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Authors	Johnston, Katie;Ryan, Aoife;Cushen, Samantha
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Nutrition for Female Menopausal Cancer Survivors: Developing Ireland's First Resource

Katie Johnston[1,2,*], Aoife Ryan[1,2], and Samantha Cushen[1, 2]

[1] *School of Food and Nutritional Sciences, University College Cork, Ireland.*

[2] *UCC Cancer Trials Group, Cancer Research @UCC, College of Medicine and Health, University College Cork, Ireland.*

[*] *Corresponding author: kjohnston@ucc.ie*

At a Glance

Women diagnosed with a hormone-receptor positive (HR+) breast or gynaecological cancer are not routinely prescribed hormone replacement therapy to alleviate menopausal symptoms due to the risk of causing cancer recurrence. Many of these women use herbal or botanical supplements, diet and lifestyle interventions to provide relief. Through an extensive literature review, national focus groups with menopausal female cancer survivors, consultation with an established public and patient involvement panel, and the creation of a national review panel of medical and healthcare professionals, Ireland's first evidence-based resource is in development for female menopausal cancer survivors.

Keywords: Oncology, Cancer survivorship, Body composition, Diet and menopause, Patient resource development, Symptom management

The Menopause

The menopause is a transitionary time in a woman's (assigned female at birth) life, where her ovaries naturally lose their function and gradually stop producing hormones: oestrogen, progesterone and testosterone. When the body stops producing these hormones, a woman's period stops. A woman is classed as being "menopausal" when she has had no consecutive periods for 12 months. The declining oestrogen in the body causes many symptoms, physical and non-physical. These symptoms include hot flashes (or flushes), urinary frequency, vaginal dryness, changes to body composition, and changes in cognitive function. The use of a hormone replacement therapy may be used to help alleviate some of these symptoms.

Menopause may occur earlier for women who have been diagnosed with cancer. It is im-

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portant that menopausal status is determined at the time of diagnosis as this can determine what treatment a patient is eligible for. Women can transition to the menopause early due to chemotherapy, brachytherapy (internal radiotherapy) to the cervix or ovaries, surgery to have their ovaries removed (bilateral oophorectomy), radiotherapy to the pelvic area, or endocrine therapy for hormone-receptor positive breast cancer or gynaecological cancer. This transition can cause severe and traumatic symptoms that can be difficult for patients to manage, including changes in body composition and vasomotor symptoms, such as hot flashes. A female cancer survivor is classed as menopausal following the cessation of periods for two years, including one year post treatment.[1]

Considerations in Hormone Receptor Positive Breast and Gynaecological Cancers

Women who are diagnosed with a hormone-receptor positive breast and gynaecological cancer are commonly prescribed an endocrine therapy as an adjuvant therapy, such as a selective-oestrogen-receptor-modulator [SERM] (tamoxifen) or an aromatase inhibitor [AI] (Anastrazole, Exemestane). An adjuvant therapy is given after the main treatment, such as chemotherapy or radiotherapy, to reduce the risk of cancer recurrence. Women who are prescribed a SERM are typically pre-menopausal and women who are prescribed an AI are typically peri- or post-menopausal. These drugs work to suppress the hormones, namely oestrogen, in certain parts of the body.

There are side effects associated with these adjuvant endocrine therapies. For example, aromatase inhibitors are commonly associated with weight gain as they suppress oestrogen production not just in the ovaries, but in other parts of the body. Many of these side effects are similar to those experienced during the menopause due to the suppression of oestrogen.

Women diagnosed with a hormone receptor positive (HR+) breast or gynaecological cancer are not routinely prescribed hormone replacement therapy for alleviation of menopausal symptoms, due to the risk of causing cancer recurrence. In turn, many of these women use herbal or botanical supplements, diet and lifestyle interventions in the attempt to provide relief of these symptoms.

Currently, there is a large information gap for the use of herbal or botanical supplements in alleviating menopausal symptoms. This is due to the lack of research available, not only for these ingredients, but also in cancer cohorts. The herbal and botanical market is unregulated, which means that the dose, preparation, and part of the herb or botanical ingredient used differs vastly from one product to the next. This variation is a further barrier to research conducted into safety and efficacy of their use.

Body Composition Changes during the Menopause following Cancer Treatment

Accelerated skeletal muscle loss during the natural menopause has been researched previously and linked to declining oestrogen levels.[2] Oestrogen plays a role in the structure of musculoskeletal tissues, including muscles and ligaments. Furthermore, it has been suggested that oestrogen may take part in muscle metabolism due to the oestrogen receptors found on skeletal muscle tissues.[3] A declining muscle mass, regardless of body weight, has been proven to have negative outcomes for cancer patients, and is suggested as a predictor for recurrence. Further research needs to be conducted to explore the effect that aromatase inhibitors or selective-oestrogen-receptor-modulators have on skeletal muscle mass in cancer survivors.

Women will experience a decline in oestradiol and increases in follicle-stimulating hormone during the menopause. The changes to these hormones influence several physiological functions including energy expenditure, appetite, and insulin resistance.[4] The changes and their influence in turn cause an increased accumulation of body fat and increased central adiposity.

The decline in oestrogen during the menopause has an effect on bone density mass and therefore increases the risk of osteoporosis. The loss of bone density mass is due to an increased bone turnover where the body has more bone resorption compared to bone formation. The decline of bone density mass is accelerated by the use of an adjuvant endocrine therapy in breast and gynaecological cancers, particularly aromatase inhibitors. In early postmenopausal females, bone density mass loss occurs at 2% per year, settling to 1% per year in late postmenopausal females.[5] Females who are prescribed an aromatase inhibitor may experience a bone density mass loss of 2.6% per year.[5] Therefore, osteoporosis is a concerning risk in this cohort of women.

The basal metabolic rate (BMR) describes the number of calories that human beings require to perform basic life-sustaining functions. The metabolic rate of skeletal muscle mass is three times higher than the rate of adipose tissue mass.[3] Therefore if you have, for example, a high muscle mass, you will require a greater number of calories compared to someone who is the same weight as you with a smaller muscle mass.

During treatment for cancer, such as chemotherapy, the loss of muscle mass can occur. This has been well-researched. Furthermore, as we age, the loss of skeletal muscle mass may also occur. This loss of muscle mass may cause a decline in our BMR and, therefore, the calories that we require.

Additionally, oestrogen plays a role in maintaining metabolic rate and body composition. As oestrogen levels decline during menopause, it is hypothesised that this could potentially lead to a reduction in BMR. This shift in metabolism can contribute to weight changes and alterations in body composition for some women during this life stage.

From clinical experience, many menopausal women are not well-informed about the decrease in muscle mass that typically occurs during this life stage nor changes in BMR. Conse-

quently, they may not be aware of the associated risk of weight gain resulting from exceeding their energy needs and the hormonal fluctuations that occur during menopause.

Developing Ireland's First Resource

The Irish Cancer Society's Women's Health Initiative Survivorship Clinic: LYSA (Linking You with Support and Advice) Trial opened in Cork University Hospital in March 2021, with a second satellite centre in University Hospital Galway opening in 2022.[6] This clinical trial aims to assess the feasibility of a nurse-led clinic with a dietetic intervention component for females diagnosed with early-stage hormone-receptor positive breast cancer or gynaecological cancer post curative therapy. The females (n=200) enrolled in the study complete symptom surveys through electronic patient reported outcomes every two months over the course of one year.

The electronic patient reported outcomes incorporate symptoms, such as vaginal dryness, joint pain, urinary frequency, decreased libido, bowel habits and dietetic assessments including body weight and the malnutrition screening tool. The surveys are transformed into a trigger list, allo symptoms. The females are provided with one-to-one personalised nutritional counselling over the duration of the trial period. The clinical research dietitian discovered a clinical need for an evidence-based resource on diet and nutrition to manage menopausal symptoms in this cohort of females, who have very specific needs. The resource is being funded by the Irish Cancer Society as an output of the LYSA Trial.

Firstly, a literature review was conducted to identify nutrition, diet, and menopause resources readily available to the public, and there was no single resource that was dedicated or safe to use for the specific needs of female menopausal cancer survivors diagnosed with a HR+ breast or gynaecological cancer.

Following the literature review, a review panel was developed led by two CORU registered dietitians encompassing a consultant medical oncologist, a specialist registrar in gynaecological oncology, a pharmacist with a specialist interest in herbal and botanical supplements, two oncology clinical nurse specialists, a psycho-oncologist, and a clinical nurse specialist in complex menopause. The use of a broad range of medical and allied health professionals will ensure that the resource produced is evidence-based, accurate, and patient-centred. The review panel provides feedback on the contents of chapters, focusing namely on their own clinical specialist area.

The LYSA Patient and Public Involvement (PPI) panel were consulted at the infancy of this project for input on the resource's layout and contents. The PPI panel members are those who have a lived experience of cancer. The PPI panel are consulted at regular intervals throughout the project to ensure that the resource is patient-focused and accessible for its intended audience.

"What Women Want" Focus Groups

A qualitative investigation was conducted across Ireland through the School of Food and Nu-

tritional Sciences (UCC) in March 2023. It assessed the burden of menopausal symptoms in female cancer survivors and explored the nutritional information needs of this cohort and their preferred mode of delivery. These focus groups have informed the development of the resource.

Four major themes emerged from participants (n=16). The first theme was control, "information as power", and the desire to take control over their own health. This theme has been previously identified in post-menopausal cancer survivors through qualitative studies in the UK and Ireland[7].[8] The second theme emerging was the use of alternative medicines, including herbal and botanical supplements, for symptom relief. The third theme to emerge was females feeling lost during their survivorship and confused about their diet. The fourth and final theme that emerged was the timing and information needs of nutrition interventions, with females wanting a dietitian to deliver information surrounding diet.

The qualitative investigation concluded that this cohort of females desires a menopause specific nutrition resource that is evidence-based and tailored to the specific needs of cancer survivors. The "What Women Want" focus groups highlight that for this cohort of women, knowledge is power; therefore, it was important that tools are provided for females to decipher fact from fiction.

Developing the Resource

The resource is currently under development and the project aims for completion by late 2023, with publication in early 2024.

The resource is divided into two parts: "troubleshooting symptoms" and "eating and drinking during menopause". The first part of the book focuses on the main symptoms of the menopause: "the menopause", "vasomotor symptoms", "gut, uro-gynaecological and vulvovaginal symptoms", "cognitive symptoms", "body composition changes", "heart health" and "safe supplements". Each chapter is based on an extensive literature review of current guidelines and nutritional practices that are linked to each symptom. Each symptom is broken down into further sub-sections including a description of the symptom, why it occurs, what foods to include in your diet to help alleviate symptoms, and what supplement ingredients to look for and what supplement ingredients to avoid.

The second part of the book focuses on practical dietary advice and recommendations, including recipes for breakfast, lunch, dinner and dessert, snack-plate recipes, store-cupboard essentials and a meal planning template. Each recipe will be developed by CORU Registered Dietitians and analysed through Nutritics Nutritional Analysis Software.

Supplement Research

An extensive literature review of vitamin, mineral, herbal, and botanical supplements is ongoing. At the time of submission, 198 individual supplements specifically targeted to menopausal women were identified, as well as 263 individual ingredients. Many herbal and botanical supplements are not regulated and have differing dosages and preparation; therefore, consulta-

tion with a pharmacist has been imperative to ensure the information provided is accurate and evidence-based.

There is no current research on supplement use in female cancer survivors in Ireland. In order to improve and develop current evidence-based information available to female cancer survivors, Dr Samantha Cushen and Katie Johnston, from the Clinical Nutrition and Oncology Research Group, are conducting a national supplement survey in Ireland targeting female cancer survivors and their current use of herbal and botanical supplements.

Summary

The impact of the menopause following a cancer diagnosis can have a negative impact on a female's whole person, including their body composition, heart health, cognitive function and, importantly, their quality of life. Females diagnosed with a HR+ cancer have specific needs secondary to the use of an endocrine therapy. The development of Ireland's first evidence-based resource, funded through the Irish Cancer Society, for menopausal female cancer survivors on nutrition and symptom management hopes to close the gap of unmet nutrition-specific needs in this cohort and work to improve disease-free survival and quality of life.

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Declaration of Interests

Nothing to declare.

Author Bio

Katie Johnston is the clinical cancer research dietitian for the UCC Cancer Trials Group, currently working on two ICS funded trials: the LYSA and LIAM Mc trial. Katie is undertaking a PhD under the supervision of Dr Samantha Cushen and Professor Aoife Ryan in the Clinical Nutrition and Oncology Research Group, School of Food and Nutritional Sciences. Her research focuses on the nutrition specific needs of cancer survivors and the impact of body composition on longer-term cancer recurrence and survival, including the use of novel body composition techniques.

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