety, or a general sense of emotional instability during post-menopause. Hormonal changes particularly estrogen and progesterone, along with lifestyle adjustments and aging, can contribute to the emotional changes.

2.4 Management of Menopausal symptoms

The management of menopausal symptoms involves a variety of approaches, from lifestyle modifications and natural remedies to medical interventions, depending on the severity and impact of symptoms on a woman's quality of life. The goal is to alleviate discomfort, prevent long-term health issues, and promote overall well-being. Below are key strategies for managing menopausal symptoms:

2.4.1 Hormone replacement therapy

One of the most widely used treatments for managing menopausal symptoms is hormone replacement therapy (HRT). It involves the administration of estrogen, and sometimes progesterone, to replace the hormones that the body is no longer producing in sufficient amounts. This therapy is particularly effective for managing common symptoms like hot flashes, night sweats, and vaginal dryness. It also plays a key role in preventing bone loss, reducing the risk of osteoporosis, and improving overall quality of life. However, HRT is not without its risks, as it has been associated with an increased risk of breast cancer, blood clots, and stroke, particularly for women with certain pre-existing conditions. Therefore, it is essential for women to consult their healthcare providers before opting for this treatment, ensuring that the benefits outweigh the potential risks.

2.4.2 Non-hormonal medication

Non-hormonal medications are important options for managing menopause symptoms, particularly for women who cannot or prefer not to use HRT. Non-hormonal medications provide relief from common symptoms of menopause, such as hot flashes, mood swings, and vaginal dryness, without involving hormone therapy. Non-hormonal treatments can be especially beneficial for women with a history of hormone-sensitive conditions, such as breast cancer, or those who are concerned about the risks associated with HRT.

Selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs), which are typically used as antidepressants, have been found to reduce the severity of hot flashes and improve mood. Other medications like gabapentin and clonidine can also help manage hot flashes. Additionally, ospemifene, a selective estrogen receptor modulator, is used to treat vaginal dryness and discomfort during intercourse, providing a solution without the systemic effects of estrogen.

2.4.3 Lifestyle modifications

Beyond medications, lifestyle modifications play an important role in managing menopausal symptoms. A well-balanced diet that includes plenty of fruits, vegetables, whole grains, and lean proteins can help maintain a healthy weight and promote overall health. Reducing intake of caffeine, alcohol, and spicy foods can alleviate symptoms like hot flashes and night sweats. Additionally, incorporating calcium and vitamin D into the diet is essential to support bone health, as postmenopausal women are at a higher risk of osteoporosis due to the decline in estrogen levels. Regular exercise is equally vital, as it helps manage weight, reduce the risk of cardiovascular diseases, and improve mood. Weight-bearing exercises such as walking, jogging, and strength training are particularly beneficial for maintaining bone density, while aerobic activities can boost cardiovascular health. Yoga and Pilates, in particular, can be useful for reducing stress and improving flexibility, both of which help manage menopausal symptoms.

2.4.4 Stress management

In addition to exercise, stress management is crucial during menopause. Practices such as meditation, deep-breathing exercises, and consciousness can help mitigate the emotional challenges associated with menopause, including anxiety and mood swings. Sleep regime is another important aspect; maintaining a regular sleep schedule,

avoiding heavy meals close to bedtime, and creating a cool, quiet sleep environment can help improve sleep quality, which is often disrupted by night sweats and insomnia.

2.4.5 Alternative therapies

In addition to conventional treatments, many women seek alternative therapies to manage their symptoms. Herbal supplements such as black cohosh, red clover, and evening primrose oil are commonly used to alleviate hot flashes, mood swings, and sleep disturbances. However, the scientific evidence supporting the effectiveness of these remedies is mixed, and women should consult with their healthcare provider before trying them, as some herbs may interact with other medications. Acupuncture is another alternative therapy that some studies suggest may help relieve hot flashes and improve mood. Additionally, phytoestrogens, plant-based compounds found in foods like soy, flaxseeds, and red clover, may mimic the effects of estrogen in the body, providing mild relief from menopausal symptoms.

2.4.6 Cognitive behavioral therapy

Cognitive behavioral therapy (CBT) is a therapeutic approach that has gained recognition for its effectiveness in managing mood swings, anxiety, depression, and stress associated with menopause. Cognitive behavioral therapy helps women change negative thought patterns and behaviors, improving their emotional well-being and coping strategies during this transitional phase. Research has shown that CBT can significantly reduce the severity of menopausal symptoms and improve quality of life.

2.4.7 Regular health check-ups

It is important for women to have regular health check-ups at least annually during menopause to monitor key health indicators. Bone health should be closely monitored; as postmenopausal women are at greater risk for osteoporosis. Bone density tests and calcium/vitamin D supplementation can help manage this risk. Cardiovascular health also requires attention, as estrogen helps protect against heart disease, and the decline in estrogen levels increases the risk of hypertension, high cholesterol, and atherosclerosis. Women should also continue regular breast cancer screenings, as breast health remains a concern post-menopause.

Additionally, for women experiencing vaginal dryness, which is common during menopause due to declining estrogen levels, several treatment options are available. Vaginal estrogen treatments in the form of creams, tablets, or rings can provide localized relief without the systemic risks of oral estrogen. Non-hormonal lubricants

and moisturizers from certified sources can also be helpful in reducing discomfort during sexual activity and improving vaginal health.

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CHAPTER THREE

3.0 The power of nutrition in Menopause

Nutrition plays a crucial role in managing the symptoms and long-term health challenges associated with menopause. Transitioning to menopausal stage of life, hormonal changes can lead to a variety of physical and emotional shifts, due to changes in metabolism leading to increased body fat, decreased muscle mass, changes in thyroid functioning, insulin resistance and decreased bone density. One of the most effective ways to manage hormonal changes is through proper nutrition. The right diet can help alleviate these symptoms, support bone health, reduce the risk of heart diseases, and improve overall well-being. A nutrient-dense diet rich in vitamins, minerals, and antioxidants provides essential support to the body during this phase, helping to reduce inflammation, support healthy weight management, and maintain overall vitality. Understanding the power of nutrition allows women to proactively manage their health and enjoy a more comfortable and healthy transition through menopause.

3.1 Essential nutrients for menopausal health

Menopause marks a significant transition in a woman's life, bringing with it a range of hormonal, physical, and emotional changes. The shift in hormone levels, particularly the decline in estrogen, can have wide-reaching effects on various aspects of a woman's health. During this phase, proper nutrition becomes more important than ever to support the body's changing needs and alleviate common symptoms associated with menopause. Consuming a diet rich in essential nutrients can help manage menopausal symptoms while reducing the risk of chronic conditions like heart diseases and osteoporosis. The following are some of the essential nutrients that play a crucial role in promoting menopausal health.

3.1.1 Calcium

One of the most important nutrients for managing menopausal symptoms is calcium, which is essential for maintaining bone health. Estrogen plays a vital role in bone density and as its levels drop during menopause, women become more susceptible to osteoporosis, a condition characterized by weakened bones. Calcium helps maintain bone strength and density, reducing the risk of fractures. For women in menopause, the recommended dietary allowance (RDA) for calcium increases to about 1,200 mg per day. Consumption of diets rich in calcium are highly recommended during this

period. Good dietary sources of calcium include dairy products like milk, yogurt, and cheese. Leafy green vegetables, such as kale and broccoli, and fish like salmon and sardines, are also excellent sources of calcium. In addition, to ensure RDA of calcium, one may opt supplementation of calcium pills from recommended sources.

3.1.2 Vitamin D

Vitamin D is another crucial nutrient for menopausal women, as it aids in calcium absorption and supports bone health. Vitamin D helps the body absorb calcium more efficiently, ensuring that bones remain strong. Additionally, vitamin D plays a crucial role in immune function, mood regulation, and cardiovascular health, all of which are important during menopause. It strengthens immune function by modulating immune cell activity and reducing inflammation, which is particularly important as menopausal women may experience increased inflammatory responses. Vitamin D aids in serotonin production, potentially mitigating mood swings and depressive symptoms often associated with hormonal shifts. Furthermore, it supports cardiovascular health by regulating blood pressure, promoting healthy endothelial function and contributing to calcium balance, all of which are vital for reducing the heightened cardiovascular risks post-menopause. Essentially, vitamin D's influence on immune, neurological, and cardiovascular systems makes it an essential nutrient for maintaining overall well-being during menopause. Normally, Vitamin D is produced by the body in response to sunlight, but as women age, their skin becomes less efficient to synthesizing it. Thus, it becomes even more important to obtain vitamin D through dietary sources. Foods like fatty fish (salmon), sardines, egg yolks, and fortified foods like cereals and milk are rich in vitamin D. In some cases, vitamin D supplements from recommended sources may be necessary, especially in areas with limited sunlight or for women who spend a lot of time indoors.

3.1.3 Magnesium

Magnesium is a vital mineral that plays numerous roles in the body, including regulating muscle and nerve function, supporting a healthy immune system, and maintaining strong bones. It is especially important during menopause because it helps alleviate symptoms like muscle cramps, headaches, and sleepless nights, which are commonly reported during this stage. Magnesium also helps regulate blood sugar levels, which can be helpful in managing weight gain associated with menopause. The RDA for magnesium in women over 50 years is about 320 mg per day. Foods rich in magnesium include green leafy greens vegetables (spinach), nuts and seeds (almonds,

sunflower seeds), legumes, whole grains, and fish. Magnesium supplementation from recommended sources may also be beneficial for women who struggle to meet their needs through diet alone.

3.1.4 Omega-3 Fatty Acids

Omega-3 fatty acids are essential fats that play a critical role in overall health, particularly in cardiovascular health and inflammation management. As estrogen levels decline during menopause, women are at an increased risk of developing cardiovascular disease, and omega-3s can help mitigate this risk by reducing inflammation and improving cholesterol levels. Omega-3 fatty acids also support brain function, which can be beneficial for women experiencing mood swings, anxiety, or memory issues during menopause. They have been shown to help reduce the frequency and intensity of hot flashes as well. The best sources of omega-3 are fatty fish such as salmon, and sardines, as well as plant-based sources like chia seeds, and walnuts. Omega-3 supplements, such as fish oil, are also an option for those who do not consume enough of these foods.

3.1.5 Fiber

A fiber-rich diet is essential for managing weight and digestive health during menopause. As hormonal changes, can lead to weight gain, particularly around the abdominal area, fiber helps by promoting feelings of fullness, regulating blood sugar levels, and supporting healthy digestion. Moreover, fiber plays a role in reducing the risk of heart disease, which is a growing concern as estrogen levels decrease. Foods high in fiber, such as whole grains, legumes (beans, lentils), fruits, (berries), and vegetables (pawpaw, carrots), can help manage cholesterol levels and improve bowel regularity. A diet rich in fiber can also help manage the mood swings and irritability that often accompany menopause. A fiber-rich diet can significantly stabilize mood during menopause by regulating blood sugar levels, supporting a healthy gut microbiome and potentially influencing hormonal balance. Fiber's ability to slow sugar absorption prevents mood-altering blood sugar spikes, while its prebiotic properties nourish gut bacteria that produce mood-regulating neurotransmitters like serotonin. Additionally, fiber may aid in estrogen regulation, mitigating hormonal fluctuations that contribute to mood swings. By promoting digestive regularity and reducing inflammation, fiber contributes to overall well-being and lessens irritability, making it a valuable dietary component for managing the emotional challenges of menopause.

3.1.6 Phytoestrogens

Phytoestrogens are plant-based compounds that have estrogen-like effects on the body. While not identical to the estrogen produced by the body, phytoestrogens can help balance hormone levels during menopause, reducing symptoms like hot flashes and night sweats. They are found in foods like soy, sesame seeds, and whole grains. Isoflavones, a type of phytoestrogen found in soy products, are particularly effective in imitating estrogen in the body and have been shown to reduce the severity of menopausal symptoms. Incorporating these foods into the diet can help women manage hormonal fluctuations during menopause naturally.

3.1.7 Antioxidants

Antioxidants are substances that help protect the body from oxidative stress by neutralizing free radicals (unstable molecules) that can cause damage to cells, proteins, and Deoxyribonucleic Acid (DNA). The antioxidants help protect cells from oxidative stress, which increases with age and can lead to chronic diseases such as heart disease, diabetes, and cancer. Antioxidants may play an important role in managing menopause symptoms, as they help reduce oxidative stress. During menopause, hormonal fluctuations can lead to an increase in free radicals and inflammation, contributing to symptoms like hot flashes, mood swings, and even long-term risks such as heart disease and osteoporosis. The antioxidant properties of certain vitamins and minerals, such as vitamin C, vitamin E, selenium, and beta-carotene, can also be beneficial during menopause. Vitamin C supports skin health, collagen production, and immune function, all of which may decline during menopause. Vitamin E, often associated with skin health, may help reduce hot flashes and improve overall skin appearance. Further, Selenium, found in foods like fish, and eggs, also plays a role in protecting against oxidative stress and supporting thyroid function, which can be affected during menopause.

3.1.8 Metabolism enhancers

During menopause, the body's metabolism naturally slows down due to hormonal changes, particularly a decline in estrogen levels. This can lead to weight gain, changes in fat distribution, and a decrease in overall energy levels. Metabolism enhancers play an important role in supporting the body's metabolic function during this time by helping to increase the rate at which the body burns calories and processes nutrients. Metabolism enhancers can help increase energy expenditure, potentially boosting energy levels and improving overall physical activity, which can further contribute to

maintaining a healthy weight. Some spices, like ginger, cayenne pepper, turmeric, cinnamon, cardamom, condiments, garlic and cloves may have thermogenic properties, meaning that they can slightly increase one's metabolic rate. Such spices could be added to your meals or drinks such as juice, smoothies or in tea.

3.2 The Relationship between diet and hormones

Diet plays a significant role in maintaining hormonal balance during menopause, proper nutrition can help manage symptoms, support long-term health, and reduce the risk of chronic diseases. Proper nutrition can help alleviate many of the symptoms associated with menopause, stabilize hormone levels, and reduce the risk of long-term health issues. Hormones are chemical messengers that regulate numerous bodily functions, including metabolism, mood, reproductive health, and immune function. During menopause, as estrogen and progesterone hormone levels decline, the body undergoes significant changes. Diet can influence hormone production, metabolism and the way the body responds to hormonal fluctuations. Certain foods can manage the effects of estrogen, promote hormone production and support the body's ability to detoxify and metabolize excess hormones. A balanced diet supplies the necessary nutrients to help manage menopausal symptoms and maintain the hormonal balance essential for women's health during this stage of life.

3.3 Creating a personalized meal plan for menopause

Navigating menopause can be challenging due to the hormonal fluctuations that impact various aspects of health, from weight management to mood swings and sleep disturbances. A personalized meal plan that addresses the unique needs of a woman during this stage can significantly ease menopausal symptoms, promote hormone balance, and support long-term health. A well-designed meal plan incorporates key nutrients like phytoestrogens, omega-3 fatty acids, fiber, and calcium, all of which are essential for maintaining overall well-being. Below is a guide for creating a personalized meal plan for menopause, ensuring that the dietary choices are tailored to support the individual's specific needs.

3.3.1 Key nutritional goals for menopause

Before diving into the meal plan, it's important to understand the key nutritional goals during menopause:

Hormonal balance: Foods that provide or support estrogen, such as phytoestrogens, can help manage symptoms like hot flashes and mood swings.

Bone health: Calcium and vitamin D are essential to prevent bone loss and osteoporosis.

Heart health: Omega-3 fatty acids and antioxidants help protect against heart disease, which is a greater risk after menopause.

Weight management: Fiber and lean proteins help maintain a healthy weight by promoting satiety and regulating blood sugar levels.

Mood regulation: Nutrients like magnesium, group B vitamins, and healthy fats support emotional well-being.

3.3.2 Dietary tips for menopause

Alongside a balanced and nutrient-rich diet, there are several additional dietary tips that can help manage common menopausal symptoms, improve overall well-being, and reduce the risk of long-term health problems. By making informed food choices and incorporating specific dietary habits, women can better support their bodies during this transformative stage of life. The following are important dietary tips to take into consideration;

Increase omega-3 fatty acids: Include more fish like tilapia, and sardines, which are common and rich in omega-3s. These fatty acids help manage hot flashes and support heart health.

Focus on whole grains: Swap refined grains like white rice and white flour for whole grains like millet, sorghum, or whole wheat. The grains are higher in fiber and nutrients, which help manage weight and blood sugar levels.

Incorporate leafy greens: Kale, spinach and collard greens are all rich in calcium, magnesium, and vitamin K, which support bone health. Aim to include these vegetables in soups, stews, and salads.

Manage salt intake: While salt is a common ingredient, it is important to limit excessive salt intake to avoid increasing blood pressure, especially as women may be at higher risk for heart disease after menopause.

Use healthy cooking oils: Opt for healthier oils like olive oil or coconut oil, which are rich in monounsaturated fats, rather than traditional cooking oils high in trans fats.

Hydration: Drinking plenty of water and incorporating hydrating foods like watermelon, cucumbers, and oranges helps maintain hydration and supports kidney function, which can be affected by hormonal changes.

Limit processed foods: Minimize the intake of refined sugars, trans fats and processed foods, as they can contribute to inflammation, weight gain, and insulin resistance, all of which are more common during menopause.

Control caffeine and alcohol intake: Excessive caffeine and alcohol can worsen hot flashes and disrupt sleep. Limiting the intake can help alleviate such symptoms.

Consider meal timing: Consider eating smaller, more frequent meals to help balance blood sugar levels and avoid overeating, which can contribute to weight gain.

Creating a personalized meal plan for menopause is essential for supporting hormone balance and overall health during this natural life transition. Focusing on nutrient-dense foods rich in phytoestrogens, omega-3 fatty acids, fiber, calcium, and antioxidants, can help women manage menopausal symptoms, reduce the risk of chronic health conditions, and promote long-term well-being. A thoughtful, well-balanced approach to nutrition can ease the challenges of menopause and empower women to embrace this phase of life with confidence and vitality.

3.3 Superfoods to prioritize during menopause

Nutrition plays important role in managing menopause-related symptoms and enhancing overall well-being during menopause stage. Incorporating nutrient-rich foods into the diet, can help to navigate menopause more comfortably and healthily. A variety of local superfoods can provide the essential nutrients needed to support women during menopause, these include but not limited to the following;

3.3.1 Moringa

One of the most potent superfoods available is moringa (*Moringa oleifera*), often hailed as a “miracle tree” for its remarkable high nutrient profile. Moringa leaves contain vitamins A, C, and E, which are crucial for maintaining skin health and reducing the signs of aging a common concern during menopause. Additionally, moringa is rich in calcium, potassium, and iron, which help in maintaining bone density and managing fatigue. The anti-inflammatory properties of moringa can alleviate common menopause-related symptoms, such as joint pain and swelling. Furthermore, moringa aids in balancing blood sugar levels and supporting digestive health, both of which are essential during menopause. Its leaves can be added to soups, stews, or salads, while moringa powder can be mixed into smoothies, making it a versatile and effective food for women during this phase. Figure 2 below is Moringa plant of which its leaves, flowers, roots and seeds have nutritional benefits not only to women in menopause but also everybody.



Figure 2: A picture of Moringa plant with flowers and dry seed

3.3.2 Baobab (*Adansonia digitata*)

Baobab tree, also known as the "Tree of Life," is an excellent source of vitamin C, which is vital for boosting the immune system, promoting collagen production, and maintaining youthful skin. Menopausal women often experience skin changes such as dryness and wrinkles, the antioxidants in baobab can help combat the effects. Baobab is also rich in fiber, aiding in digestion and helping to manage weight which is also an area of concern during menopause due to hormonal changes. High antioxidant content helps combat oxidative stress, which can accelerate the aging process. Additionally, baobab's high fiber content supports digestive health, which can be particularly helpful for women experiencing constipation or bloating due to hormonal changes. Baobab powder is often added to water, smoothies, or porridges to provide nutritional support during menopause. The figure 3 below (left) shows a baobab tree with its fruits and flowers where to the right is a dried baobab fruit with its powdery seeds whereby the powder is rich in vitamin C.



Figure 3: A baobab tree with its fruit and powdery seeds

3.3.3 Sorghum

Sorghum is high in fiber and supports digestive health, which is crucial during menopause when constipation and bloating is reported to be the major concern. This grain is also rich in iron, which helps in combating the fatigue often experienced during menopause. Sorghum's high antioxidant content helps reduce inflammation and oxidative stress, which can contribute to the development of chronic diseases such as heart disease and arthritis conditions that menopausal women are more susceptible to. Additionally, sorghum is gluten-free, making it a great alternative for those with gluten sensitivity or allergies. Sorghum can be cooked as a grain and used in place of rice or couscous. It can also be ground into flour and used to make gluten-free bread, pancakes, or porridge, providing a nutritious and versatile option for menopausal women. The figure 4 below shows red sorghum plant with its seeds although we also have white sorghum variety which is also beneficial.



Figure 4: A red sorghum plant with its seeds

3.3.4 Pumpkin and orange fleshed sweet potatoes

Pumpkin and orange fleshed sweet potatoes are both rich in vitamins A and C, which are essential for skin health. As women age, especially during menopause, skin tends to lose elasticity and moisture, leading to wrinkles and dryness. The beta-carotene found in pumpkin and sweet potatoes help to promote healthy skin and may reduce the aging appearance. Additionally, the antioxidants can help protect against oxidative stress, which accelerates aging and increasing vulnerability to chronic diseases such as type two diabetes, cardiovascular diseases, bones, joints diseases, and certain types of cancer, to mention a few.

Both pumpkin and orange fleshed sweet potatoes are also high in fiber, which supports digestion and helps manage weight gain, a common issue during menopause. Sweet potatoes, in particular, are rich in manganese, which is important for bone health. This is especially relevant for menopausal women, as the decline in estrogen levels can lead to a decrease in bone density, increasing the risk of osteoporosis. Pumpkin and sweet potatoes can be roasted, boiled, mashed, or added to soups and stews. They are versatile, nutrient-dense vegetables that can be enjoyed in a variety of ways. Figure 5 below showing a orange fleshed sweet potatoes (A), butternut (B) and pumping fruits (C) which rich in beta carotenes or pro-vitamin A.

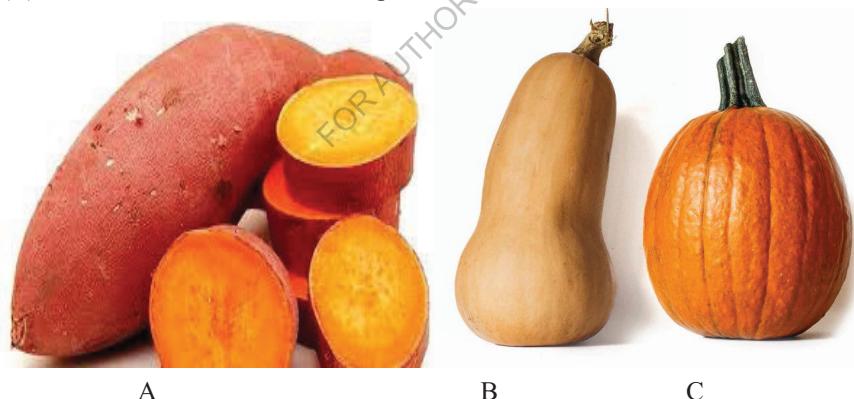


Figure 5: Orange fleshed sweet potatoes, butternut and pumpkin

3.3.5 Avocado and coconut

Avocado and coconut are both rich in healthy fats, particularly monounsaturated fats, which support heart health. Menopausal women are at a higher risk of developing cardiovascular disease problems due to a decline in estrogen levels, which can affect cholesterol levels and increase the risk of heart disease. The healthy fats in avocados help lower bad cholesterol and promote the production of good cholesterol, reducing the risk of heart disease. Furthermore, avocados are also high in vitamin E, a potent antioxidant that supports skin health and reduces the appearance of wrinkles and dryness. Coconuts, on the other hand, contain lauric acid, which has anti-inflammatory and antimicrobial properties, supporting immune function during menopause. Both avocados and coconuts can be consumed raw, added to salads, or used as a base for smoothies. Coconut oil is also a healthy cooking fat and can be used in a variety of dishes. Figure 6 below shows an avocado fruit which is rich in essential fatty acids and omega 3.



Figure 6: An avocado fruit

3.3.6 Pawpaw

Pawpaw is a tropical fruit that is rich in antioxidants like vitamin C and beta-carotene, which help protect the skin from damage and support collagen production. Menopausal women often experience skin changes due to decline in collagen production and pawpaw's antioxidant properties can help alleviate some of the effects by promoting skin health. Additionally, pawpaw contains the enzyme papain, which aids in digestion and helps alleviate bloating and constipation, which are the common issues during menopause. Pawpaw can be eaten fresh, blended into smoothies, or added to fruit salads for a refreshing and nutritious snack. The figure 5 below shows a pawpaw tree and its fruits.

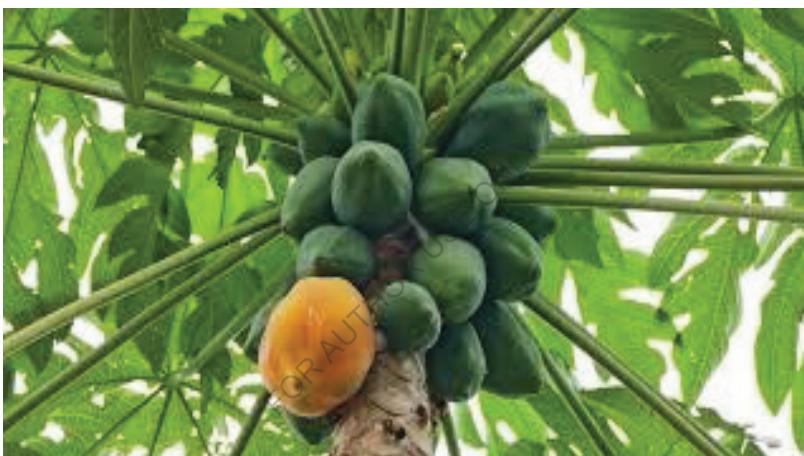


Figure 7: A pawpaw tree and its fruit

3.3.7 Green Leafy Vegetables

Green Leafy vegetables such as spinach, kale, and amaranth are rich in calcium and magnesium, which are crucial for maintaining bone health. Since menopause often leads to a decline in bone density, incorporating these greens into the diet can help mitigate the risk of osteoporosis. Additionally, these greens are high in iron and folate, which help maintain energy levels and combat fatigue. Spinach and couliflower are good example green leafy vegetables as shown in figure 8 below.



Figure 8: Green leafy vegetables

3.3.8 Honey

A natural sweetener commonly used in cuisine, is rich in antioxidants, anti-inflammatory compounds, and antimicrobial properties. Honey can help soothe the throat, improve sleep quality, and reduce inflammation. During menopause, when sleep disturbances and stress are common, honey can be a comforting in addition to spiced tea or used as a natural sweetener in various dishes. Figure 9 below shows bee honey in a glass pot.



Figure 9: A pot containing natural bee honey

3.3.9 Probiotic foods

Probiotics are live beneficial bacteria that play an increasingly recognized role in promoting health, especially during menopause. Probiotics play a crucial role in supporting women's health during menopause by promoting digestive health, balancing hormones and enhancing mood. Hormonal shifts during menopause often lead to digestive issues such as bloating and constipation, which probiotics can help alleviate by restoring balance to the gut microbiome. Probiotics also aid in improving nutrient absorption, particularly calcium and magnesium, which are vital for bone health. Additionally, beneficial bacteria can support immune function and even help regulate estrogen metabolism, potentially easing symptoms like hot flashes, irritability, and weight gain. As hormonal fluctuations can affect mood, probiotics have been linked to improved emotional well-being by influencing the gut-brain axis, which helps reduce symptoms of anxiety and depression during menopause. Figure 10 below shows foods rich in probiotics.



Figure 10: Probiotic rich foods including yoghurt and soy

Rich fermented foods such as fermented milk, yoghurt, kefir and fermented traditional staples that naturally offer the health benefits are desirable. Probiotic foods provide a natural source of live beneficial bacteria, which can improve gut health and boost the immune system, essential during menopause when women may be more susceptible to infections and hormonal imbalances. Incorporating local probiotic foods into the diet,

can enhance the overall health, support digestive function, and potentially reduce menopause-related symptoms, offering a simple yet powerful way to manage this life stage more comfortably. Table 1 below highlights some of the probiotics potential food sources and its primary functions during menopause.

Table 1: Essential bacteria from different food sources and its function

| S/N | Food Type | Bacteria Name | Its Function |
|-----|--|--|--|
| 1. | Yogurt (with live cultures), kefir, sauerkraut, kimchi, tempeh | Lactobacillus strains (e.g., L. rhamnosus, L. reuteri, L. acidophilus) | Vaginal health, gut health, may help with hot flashes |
| 2. | Yogurt (with live cultures), kefir, sauerkraut, kimchi, tempeh | Bifidobacterium strains (e.g., B. lactis, B. bifidum) | Gut health, immune function, mood regulation, metabolic health |
| 3. | Cranberry juice, pomegranate juice, grape juice (prebiotics that feed this bacteria) | Akkermansia muciniphila | Metabolic health, gut barrier function, weight management |
| 4. | Soybeans, soy milk, tofu, edamame (prebiotics that feed these bacteria) | Specific strains that produce equol (from daidzein) | May help with menopausal symptoms (e.g., hot flashes) |

3.4 Hydration and herbal remedies to support menopause

During menopause, women experience hormonal fluctuations that often lead to uncomfortable symptoms such as hot flashes, mood swings, night sweats, and vaginal dryness where by hydration and herbal remedies can offer powerful solutions. Natural herbs can ease menopause symptoms to support emotional balance, and promote overall health during this transition. Hydration, combined with the healing properties of native plants, offers a holistic approach to menopause management.

3.4.1 Hydration is essential for menopausal health

Adequate hydration is essential for women going through menopause, as the decrease in estrogen levels can lead to dryness in the skin and vaginal tissues, while hot flashes and night sweats increase fluid loss. Drinking enough water helps to maintain skin elasticity, regulate body temperature, and prevent dehydration, which is particularly important during the hot flashes that often accompany menopause. Local herbal teas, such as lemongrass and ginger tea, are commonly consumed to promote hydration and ease menopausal discomforts.

Lemon grass (*Cymbopogon citratus*), widely used in as herbal medicine, is known for its refreshing, cooling properties that can soothe hot flashes and help regulate body

temperature. The herb, rich in antioxidants, also aids digestion and promotes relaxation. Ginger, often consumed as part of tea or added to meals, it enhances hydration but also helps with digestive issues, bloating, and nausea that can arise during menopause. Both ginger and lemon grass can be infused in water to create soothing drinks that support hydration and help alleviate menopausal symptoms.

3.4.2 Herbal Remedies for Menopause

Several Tanzanian herbal remedies are specifically beneficial for menopausal women, offering natural ways to support hormonal balance, reduce inflammation, and manage emotional fluctuations. The herbs are deeply embedded in traditional Tanzanian healing practices, passed down through generations for their ability to nurture women's health.

3.4.2.4 Morinda (Morinda citrifolia)

Morinda (Noni), often referred to as the "Queen of Herbs," has a long history of use as a natural remedy for a variety of conditions. For menopausal women, Noni is valued for its anti-inflammatory and adaptogenic properties. It helps to reduce stress, support immune health, and improve sleep quality, all of which are commonly disrupted during menopause. Noni is also rich in antioxidants, which help combat oxidative stress and support skin and bone health. Noni juice or the powdered form of the fruit can be consumed to improve energy levels and combat the fatigue that often accompanies menopause. Figure 11 below shows a Morinda fruit.



Figure 11: A picture of Morinda fruit

3.4.2.1 Moringa (*Moringa oleifera*)

Moringa is often referred to as the "miracle tree" due to its incredible nutritional profile and health benefits. In Tanzania, moringa leaves are used in teas, soups, and salads to boost energy levels, improve digestion, and enhance overall well-being. For menopausal women, moringa's high content of vitamins A, C, and E supports skin health, reduces oxidative stress, and fights inflammation. Moringa also helps regulate blood sugar levels, which is beneficial since menopausal changes can sometimes lead to weight gain and insulin resistance. Furthermore, the high calcium content of moringa supports bone health, which becomes crucial as women age and estrogen levels decline. More information about this particular tree are stated in the superfoods section above.

3.4.2.2 Neem (*Azadirachta indica*)

Neem (mwarobaini) is a powerful herb used in traditional medicine to purify the body and restore balance. It has antimicrobial, anti-inflammatory, and detoxifying properties. During menopause, neem can help combat skin dryness and irritation by maintaining the skin's moisture balance and supporting the body's natural detoxification processes. Additionally, neem is known to improve circulation, which can be beneficial for menopausal women dealing with temperature regulation issues, including hot flashes. Consuming neem (figure 12) in tea form or applying neem oil to the skin can help reduce inflammation and soothe irritated skin during menopause.



Figure 12: A picture of neem tree

3.4.2.3 Mugwort (*Artemisia vulgaris*)

Mugwort (Mchunga), is a herb traditionally used to support women's reproductive health. It is believed to help balance hormones, which can be especially beneficial during menopause when estrogen levels fluctuate. Mugwort has mild estrogenic effects, which can help regulate menstrual cycles, ease hot flashes, and reduce night sweats. Mugwort is commonly consumed as a tea or used in tinctures to alleviate menopausal symptoms, and it may also help with mood swings and irritability by promoting emotional stability. Figure 13 below shows leaves of Mugwort tree.



Figure 13: A picture of Mugwort leaves

3.4.2.6 Sage (*Salvia officinalis*)

Sage, that is known locally as "Sage ya Afrika", is often used to relieve hot flashes and night sweats, two of the most common and uncomfortable symptoms of menopause. Sage has cooling properties that help regulate body temperature and reduce excessive sweating. It also has anti-inflammatory effects that can relieve joint pain and other menopausal discomforts. Drinking sage tea can help calm the nervous system, reduce anxiety, and improve sleep quality, which is often disrupted during menopause. Sage (figure 14) can also improve cognitive function and memory, which may be affected by hormonal changes.



Figure 14: A sage plant

3.4.2.7 Lemon Grass

Lemon grass (figure 15), is widely used herb, offers a wealth of benefits during menopause. Its soothing, calming properties make it ideal for reducing stress and anxiety, which are common during this life stage. Lemon grass is also known for its ability to aid digestion, alleviate bloating, and soothe an upset stomach symptom often exacerbated during menopause. Consuming lemon grass tea or adding fresh lemon grass to water helps with hydration, improves digestion, and promotes overall relaxation.



Figure 15: A lemon grass

Local herbs such offer powerful benefits, from balancing hormones and reducing hot flashes to improving skin health and boosting energy levels. The herbs not only provide relief from common menopausal symptoms but also promote overall wellness by supporting the immune system, digestion, and emotional balance.

3.4.2.8 Cloves (*Syzygium aromaticum*)

Cloves (figure 16) are recognized for various health benefits and could offer nutritional benefits that could indirectly support women during menopause. Cloves are rich in antioxidants, particularly eugenol. Antioxidants can help combat oxidative stress, which may be heightened during menopause and therefore contribute to overall well-being. Cloves contain manganese, which is essential for bone health. Maintaining bone density is crucial during menopause, as estrogen decline can increase the risk of osteoporosis. Furthermore, some people find the aroma of cloves to be calming, which may help with mood swings or anxiety sometimes experienced during menopause. It also has anti-inflammatory properties which help alleviate some discomforts associated with menopause.



Figure 16: A clove fruit

3.4.2.9 Turmeric (*Curcuma longa*)

Turmeric, and its active compound curcumin, have garnered attention for their potential health benefits, and this includes their possible effects on menopausal symptoms. It has inflammatory properties. While menopause can sometimes be associated with increased inflammation, curcumin's anti-inflammatory effects may help alleviate symptoms like joint pain and stiffness. Research suggests that curcumin may have positive effects on mood, which could be beneficial for women experiencing mood swings or depression during menopause. It also has antioxidant properties that may help protect against oxidative stress, which can contribute to various health issues during and after menopause. However, curcumin's bioavailability is relatively low, therefore combining turmeric with black pepper can significantly enhance its absorption. Note that despite the nutritional benefits of turmeric, it can interact with certain medications, such as blood thinners. Figure 17 below is fresh turmeric roots which is also rich in pro-vitamin A.



Figure 17: Turmeric roots

3.4.2.10 Ginger (*Zingiber officinale*)

Ginger (Figure 18) offers several potential nutritional benefits for women experiencing menopause. Some studies indicate that ginger may help reduce the frequency and severity of hot flashes which is a common menopausal symptom. It also contains compounds with anti-inflammatory effects, which can be beneficial for managing joint pain and muscle aches that some women experience during menopause. Ginger may have a positive impact on mood, potentially helping to alleviate mood swings and feelings of anxiety or depression. Ginger is well-known for its ability to ease nausea, which can be helpful if menopause-related hormonal changes cause digestive upset. Furthermore, some research suggests that ginger may have a positive effect on bone health, which is important during menopause as women are at increased risk of osteoporosis. It can also influence hormone levels, in ways that could be beneficial for menopausal symptoms. For example some studies are indicating that ginger can raise estrogen levels, and lower FSH levels. Ginger contain Gingerol which is the primary bioactive compound in ginger, responsible for its anti-inflammatory and antioxidant properties and also it is rich in antioxidants, which help protect cells from damage caused by free radicals.



Figure 18: Ginger roots

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CHAPTER FOUR

4. 0 Lifestyle Factors for Well-being during Menopause

Menopause, tends to bring about a cascade of hormonal shifts that can significantly impact a woman's overall well-being. While hormonal changes are the primary drivers, lifestyle choices also play a crucial role in how smoothly this transition is navigated and how vibrant and healthy the post-menopausal years can be. This chapter delves into the interconnected web of lifestyle factors that can either exacerbate menopausal symptoms or empower women to thrive during this phase of life. Before, we explore the specifics, it's important to understand that a holistic approach is key. Think of your well-being as a garden. Hormones are the soil, but lifestyle choices are the sunshine, water, and nutrients that allow the plants (your health and vitality) to flourish. Neglecting any of these elements can lead to wilting, while nurturing them all creates a thriving landscape. This chapter will examine several interconnected lifestyle factors, demonstrating how each contributes to a smoother menopausal transition and a healthier and happier life. We'll be looking at the importance of sleep and stress management, the role of exercises and physical activity in menopause, cultivating a healthy relationship with food, the role of supplements and alternative therapies and the importance of regular medical checkups.

4.1 The Importance of Sleep and Stress Management

Menopause often brings about a cascade of physical and emotional changes. Among these are sleep disturbances and heightened stress levels. Such symptoms and many others might be the result of the shared influences of biological, psychological, interpersonal factors, social context, and the dynamics between these domains. The symptoms also tend to vary according to the menopausal stage, perceived meaning of, and attitudes towards menopause, socio-economic and demographic characteristics, lifestyle behaviors, as well as individual roles and stressful life events. Prioritizing sleep and effective stress management techniques have been reported to improve overall well-being during this transitional phase.

4.1.1 Sleep during Menopause

Hormonal fluctuations during menopause can disrupt sleep patterns. Common sleep issues include hot flashes, night sweats and insomnia. Hot flashes which are characterized by sudden sensations of warmth may wake up an individual during the night and disrupt sleeping patterns. Furthermore, hot flashes associated with night

sweats tend to cause excessive sweating leading to sleepless nights. In addition, women in menopause may sometimes experience a condition known as insomnia which is mainly characterized by difficulties in falling asleep or staying asleep at night.

Having enough sleep during menopause is important. Studies recommend a sleep of at least eight hours per day not only for women in menopause but also for adults. However, the time may vary depending on a number of factors such as age and overall health of an individual. It is also suggested to establish a consistent sleep schedule i.e. being consistent in time to go to bed and waking up. In doing so, it will improve physical and mental health as well as cognitive function. Moreover, adequate sleep is essential for maintaining a healthy immune system, regulating metabolism, promoting physical recovery, controlling mood, being calm and confident all the time. Having enough sleep during menopause will also improve memory function, concentration and decision making which are likely to be affected by hormonal changes.

To ensure enough sleep during menopause, it is recommended to maintain consistent sleep times. This means going to bed and waking up at the same time each day, even on weekends. Further, create a relaxing bedtime routine by having a warm bath, reading books, or listening to calming music. Ensure the bedroom is dark, quiet, and cool, and avoid caffeine and alcohol before bed. Limit screen time before bed as well, as the blue light emitted from electronic devices can disrupt sleep.

4.1.2 Stress Management During Menopause

Stress plays an essential role in the development, continuation and exacerbation of mood problems throughout a woman's life. It exacerbates the body symptoms of menopause, increasing the risk of recurrence of mood disorders throughout the lifespan and specifically in the menopausal transition. Chronic stress may affect the overall function of pituitary gland and later may result into cardiovascular risk and negatively impact both physical and mental health. Menopause may be a stressful time due to hormonal changes, physical symptoms, and life transitions.

4.1.2.1 The importance of stress management during menopause

Emerging evidence supports a relationship between perceived stress and mood complaints during menopause. Women who are exposed to more stressful life events are more likely to experience stress and swing mood in menopause which could later lead to higher prevalence of depression. Stress during menopause could also lead into hot flashes, high blood pressure, heart disease, diabetes, weak immunity, inflammations and may also worsen other menopausal symptoms. The aforementioned

health conditions highlight the importance of controlling and managing stress during menopause. Below are some of the techniques for managing stress during menopause;

4.1.2.2 Stress management techniques

Mindfulness and meditation: Mindfulness and meditation are practices that may significantly contribute to stress reduction and mental calmness. Mindfulness involves paying attention to the present moment without judgment. This means consciously observing thoughts, feelings, and sensations without being caught up in them or dwelling on the past or future. By focusing on the present, mindfulness can help break the cycle of negative thought patterns that often contribute to stress and anxiety. It can also cultivate greater self-awareness, allowing to recognize and understand emotional and physical reactions to stress. On the other hand, meditation techniques, such as focusing on the deep breath can help quiet the mind, reduce mental chatter, and promote a sense of inner peace. Studies have shown that regular meditation practices can lower levels of stress hormones like cortisol, leading to a more relaxed and calm state. Meditation can also help to develop greater emotional awareness and improve ability to manage and regulate emotions effectively. Both techniques can enhance attention span and improve cognitive function, develop greater resilience to stress and better cope with challenging situations as well as promote better sleep quality and reduce insomnia.

Deep breathing exercises: Deep breathing can slow the heart rate and lower blood pressure and can have a profound impact on physiological responses to stress. Studies show that, a deep slow breath activates the parasympathetic nervous system, often called the "rest and digest" system. This system counteracts the "fight-or-flight" response triggered by the sympathetic nervous system during stress. Furthermore, when the parasympathetic nervous system is activated, it signals the heart to slow down, reducing the heart rate and ultimately regulating blood pressure by promoting the relaxation of blood vessels. In addition, when one is stressed, the body releases stress hormones like cortisol and adrenaline, therefore deep breathing can help to lower the levels of these hormones, calming the body and mind. A deep breathing exercise involves breathing into your abdomen, so your belly expands as you inhale. Avoid just expanding your chest. The breathing pattern is inhale for four counts, hold for seven, and exhale slowly for eight. The exercise could be repeated for several rounds depending on an individual's strength.

Social support: Connecting with friends, family, or support groups can provide emotional support and reduce feelings of isolation. Literatures show that sharing

experiences with others who understand what one is going through can provide invaluable emotional support. Furthermore, knowing that you are not alone in experiencing menopausal symptoms like hot flashes, mood swings, and sleep disturbances can significantly reduce feelings of isolation and loneliness. One should share experience with others as simply having someone to listen, offer empathy, and provide a shoulder to lean on can make a tremendous difference in navigating the emotional challenges of menopause. In addition, social interaction and support can help reduce stress levels, which can in turn alleviate some menopausal symptoms as well as provide a sense of belonging and purpose, which is crucial for mental well-being during this transitional phase. Social support during menopause may also improve self-esteem and coping mechanisms with the prevailing situation. Also, sharing with family particularly, spouse may offer practical support, such as helping with household chores, running errands, or providing childcare, which can free up time and reduce stress.

Sufficient Sleep: Ensuring adequate sleep is crucial for stress management. Sleep deprivation can increase stress hormone levels, making it more difficult to cope with daily stressors. Sleep plays a vital role in mood regulation. Lack of sleep can contribute to irritability, anxiety, and depression. Sufficient sleep is also essential for cognitive function, including memory, concentration, and decision-making, which can be affected by hormonal changes during menopause.

If one is struggling with sleep or stress despite trying the above mentioned self-care techniques, should consult healthcare professionals to help identify underlying causes and recommend appropriate treatment options. One should remember that prioritizing sleep and stress management during menopause is an investment in overall health and well-being. By taking proactive steps to address these challenges can navigate this transitional phase with greater ease and enjoy a better quality of life.

4.2 Exercise and Physical Activity

Menopause may also bring about a cascade of physical and emotional changes in majority of women. While menopause is a natural part of aging, exercise and physical activity can play a crucial role in mitigating the challenges and promoting overall well-being during this transitional phase. Some of the benefits of exercising during menopause such as walking, jogging, dancing, and weightlifting, can help to slow bone loss and reduce the risk of osteoporosis which is a common condition among postmenopausal women. It can also help maintain or increase muscle mass, balance, mobility, which declines with age. Regular exercising or engaging in physical

activities during menopause can help burn calories, build muscle mass, and maintain a healthy weight. Furthermore, it can improve heart health by lowering blood pressure, reducing cholesterol levels, and improving blood flow. In addition, it can help reduce stress, anxiety, and symptoms of depression, improve sleep quality and reduce the frequency and severity of hot flashes and night sweats which are common during menopause. To be fit during menopause, the following are some of proposed exercises or physical activities one can do;

4.2.1 Cardiovascular exercise: Aim for at least 150 minutes of moderate-intensity cardio per week, such as brisk walking, jogging, swimming, or cycling. Figure 19 below shows some of the workouts for ensure heart health.

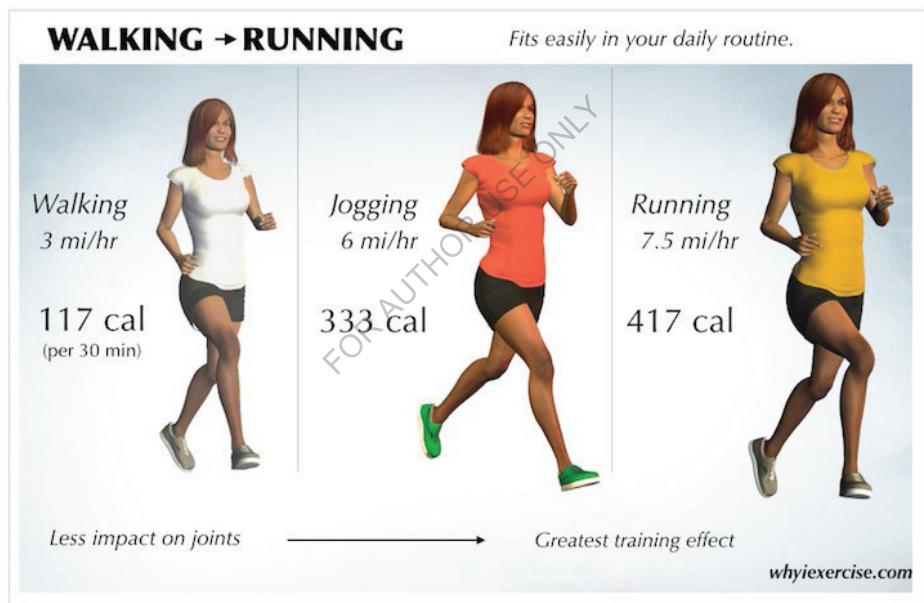


Figure 19: Example of cardiovascular exercises for normal functioning of the heart

4.2.2 Strength training: Include strength training exercises at least two times per week. This can involve lifting light weights, using resistance bands, or doing bodyweight exercises like squats and push-ups. Figure 20 below shows some of the strength training.



Figure 20: Example of strength training exercise for women in menopause

4.2.3 Flexibility and balance: Incorporate flexibility exercises like yoga or Pilates, as well as balance exercises, to improve stability and reduce the risk of falls. Figure 21 below shows examples of flexibility and balance exercises.

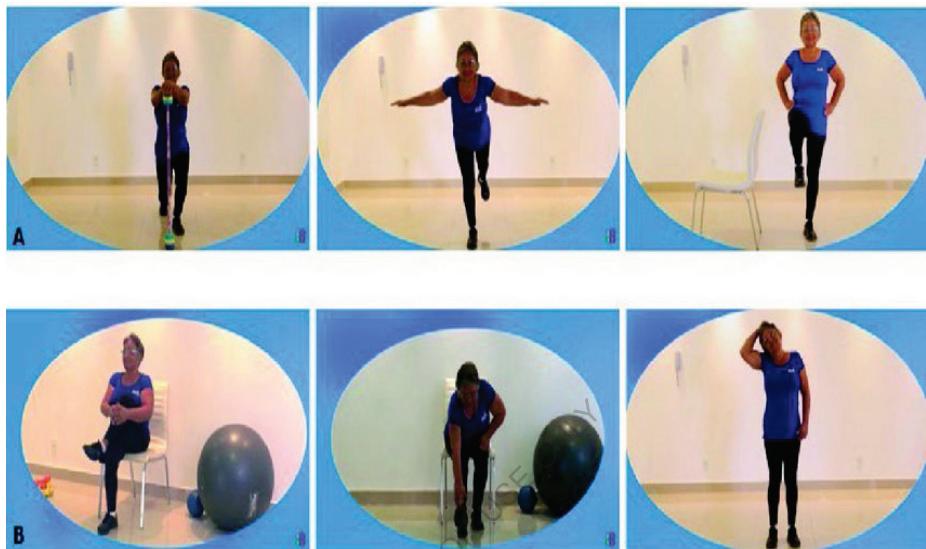


Figure 21: Example of recommended flexibility exercise to improve stability

Staying active doesn't mean exercising only but one can also engage into physical activities including gardening, cooking, laundry, household cleanliness, ironing, sweeping and other domestic activities. In case you're new to exercise, start with short sessions and gradually increase the duration and intensity. Don't push too hard, especially at the beginning, and rest when needed. Choose funny and motivating activities to help you stick with your routine.

4.3 The role of diet in managing menopausal symptoms

Several studies have found that nutrition is important in controlling hormonal imbalances. So, if one is in the peri-menopausal or menopausal stage, it is critical to begin thinking about how nutrition might help to reduce those symptoms and maintain hormonal health. A study of 400 menopausal women that was conducted by the National Center for Biotechnology Information on Dietary Patterns and their Association with Menopausal Symptoms discovered that eating a diet rich in fruits and vegetables daily helps to reduce aggressive menopausal symptoms. Likewise, a four-

year study done by Dunneram et al., 2018 in menopausal women indicated that a diet strong in oily fish, fresh legumes, and folate-rich foods helps to ease symptoms and age at natural menopause, whereas a diet rich in refined carbohydrate such as rice, pasta, and processed foods was reported to induce the beginning of menopause to occur earlier.

4.3.1 Healthy Eating during Menopause

Balanced Diet: Ensuring adequate nutrients intake i.e. a well-balanced diet provides the essential nutrients that the body needs to function optimally. Prioritize whole foods like fruits, vegetables, whole grains, lean protein, and healthy fats in the diet. Include calcium-rich foods (dairy, leafy greens) and vitamin D-rich foods (salmon, fortified foods) to support bone and joints health. Make sure that the daily meals foods are rich in nutrients, such as omega-3 fatty acids, magnesium, and B vitamins, which play a crucial role in mood regulation and can help alleviate symptoms of anxiety and depression. Ensuring a balanced diet will provide sustained energy throughout the day, reducing fatigue and improving overall energy levels. Figure below is an example of a healthy plate (figure 22) adopted from the Tanzania Food Based Dietary Guidelines of 2022 to guide the meals planning during this important phase.

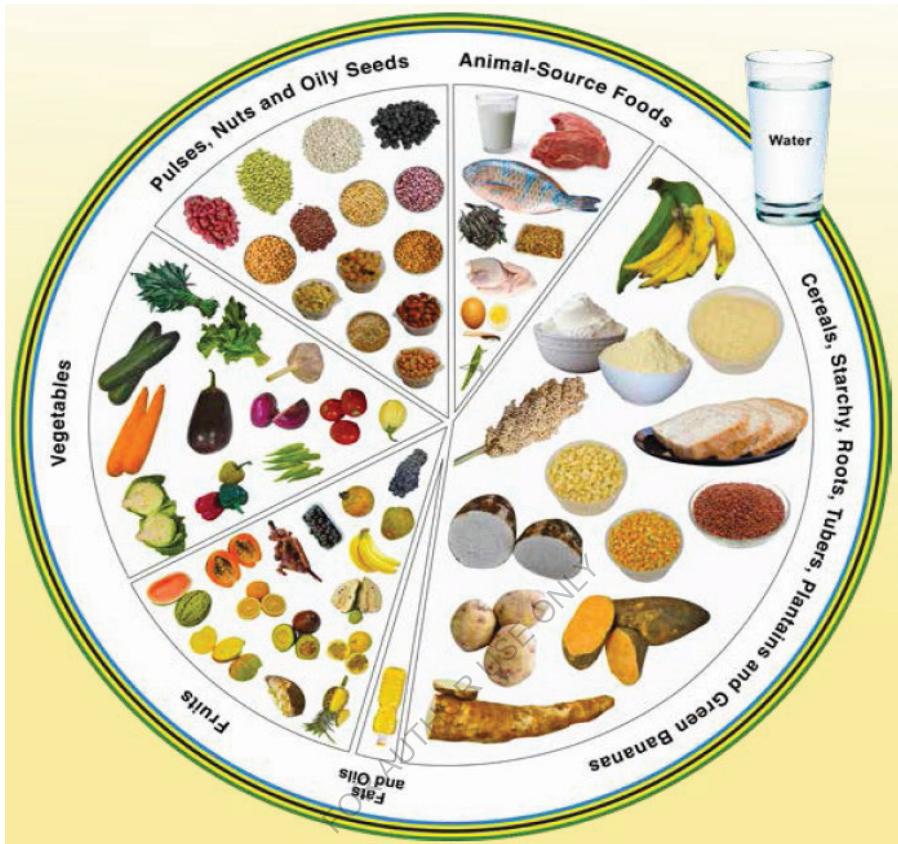


Figure 22: A healthy plate for a good healthy during menopause (Source, FBDGs, 2022)

In Tanzania Mainland, a healthy plate has been built based on the six food groups with main focus on the key nutrients that they supply to the diet and their contribution to a healthy life. The groups are (1) cereals, starchy roots, tubers, plantains and green bananas, (2) vegetables, (3) fruits, (4) pulses (legumes), nuts, and oily seeds, (5) animal-source foods, (6) healthy fats and oils. Women in menopause are encouraged to consider these six food groups daily when planning for their meals due to their nutritional value and the vital functions they play in the body. However, one is cautioned to take the sixth group of oils and fats in moderation because high intake of fats and oils can lead to adverse health outcomes. Below is a table 2 indicating the six food groups as per the National Food Based Dietary Guidelines for consideration during meals planning.

Table 2: Food groups for consideration during meals planning

| Food group | | Key nutrients | Examples of food items |
|------------|---|--|--|
| 1 | Cereals, starchy roots, tubers, plantains and green bananas | Carbohydrates, fibre, protein, fat, micronutrients (when eaten as whole-grain products cereals or in biofortified or fortified form) | Maize, wheat, rice, potatoes, sweet potatoes, green bananas, plantains, cassava, yams sorghum, millet, bulrush millet |
| 2 | Vegetables | Fibre, pro-vitamin A, vitamin C, vitamin B9 (folic acid/folate), vitamin B1 (thiamine), vitamin B3 (niacin), vitamin B6, vitamin K, potassium, phytochemicals, iron | Sweet potato leaves (matembele), cowpea leaves, cassava leaves, amaranth leaves (mchicha), okra, African eggplant (nyanyachungu), eggplant, nightshade (mnavu), spider plant (mgagani), pumpkin leaves, kale, moringa leaves and flowers |
| 3 | Fruits | Fibre, vitamin C, vitamin A, folate, potassium, phytochemicals, sugar | Mango, papaya, pineapple, watermelon, guava, orange, soursop, avocado, passion fruit, tamarind (ukwaju), baobab (ubuyu), banana, jackfruit |
| 4 | Pulses (legumes), nuts and seeds | Protein, carbohydrates, fibre, folate, B-group vitamins, vitamin E, copper, iron, zinc, phosphorus, magnesium, selenium, calcium, manganese, phytochemicals, healthy fats (nuts and seeds) | Dried kidney beans, soybeans, cowpeas, green gram, pigeon peas (mbaazi), chickpeas (dengu), bambara (njugumawe), peas (njegere), groundnuts, sunflower seeds, pumpkin seeds, cashew nuts |

| | | | |
|---|-----------------------------|---|--|
| 5 | Animal-source foods | Protein, fats, iron, vitamin A, B-vitamins, calcium, zinc, magnesium, phosphorous, selenium | Beef, mutton, goat, rabbit chicken, other poultry, mice, milk, fish, sardines, eggs, edible insects (kumbikumbi, senene) |
| 6 | Healthy fats/oils and Honey | Essential fatty acids, fat soluble vitamins | Plant oils from seeds (sunflower, simsim, groundnut), oils from fish |

4.3.2 Mindful Eating During Menopause

Menopause can also impact our relationship with food, leading to challenges like weight gain, emotional eating, and disordered eating patterns. Mindful eating offers a powerful approach to navigate these challenges and cultivating a healthier relationship with food. Mindful eating tends to encourage to slow down, savor meals, and develop a deeper connection with the foods to consume. It involves, paying attention to our senses when eating including noticing the colors, smells, textures, and flavors of the food; listening to hunger and fullness cues; eating without destructions such as avoiding screens and pay attention on eating as well as practicing self-compassion which include accepting our bodies and our relationship with food without judgment. Mindful eating can help women in menopause to make healthier food choices and avoid overeating, which can be particularly challenging during this period due to hormonal changes and metabolic shifts. It can help reduce stress, anxiety, and symptoms of depression, which are common during menopause. Studies suggest that mindful eating practices may help reduce the severity and frequency of hot flashes. Also the food we eat has a significant impact on our sleep quality. Eating a balanced diet with plenty of fruits, vegetables, and whole grains can help us fall asleep faster and sleep more soundly. On the other hand, consuming too much sugar, caffeine, or alcohol can interfere with our sleep patterns. It's also important to avoid eating large meals close to bedtime, as this can make it difficult to fall asleep.

4.4 Supplements and Alternative Therapies

While lifestyle modifications like diet, exercise, and stress management are crucial, some women may find additional support through supplements and alternative therapies such as natural therapies. However, it is crucial to consult with healthcare

providers before taking any supplement or alternative therapy, especially if one has any underlying health conditions or under any medication. Although there are massive number of supplements in the market, consumption of healthy diets coupled with natural products is highly recommended. Some of the common supplements for women in menopause include but not limited to the following;

Calcium and Vitamin D: These are essential for bone health and can help reduce the risk of osteoporosis, a common concern during menopause.

Vitamin E: Some studies suggest that vitamin E may help reduce the severity and frequency of hot flashes.

Phytoestrogens: These plant-based compounds, found in foods like soy and flaxseed, can mimic the effects of estrogen in the body. However, their effectiveness in managing menopausal symptoms is still under investigation.

Black Cohosh: This herbal supplement is traditionally used to relieve hot flashes and other menopausal symptoms. However, more research is needed to confirm its safety and effectiveness.

4.4.1 Important Issues to consider in choosing supplements

Before choosing or taking any supplement, make sure that it is from the reliable sources, medically proven and certified by the relevant authorities particularly Bureau of Standards. Note that, not all supplements are created equally, therefore choose high-quality supplements from reputable brands and be aware of potential side effects and drug interactions. Furthermore, be aware of the appropriate dosage and timing of supplements as they vary depending on individual needs and health conditions. In addition, know that what works for one woman may not work for another. Thus, it is essential to consult healthcare providers to determine the best approach for based on individuals' menopausal condition. In addition, supplements and alternative therapies may offer some relief from menopausal symptoms therefore, they should be considered alongside lifestyle modifications and in some cases, hormone replacement therapy. Lastly, supplements should not be taken to replace meals but rather to complement the meals taken.

4.5 The role of regular medical checkup

While menopause is a natural biological process, it brings about various physical and emotional changes that can impact overall health of a woman. Regular medical checkups during this phase are not just recommended, but crucial for maintaining optimal health and well-being.

4.5.1 The Importance of Regular Checkups

4.5.1.2 Early Detection and Prevention:

Menopause increases the risk of certain health conditions including Non Communicable Diseases (NCDs) like heart disease, osteoporosis, and type 2 diabetes. Regular checkups allow for early detection and proactive management of these conditions. Routine screenings for breast, cervical, and colorectal cancer are vital during and after menopause as early detection may significantly improve treatment outcomes.

4.5.1.3 Managing Menopausal Symptoms

Medical checkups provide an opportunity to discuss and manage menopausal symptoms like hot flashes, night sweats, mood swings, and vaginal dryness with health professionals and assess individual risks and benefits as well as guide through the decision-making process. Furthermore, regular checkups allow for open communication with health professionals about any mental health concerns including depression and anxiety which are very common during menopause. In addition, health professionals can provide guidance on maintaining a healthy lifestyle, including diet, exercise, and stress management techniques.

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CHAPTER FIVE

5. 0 Recipes for Radiant Health during Menopause

Menopause brings about significant hormonal shifts that can impact various aspects of a woman's health, including mood, energy levels, and bone density. While this is a natural transition, it is an opportunity to prioritize self-care and nourish the body with wholesome foods including wholegrains and fruits. This section offers some of delicious and nutritious recipes designed to support individuals during this phase of life. These recipes are carefully crafted and categorized to breakfast, lunch and dinner as follows;

5.1 Breakfast Options: Nourishing Mornings

Menopause brings about various physical and hormonal changes, including shifts in metabolism and energy levels. Starting the day with a nourishing breakfast can significantly impact the overall well-being during this transition. With this regards, it is therefore recommended to consider planning and preparing a well-balanced breakfast, taking into consideration the six food groups which are; cereals/whole grains, green bananas; plantains, roots and tubers; Animal food sources; legumes; vegetables; fruits as well as fats and oils; Here are some breakfast options to consider:

5.1.1 Cereal/whole grains based Porridge with Stewed Greens and Beans

This kind of breakfast is rich in fiber, vitamins such as vitamins B and its precursors, minerals such as magnesium, and iron as well as a good source of plant-based protein. Ingredients to be used are mixed whole cereals/grains flour such as millet, amaranths grains, spinach, kale, black beans, onions, garlic, ginger, turmeric, lemon, baobab powder, coconut milk or soya (optional). Cook the porridge as per normal procedures for cooking porridge. While the porridge is boiling, steam onions and garlic in a bit of vegetable oil. Add chopped greens and beans, and simmer until tender. Combine with cooked porridge and season with ginger or turmeric, then add small amount of coconut or soya milk. You may also add a pinch of baobab powder or lemon to enhance flavor. You may also have at least a slice of fresh fruits such as avocado.

5.1.2 Meat/Fish/Chicken Soup with potatoes or green bananas and leafy greens:

Irish potatoes and green bananas are rich in starch and fiber for energy and smooth digestion. Meat/Fish/Chicken provide protein with essential amino acids for body muscle repair and maintenance. Leafy greens in the soup offer vitamins and minerals

essential for bones and joints and immune system health. The ingredients for this particular recipes could be beef/fish/chicken meat, Irish potatoes/green bananas/yams, spinach, okra, bitter tomatoes, leeks, celery, green peppers and water. Instructions for cooking; boil the meat first meat with a pinch of salt, vegetable oil, ginger, garlic and leeks. Then add pilled Irish potatoes/green bananas, spinach, okra, bitter tomatoes, celery, green pepper with moderate amount of water until it is ready. This could be saved with any fresh fruits of choice.

5.1.3 Sweet potatoes with beans and amaranths/pumpkin leaves:

Sweet potatoes provide fiber and complex carbohydrates and therefore could not easily spike insulin during absorption process. Beans offer plant source protein which is good for muscles repair and maintenance. The selected vegetables add essential vitamins, minerals, and antioxidants which are good for immune system, general health of the body and wellbeing. The ingredients to be used are orange fleshed sweet potatoes, dry beans, onions, peppers, vegetable oil, spices, mixed greens, carrots, amaranths/pumpkin leaves. The recipe could be cooked starting with boiling the sweet potatoes with water until they are ready. Then boil dry beans and then add into spiced fried onions and greens, carrots in olive oil or any vegetable oil. Thereafter simmer the beans source after adding the amaranths/pumpkin leaves until its ready. Serve with a fruit of choice.

5.1. 4. Peanut Stew with Yams or Cassava

Peanuts provide protein and healthy fats which are essential for bones, muscle and skin health. Cassava offers fiber and complex carbohydrates which are good source of energy and also enhance digestion process. Yams are also a good source of potassium, manganese and copper for electrolyte balance in the blood as well as tissue and bone health. The ingredients to be used include peanuts, onions, tomatoes, carrots, green peppers, cassava/yams, water, spices (ginger, turmeric, black pepper). Start by blending peanuts with a little water to form a smooth paste. Sauté onions, carrots, and peppers then add peanut paste, water, and spices. Simmer until thickened. Serve with cooked cassava and grilled or fried yams.

5.1. 5. Fish Stew with Coconut Milk and Butternuts/pumpkins

Fish especially sea fish provides omega-3 fatty acids and coconut milk adds healthy fats. Butternuts/pumpkin offers complex carbohydrates, vitamins such as vitamin A and fiber. Ingredients to be used in this recipe are fish (e.g. salmon, tilapia), coconut

milk, butternut/pumpkin, tomatoes, onions, peppers, spices (ginger, garlic, turmeric). Start preparing the dish by frying onions and peppers in small amount of vegetable oil. Add fish, tomatoes, spices, and coconut milk. Simmer until fish is cooked thoroughly. Serve with steamed or boiled yam and at least two different types of fruits of choice. The above proposed recipes are just few examples and can be adjusted to suit individual tastes and dietary needs or based on foods available in the environment. Make sure that when proposing new recipes, consider including at least four food groups in the recipe. Use fresh, whole, high-quality ingredients whenever possible. Consider adding spices in moderation like ginger, turmeric, lemon, rosella, baobab powder or pepper to enhance flavor and provide additional health benefits. In addition, when choosing vegetables and fruits be aware of safety issues as some of the farmers are not faithful enough in supplying products which are free from pesticide residues and other contaminants which are proven to have health risks including certain types of cancer. In this case local and indigenous food products are best options as they don't need much of agricultural inputs including pesticides and therefore could be safer to use. While sourcing food from known farmers may reduce such risks, home gardening and small animal keeping are highly recommended to ensure availability of more safe foods in the households. Lastly, drink at least eight glasses of water per day to make sure that the body is hydrated all the time. This will include all fluids taken in the day such as juices, tea and soups.

5.2 Lunch Meals: Energizing Midday Meals

Menopause can bring about shifts in energy levels and metabolism. Choosing the right foods for lunch can provide a sustained energy boost and support the overall well-being. Here are some examples of energizing lunch recipes;

5.2.1 Chicken/Fish Soup with green banana/Irish potatoes/Cassava

Chicken/Fish Soup is rich in protein. Adding leafy greens like spinach, leeks and green pepper will provide vitamins and minerals essential for health. Green Banana is a starchy staple for provision of sustained energy and fiber as well. Remember, that the use of lean protein like fish or chicken is good for your health as they contain less cholesterol. To enhance flavor, consider adding fresh pepper, garlic and lemon.

5.2.2 Brown Rice/Whole maize mixed with beans Wheat Grains with Grilled Chicken and Salad

A flavorful brown rice with a balance of carbohydrates and fiber. Grilled Chicken is a good source of lean protein. Mixed vegetable salad provides vitamins, minerals, and fiber. Make sure to include a variety of vegetables in the salad, such as spinach, cucumber, tomatoes, leeks and celery.

5.2.3 Peanut Stew with Brown Rice/Plantains

Peanut Stew is rich in protein and healthy fats. Serving this dish with a variety of vegetables like carrots, onions, and tomatoes will ensure availability of essential vitamins, minerals and antioxidants. Brown rice will provide fiber and complex carbohydrates which cannot spike insulin as other carbohydrates do. Plantains are also a good source of potassium and other minerals useful in menopause like manganese and zinc. Add spices like ginger, garlic and turmeric for anti-inflammatory and antimicrobial benefits. Serve with a fruit of your choice.

5.2.4 Fish Stew with Coconut Milk and Yam

Fish especially deep sea fish are excellent source of omega-3 fatty acids, which may help reduce hot flashes, improve mood and heart health. Coconut Milk provides healthy fats and minerals. Yam is a good source of complex carbohydrates and fiber. Use lean fish like tilapia or salmon. Add a variety of vegetables like okra, tomatoes, carrots, bitter tomatoes, coriander and onions or leeks.

5.2.5 Stiff Porridge (Ugali) with Stewed Greens and Beans

Whole yellow maize flour mixed with millet are high in complex carbohydrate, fiber, magnesium, vitamins A and B, which can help regulate complications associated with menopause including mood and reduce hot flashes. Stewed Greens are rich in vitamins and minerals. Beans are good source of protein and fiber. Add spices like ginger and garlic to enhance flavor. Top with chopped nuts or seeds for added essential amino acids and fatty acids.

5.3 Dinner Delights: Satisfying Evening Eats

5.3.1 Stiff porridge/Ugali with Kales/Sweet potatoes leaves/nightshade and Nile Tilapia

Ugali provides complex carbohydrates and fiber for sustained energy and enhanced digestion. Local vegetables such as Kales, sweet potatoes leave, or nightshade are rich

in iron and calcium which is crucial for bone health. They are also rich in antioxidants which are essential to troubleshoot free radicles from the body and enhance immune functions. Nile Tilapia fish are excellent source of lean protein, important for maintaining muscle mass. Use low-fat cooking methods like grilling or steaming to allow smooth digestion and metabolism. Add spices like ginger and turmeric for anti-inflammatory benefits and flavor.

5.3.2 Peanut Stew with Brown Rice

Peanuts are good source of plant-based protein and healthy fats. Brown rice provides fiber and complex carbohydrates. Vegetables add vitamins, minerals, and antioxidants. Include a variety of vegetables like carrots, tomatoes, and onions. Use garlic, ginger and turmeric for enhanced flavor.

5.3.3 Amaranths grains mixed with Millet Porridge with Fruits and Nuts

Porridge made of amaranths grains and millet is high in protein, fiber and minerals such as magnesium, potassium and iron which can help regulate health complications during menopause including swing mood and reduce hot flashes. Fruits especially those with low sugar provides vitamins, minerals, and antioxidants essential for immune function. Nuts are good source of healthy fats and protein which are good for bones, muscles and skin health. Opt seasonal fruits like avocados, grapes, baobab or berries. Also choose nuts like almonds or groundnuts or cashew nuts or oyster nut “kweme”.

5.3.4 Grilled Local Chicken with Plantains and Steamed Vegetables

Grilled Chicken is a good source of lean protein which is essential of muscles health. Plantains are rich in potassium, which can help regulate blood pressure and hot flashes. Steamed vegetables provides vitamins, minerals, and fiber which are good for metabolism and immune function as well. Marinate chicken with herbs and spices like garlic, ginger, and lemon juice. Serve with a steamed vegetable like kale, spinach, broccoli or cauliflower.

5.3.5 Fish with Coconut Rice and Stewed Greens

Fish especially those found in deep sea such as kingfish and salmon are excellent source of omega-3 fatty acids, which are good for heart and skin health and may help reduce hot flashes and improve mood. Coconut milk provides a unique flavor and plant

based healthy fats. Stewed greens are rich in vitamins and minerals. Choose oily fish like salmon or mackerel. Use coconut milk for a creamy and flavorful rice dish.

Remember, remaining hydrated all the time is essential for overall body health and wellbeing, therefore drinking adequate amount of water as advised in the earlier chapter is important. Calcium and Vitamin D is essential for bones and muscles health, therefore remember to include dairy products, leafy greens, or fortified foods to ensure adequate calcium and vitamin D intake for bone health. Also, taking indigenous foods such as edible insects and small animals is also a good source of protein and essential fatty acids. These recipes therefore, are suggestions and may not be suitable for everyone. However, one may come up with her own recipes following the examples but with alternative ingredients. Lastly, consult with healthcare professionals, dietitians or nutritionists for personalized dietary advice.

5.4 Sweet Treats

While it is important to maintain a balanced diet, occasional treats can be enjoyed mindfully. Here are some tips for satisfying sweet tooth while navigating menopause:

5.4.1 Choose Wisely

Prioritize whole foods by opting naturally sweet treats like fruits (berries, grapes, mangoes) and honey. Limit processed sugars by minimizing consumption of sugary drinks such as juices, sodas, sweets. These can lead to blood sugar spikes and crashes, contributing to diabetes type 2, fatigue and mood swings. Likewise, limit salts and fats uptake by limiting consumption of ultra-processed foods and fried dishes such as spiced fried rice “, fried meat, French fries, sausage to mention a few.

5.4.2 Mindful Indulgence

Savor each bite by slowing down and truly appreciating the flavors and textures of the treat. Practice portion control such that you enjoy small portions of the favorite treats rather than overindulging and if it is a drink make sure to sip instead of gulping. Listen to the body while eating by paying attention to hunger and fullness cues and stop eating when feeling satisfied, not stuffed. Combine with healthy options by pairing sweet treat with a source of protein or fiber, such as a handful of nuts or a piece of fruit.

5.4.3 Healthy Sweet Treat Ideas

During menopause, managing blood sugar and cravings is key. Healthy sweet treats can satisfy those cravings without causing spikes and crashes. Consider options like

fruit mixed with yogurt (naturally sweet and protein-rich), chia seed pudding (made with plant-based milk such as soy or coconut milk and topped with berries), or homemade energy balls using nuts, seeds, and dates for natural sweetness and fiber. These options provide nutrients, fiber, and healthy fats, which can help stabilize blood sugar levels and manage menopausal symptoms. Remember portion control is also important, even with healthy treats.

5.5 The importance of Timely meals

During menopause, hormonal fluctuations can significantly impact a woman's metabolism, energy levels, and overall well-being. Eating at regular intervals throughout the day plays a crucial role in managing these changes and maintaining good health. Below are some of the reasons to why women in menopause should adhere with a fixed eating regime:

5.5.1 Stabilizes Blood Sugar Levels

Women in menopause face problems of hormonal shifts and imbalances. Estrogen for example plays a vital role in regulating blood sugar levels. During menopause, declining estrogen levels can disrupt this balance, leading to increased blood sugar fluctuations. Having consistent meals helps maintain stable blood sugar levels, preventing energy crashes, fatigue, and mood swings. In addition, prioritizing complex carbohydrates, lean protein, and healthy fats at each meal can further stabilize blood sugar levels during this particular moment.

5.5.2 Maintains Energy Levels

Declining estrogen levels can also contribute to decreased energy production and increased fatigue. Therefore, regular meals provide a steady supply of nutrients, preventing energy dips throughout the day. Furthermore, focusing on meals rich in iron, B vitamins, and vitamin C, which are essential for energy production is key.

5.5.3 Supports Weight Management

Menopause can lead to changes in metabolism, making it easier to gain weight. Regular meals can help regulate appetite and prevent overeating later in the day. Establishing a regular eating schedule promotes overall healthier eating habits.

5.5.4 Improves Mood and Sleep

Stable blood sugar levels are essential for mood regulation. Adequate nutrient intake, particularly B vitamins and magnesium, can help improve mood and reduce symptoms of anxiety and depression. Additionally, eating regular meals can also help improve sleep quality, which is often disrupted during menopause. It is advised not to skip meals as it can lead to increased hunger, making it more difficult to make healthy choices later.

Irregular mealtimes during menopause can significantly impact a woman's overall health and well-being. Firstly, skipping meals during menopause may lead into metabolic disruptions followed by wildly blood sugar levels fluctuation and even increased risk of type 2 diabetes. Irregular eating patterns can further disrupt hormonal balance, which is already delicate during menopause. This can exacerbate menopausal symptoms like hot flashes, night sweats, and mood swings. It can also lead to overeating later in the day, contributing to weight gain. Secondly, irregular meals may lead to energy fluctuations and latter can leave individual feeling tired, sluggish, and lacking energy throughout the day. Low blood sugar levels can make it difficult to focus and concentrate. It can also lead to mood swings, sleep disturbances, and other complications. Thirdly, irregular or skipping meals may sometimes lead to nutritional deficiencies and thus missed opportunities to consume essential nutrients like vitamins, minerals, and protein and negatively impact the bone health overall health. Fourthly, it could lead to increased risk of chronic diseases such as heart disease, type 2 diabetes, and osteoporosis. Fifthly, it could lead to weight management challenges. When one skips meals, is more likely to become excessively hungry later, leading to overeating and potentially unhealthy food choices. It can also slow down the metabolism, making it harder to burn calories adequately and maintain a healthy weight. Lastly, it may lead to mental health problems by increasing stress levels and contribute to anxiety and depression followed by difficult to focus and concentrate on tasks.

CHAPTER SIX

6. Embracing the Menopausal Journey

Menopause is frequently viewed as a negative experience, often masked in misinformation and stigma. However, it is increasingly recognized as a unique phase of life, offering opportunities for self-discovery, growth and empowerment. This exploration of "Embracing the Menopausal Journey" aims to shift the narrative surrounding menopause, moving away from fear and negativity towards a more positive and informed perspective. We will delve into the physiological changes, emotional fluctuations, and societal perceptions associated with this transition, while also highlighting strategies for managing symptoms, prioritizing well-being, and celebrating this new chapter. Ultimately, this discussion seeks to empower women to navigate menopause with knowledge, resilience, and a sense of self-acceptance, recognizing it not as an end, but as a transformative beginning. Below are some of the key issues to consider to stay positive;

6.1 Opting self-care and positive mind

Menopause, a natural biological process, can bring about a range of physical and emotional challenges. This can include hot flashes, night sweats, mood swings, and decreased energy levels. While these symptoms are common, they don't have to define this stage of life. Cultivating a positive mindset and prioritizing self-care can significantly improve the overall well-being during and after menopause. Below are some of the tips to help manage menopause challenges;

6.1.1 The Importance of Positive Thinking

During menopause, thoughts and beliefs significantly impact an individual's life experience. A positive mindset can help view challenges as opportunities for growth and learning, focus on positive aspects of life, and cultivate gratitude to manage stress. Positive thinking can improve mood and reduce feelings of anxiety and depression. Embracing this new chapter can enhance self-esteem, and celebrating accomplishments and strengths which is also beneficial. Several techniques can cultivate positivity, such as regular reflection on good things in life, identifying and challenging negative thought patterns, and practicing mindfulness techniques like meditation or deep breathing to stay grounded. Spending time with supportive friends and family, engaging in enjoyable activities, and listening to uplifting music can also contribute to a positive mindset.

6.1.2 Prioritizing Self-Care

An individual should focus on self-care physically, emotionally and spiritually by ensuring regular exercising, healthy diets, adequate sleep and also incorporating stress-reducing techniques like deep breathing, meditation, or progressive muscle relaxation in your daily routine. Spend time with loved ones, join a support group, or connect with other women going through menopause for experience sharing despite the fact that each may experience different challenges. Prefer perusing activities that bring joys and relaxation, such as reading, painting, or gardening. Learn to say "no" to commitments that drain energy such as weeding fund raisings, informal saving groups "Vikoba", jubilees, birthdays, lending money, to mention a few. If it happens that one is struggling with emotional challenges, consider seeking support from a therapist or counselor. Furthermore, reflect on what is important to and align actions with ones' values. If spirituality is important to explore practices like prayer, meditation, or spending time in nature such as going for a walk or hike, visiting a botanical garden, spending time at a beach or any water body, going in camping, having a picnic in a park to mention a few.

6.2 Building a Supportive Community

Menopause can be a challenging transition, both physically and emotionally. Building a strong support system can significantly improve the overall well-being during this time. Connect with friends and family to share experiences. Honest conversations can help one feel less isolated and provide valuable emotional support. Educate the loved ones about the physical and emotional changes associated with menopause. This can help them better understand and provide support. Prioritize spending quality time with loved ones. Engage in activities that you enjoy together, such as social gatherings, outings, or shared hobbies.

Consider joining local support groups for women experiencing menopause. These groups will provide a safe space to share experiences, learn coping strategies, and connect with others who understand what one is going through. Online forums and support groups may also provide valuable information and support from women across the globe.

Open Communication with colleagues if comfortable; discuss the experiences on menopause challenges. Advocate for workplace policies that support women experiencing menopause, such as flexible work arrangements, access to mental health services, and educational resources. By cultivating a strong support system, one can navigate the challenges of menopause with greater ease and confidence.

6.3 Post-Menopause Health

Post-menopause, which is the stage of life following menopause, brings unique health considerations. While some menopausal symptoms may subside, new challenges may arise. Here is a glimpse into the future:

6.3.1 Bone and Cardiovascular Health

During menopause and post-menopause, osteoporosis is likely to occur in women due to decline in estrogen hormone function. Estrogen plays a crucial role in bone density. After menopause, the decline in estrogen can significantly increase the risk of osteoporosis, a condition characterized by weak, brittle bones. To prevent such condition from occurring, weight-bearing exercises, increasing calcium and vitamin D intake (refer the previous chapter on menopause recipes), and healthy lifestyle choices are essential for maintaining bone health. Further, estrogen is essential for cardiovascular health. The decline in estrogen after menopause can increase the risk of cardiovascular diseases, such as heart disease and stroke. This could be exacerbated by conditions such as high blood pressure, high cholesterol, smoking, overweight and obesity. Maintaining a healthy diet, regular exercise, and managing risk NCDs factors such as overweight and obesity are crucial.

6.3.2 Urinary Tract and Mental Health

Changes in estrogen levels can affect the tissues of the urinary tract, increasing the risk of urinary incontinence (inability to control urine). Estrogen deficiency can lead to vaginal dryness, which can cause discomfort and impact sexual function. However, Kegel exercise which involves pelvic floor exercises can help strengthen muscles and improve urinary control. Furthermore, while some menopausal symptoms may subside, emotional challenges can persist. Changes in hormone levels can contribute to mood swings, anxiety, and depression. Some women may experience subtle changes in cognitive function, such as memory lapses. However, regular exercising including yoga and meditation as well as engaging in community group activities may help reduce the severity of the problem.

6.4 Importance of Medical Consultations

Menopause is a significant life transition accompanied by various physical and emotional changes. Regular medical consultations during this phase are crucial for a number of reasons; Menopause increases the risk of certain health conditions particularly Non Communicable Diseases (NCDs) like heart disease, osteoporosis, and

type 2 diabetes. Regular checkups allow for early detection and proactive management of these conditions. Routine screenings for breast, cervical, and colorectal cancer are vital during and after menopause. Early detection significantly improves treatment outcomes and may also prevent premature deaths. Consultations provide an opportunity to discuss and manage menopausal symptoms like hot flashes, night sweats, mood swings, and vaginal dryness. If considering hormone replacement therapies or supplementations, the doctor can assess individual risks and benefits and guide through the decision-making process. Menopause can also increase the risk of depression and anxiety. Regular checkups allow for open communication with the doctor about any mental health concerns. Further, the doctor can provide guidance on maintaining a healthy lifestyle, including diet, exercise, and stress management techniques.

During medical consultations, the doctor will review the individuals' medical history, including family history of certain diseases. This may be followed by physical examinations which include a breast exam, pelvic exam, blood pressure and weight checks. Laboratory tests may also be conducted depending on the age and risk factors, including blood tests to check for cholesterol, blood sugar, thyroid function, and bone density. Due to emerging of new diseases and advancement of technology on diseases management and prevention, individual s should stay up-to-date on recommended vaccinations for their health benefits. Furthermore, the doctor may provide personalized advice on diet, exercise, stress management, and other lifestyle modifications to improve health and the overall wellbeing. Generally, annual checkups are recommended for women during and after menopause. However, the doctor may recommend more frequent checkups based on individual health needs and risk factors. Prioritizing regular medical checkups, can proactively manage health, identify potential concerns early on, and enjoy a healthier and more fulfilling life during and after menopause.

CHAPTER SEVEN

7.0 Conclusion and Recommendations

This book has explored the complex role of nutrition in navigating the unique challenges and opportunities presented by menopause. Authors have examined the physiological changes that occur during this transitional phase and how they impact nutritional needs. From bone health and cardiovascular health to managing menopausal symptoms like hot flashes and mood swings, the examinations have been done on how dietary choices can significantly influence overall well-being. Therefore, this chapter synthesizes the key messages gathered throughout this book, conclusion and actionable recommendations for incorporating these principles into individual daily life.

7.1 Conclusion

Menopause marks a significant chapter in a woman's life. While it brings about hormonal shifts and a range of physical and emotional changes, it doesn't have to diminish the woman's quality of life. This book has explored the crucial role of nutrition in navigating this transition successfully. Through prioritization of healthy lifestyle behaviors such as balanced diet rich in fruits, vegetables, whole grains, and lean protein, a woman can effectively manage menopausal symptoms, maintain a healthy weight, and reduce the risk of chronic diseases. Remember that every woman's experience is unique, and there is no one-size-fits-all approach to nutrition during menopause. Furthermore, consult with the healthcare provider or a dietitian/nutritionist to create a personalized plan that addresses individual needs and concerns. Embrace this new chapter as an opportunity for growth and self-discovery. Prioritize self-care, cultivate a supportive community, and nourish the body and mind with the right foods. Taking proactive steps to prioritize one's health can embrace this new phase of life with confidence and vitality.

7.2 Recommendations

Nutrition is key to navigating menopause, therefore emphasizing on proper nutrition plays a vital role in managing menopausal symptoms and maintaining overall health during this life stage.

Prioritize nutrient-rich foods by focusing on whole foods such as fruits, vegetables, whole grains, lean protein, and healthy fats. Include calcium and vitamin D-rich foods for bone health and osteoporosis prevention, such as plant-based sources of calcium

(leafy greens, fortified plant-based milk) and vitamin D (mushrooms, fortified foods), and antioxidant-rich foods like berries and colorful vegetables to combat oxidative stress.

Manage weight and body composition by considering the impact of hormonal changes on metabolism and the importance of maintaining a healthy weight. Encourage regular meals, portion control, mindful eating practices, emphasize the importance of physical activity for weight management, muscle mass maintenance, and overall health.

Address specific nutritional concerns. For example, consider the potential role of phytoestrogens (found in soy, flaxseeds, and legumes) in reducing hot flash severity. Emphasize the importance of a balanced diet and ensure adequate protein intake. Highlight the role of certain nutrients (magnesium, B vitamins) in supporting mood and sleep quality. Stress the importance of adequate fluid intake throughout the day to enhance skin health and blood circulation.

Emphasize the importance of personalized nutrition through individualized approaches as nutritional needs vary from one woman to another. Do not forget to consult a dietitian/nutritionist for personalized advice based on their individual health needs and preferences.

Integrate nutrition with other lifestyle factors by emphasizing the importance of combining healthy eating with regular exercise, stress management techniques, and adequate sleep for optimal well-being during and after menopause.

Consider taking food supplements as a last option with dietary and healthy lifestyle options be the first in managing your menopausal symptoms.

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